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I na kraju, pozivam sve kolegice i kolege na aktivnu suradnju s kvalitetnim prilozima. Sve to u cilju stalnog usavršavanja naše kirurgije, a na dobrobit zdravlja naših bolesnika.

Glavni i odgovorni urednik
Prof. dr. sc. Ante Petričević

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Treba jasno navesti planiranu populaciju istraživanja, kriterije za uključivanje i isključivanje iz studije, planirane skupine i podskupine i drugo.

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Abstract

Abstract should be structured of not more than 250 words. The abstract should include (at least) four headings: *Aim*. State explicitly and specifically the purpose of the study. *Methods*. Concisely and systematically list the basic procedures, selection of study subjects or laboratory animals, methods of observation and analysis. Avoid listing of common or irrelevant methods; enable the reader to fathom the essence of your procedure(s) and methods. *Results*. List your basic results without any introduction. Only essential statistical significances should be added in brackets. *Conclusion*. List your conclusions in a short, clear and simple manner. State only those conclusions that stem directly from the results shown in the paper. Rather than summarizing the data, conclude from them.

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List the tests used for statistical analyses. Relate each test to a particular data analysis. This should be repeated in the Results section. Tables should not contain only statistical test results. Statistical significances should be shown along with the data in the text, as well as in tables and figures. Provide exact p-values, with three decimal places.

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A clinical study as conducted should include: (a) inclusive dates of accrual of study population; (b) sample size achieved; (c) how many subjects were excluded or withdrew, and the reasons; (d) demographic and clinical characteristics of the study population, including controls; and (e) how the study as conducted deviated from the study as planned, and the reasons (e.g., compliance). Study findings should include: (a) estimates of treatment effects, stated as comparisons among treatment groups (e.g., differences in risks, rates or means of outcome measures, as well as exact p-values; (b) measures of precision for outcome measures and for estimates of treatment effects (confidence intervals, standard errors); (c) summary data and appropiate descriptive statistics; (d) complications of treatment; and (e) repository where original data can be obtained (e.g., principal investigator). Key rules for writing the Results section are: (a) the text should be understandable without referring to the respective tables and figures, and *vice versa;* (b) however, the text should not simply repeat the data contained in the tables and figures; and (c) the text and data in tables and figures should be related to the statements in the text by means of reference marks. Thus, it is recommendable to describe the main findings in the text, and refer the reader to the tables and figures, implying that details are shown there. Information on significance and other statistical data should preferably be given in the tables and figures.

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Acknowledgments

Technical help, critical reviews of the manuscript and financial or other sponsorship may be acknowledged.

References

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Virginia Law Foundation. The medical and legal implications of AIDS. Charlottesville (VI):
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Weinstein L, Swartz MN. Pathologic properties of invading microorganisms. In: Sodeman WA Jr, Sodeman WA, editors. Pathologic physiology: mechanisms of disease. Philadelphia (PA): Saunders; 1974. p. 457-72.

Supplement (to the volume):

Gale RP. Nuclear terrorism. Croat Med J 1992; 33 War suppl 2:3-5.

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CDI, clinical dermatology illustrated [monograph on CD-ROM]. Reeves JRT, Maibach H. CMEA Multimedia Group, producers. 2nd ed. Version 2.0 San Diego (CA): CMEA; 1995. *Computer life:* Hemodynamics III: the ups and downs of hemodynamics [computer program]. Version 2.2. Orlando (FL, USA): Computerized Educational Systems; 1993. Reporting Randomized Controlled Trials

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OSOBITOSTI KARCINOMA ŽELUCA U BOLESNIKA STARIJE ŽIVOTNE DOBI
CHARACTERISTICS OF GASTRIC CANCER IN THE AGED

Matija Horžić, Mario Kopljar, Kristijan Ćupurdija

SAŽETAK

Zahvaćenost limfnih čvorova tumorom jedan je od glavnih čimbenika koji utječu na preživljenje bolesnika s karcinomom želuca. Prema 5. izdanju međunarodne klasifikacije uznapredovalosti karcinoma želuca iz 1997. godine, za određivanje N stadija uznapredovalosti potrebno je odstraniti barem 16 limfnih čvorova. Poznato je međutim da veličina i broj limfnih čvorova u pojedinim anatomskim regijama ovise o konstitucijskim obilježjima bolesnika, poglavito o dobi. Nije, međutim, poznato postoji li povezanost dobi bolesnika i broja limfnih čvorova koji se standardnim kirurškim i patohistološkim metodama nalaze u reseciranim preparatima i na koji način bi to moglo utjecati na određivanje stadija uznapredovalosti tumora. U studiju je uključeno 40 bolesnika s adenokarcinomom želuca kod kojih je učinjena potencijalno kurativna resekcija želuca u razdoblju 2000.- 2002. godine. Rezultati provedenog istraživanja pokazali su da je broj odstranjenih limfnih čvorova veći kod bolesnika u dobi 65 godina i mlađih (prosječno 16,6) u odnosu na bolesnike starije od 65 godina (prosječno 14,2). Nađena je statistički značajna negativna korelacija između dobi bolesnika i broja izoliranih limfnih čvorova, te negativna korelacija između dobi bolesnika i promjera izoliranih limfnih čvorova. Rezultati ove studije ukazuju na potrebu posebne pažnje kod određivanja statusa zahvaćenih limfnih čvorova kod bolesnika s karcinomom želuca.

Ključne riječi: *neoplazme želuca; kirurgija; dob; metastaze*

SUMMARY

Lymphatic metastases represent one of the most important factors influencing survival in patients with gastric cancer. According to the 5th revision of the international staging of gastric cancer brought in 1997, for accurate determination of nodal status at least 16 nodes need to be examined. It is known that the number and size of lymph nodes depend on anatomical region as well as constitutional characteristics of patients, especially age. However, it is not known if there is association between patient age and the number and status of lymph nodes that are harvested and examined using standard techniques and possible influence on tumor staging. This study comprised 40 patients with gastric adenocarcinoma in whom potentially curative resection was performed between 2000 and 2003. Results of this study show that the number of harvested lymph nodes is greater in patients 65 years of age and younger (16.6 lymph nodes on average) compared to patients older than 65 years (14.2 lymph nodes on average). There was statistically significant correlation between patient age and the number of harvested lymph nodes as well as negative correlation between patient age and lymph node size. Results of this study indicate the need for attention when determining nodal status of patients with gastric cancer.

Key words: *gastric neoplasms; surgery; age; metastases*

UVOD

Karcinomi želuca predstavljaju značajan medicinsko-kirurški i socijalni problem. Karcinom želuca je kod muškaraca na 4 mjestu, a kod žena na 5 mjestu među svim karcinomima. Pojavnost bolesti je najčešća u dobi oko 60 god. (1). Svake godine se u svijetu preko 600 000 ljudi umire od posljedica te bolesti koja je sada drugi primarni uzrok smrti povezan s karcinomima u svijetu (2). Kirurško liječenje predstavlja jedini način koji pruža mogućnost za eventualno izlječenje (1). Pri tome treba naglasiti da dob bolesnika, koja je nekada bila limitirajući faktor, danas više ne predstavlja kontraindikaciju za kirurško liječenje (3).

Jedan od glavnih čimbenika koji utječu na preživljenje je zahvaćenost limfnih čvorova tumorom (4). Danas, međutim u svijetu ne postoji jedinstven stav o potrebnom opsegu limfadenektomije kod potencijalno kurativnih resekcija želuca u svrhu liječenja karcinoma (5). Do sada objavljene randomizirane studije pokazale su nešto veće preživljenje nakon D2 limfadenektomije, ali bez uvijek jasne statističke značajnosti u odnosu na D1

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limfadenektomiju (5). S druge strane proširene, tj. D2 ili D3 limfadenektomije povezane su s znatno većom stopom komplikacija (6), što posebno do izražaja dolazi kod bolesnika starije životne dobi.
Prema 5. izdanju međunarodne klasifikacije uznapredovalosti karcinoma želuca iz 1997. godine, za određivanje N stadija uznapredovalosti potrebno je odstraniti barem 16 limfnih čvorova (7).
Poznato da veličina i broj limfnih čvorova u pojedinim anatomskim regijama ovise o konstitucijskim obilježjima bolesnika, poglavito o dobi i spolu (8-10). Nije, međutim, poznato postoji li povezanost dobi bolesnika i broja limfnih čvorova koji se standardnim kirurškim i patohistološkim metodama nalaze u reseciranim preparatima i na koji način bi to moglo utjecati na određivanje stadija uznapredovalosti tumora.
Cilj ove studije je analizirati kliničke i patohistološke značajke karcinoma želuca ovisno o životnoj dobi bolesnika.

BOLESNICI I METODE

U studiju je uključeno 40 bolesnika s adenokarcinomom želuca kod kojih je učinjena potencijalno kurativna resekcija želuca u razdoblju 2000.- 2002. godine. Analizom su obuhvaćeni dob, spol, najveći promjer tumora, debljina tumora, histološki tip po Laurenu (difuzni, intestinalni i miješani oblik), makroskopski izgled tumora po Borrmanu, stupanj uznapredovalosti prema TNM klasifikaciji, promjer najvećeg izoliranog limfnog čvora te posebno ukupni broj izoliranih i tumorom zahvaćenih limfnih čvorova. Od ukupnog broja bolesnika bilo je 27 muškaraca i 13 žena, prosječna dob iznosila je 62,7 godina (SD ± 9,47). Bolesnici su prema životnoj dobi podijeljeni na one od 65 godina ili mlađe (N=24) odnosno starije (N=16) od 65 godina.
Kod svih bolesnika učinjena je D2 limfadenektomija, ovisno o lokalizaciji tumora. Prosječan broj izoliranih limfnih čvorova iznosio je 15,6 (SD ± 5,36). Prema Laurenovoj klasifikaciji, u ovoj studiji bilo je 16 karcinoma intestinalnog tipa, 14 difuznog, a u 10 bolesnika radilo se o miješanom ili nediferenciranom tipu.
Analiza je provedena upotrebom neparametrijskih statističkih metoda. Usporedbe među grupama vršene su pomoću Mann-Whitney testa, a korelacije među kvantitativnim varijablama Spearmanovom korelacijom rangova. Učestalosti pojedinih obilježja uspoređene su Fischerovim testom. Vrijednosti $p<0,05$ smatrane su statistički značajnima.

REZULTATI

U mlađih od 65 godina bilo je 15 muškaraca i 9 žena, a u starijih od 65 godina 12 muškaraca i 4 žene. Nije nađena statistički značajna razlika u ove dvije grupe bolesnika s obzirom na spol (p=0,318).
U skupini bolesnika do 65 godina, kod 10 bolesnika radilo se o difuznom, kod 9 o intestinalnom, a kod 5 o miješanom tipu karcinoma. U skupini bolesnika starijih od 65 godina 4 bolesnika imali su difuzni, 7 intestinalni te 5 miješani tip karcinoma (p=0,317).
U skupini mlađih od 65 godina prosječni promjer tumora iznosio je 5,54 cm (2-12 cm), a debljina 1,8 cm (1-2,5 cm).
U skupini starijih od 65 godina prosječni promjer tumora iznosio je 7,13 cm (3-16 cm), a debljina 2,42 cm (0,5-6 cm).
U skupini mlađih od 65 godina, prosječno je odstranjeno 16,6 limfnih čvorova (8-26). Prosječan broj tumorom zahvaćenih limfnih čvorova iznosio je 6,6 (0-25). Prosječna veličina najvećeg izoliranog limfnog čvora bila je 1,4 cm (0,5-2,2 cm). Postotak zahvaćenosti limfnih čvorova tumorom (omjer broja tumorom zahvaćenih i ukupnog broja izoliranih limfnih čvorova) iznosio je prosječno 40,6% (0-100).
U skupini starijih od 65 godina, prosječno je odstranjeno 14,2 limfna čvora (5-24). Prosječan broj tumorom zahvaćenih limfnih čvorova iznosio je 6,4 (0-20). Prosječna veličina najvećeg izoliranog limfnog čvora bila je 0,98 cm (0,3-3 cm). Postotak zahvaćenosti limfnih čvorova tumorom iznosio je prosječno 44,7% (0-100).
Usporedbom navedenih obilježja nisu nađene statistički značajne razlike između ove dvije dobne skupine (tablica 1).
Analizom korelacije dobi te promjera i debljine tumora, broja izoliranih limfnih čvorova, tumorom zahvaćenih limfnih čvorova i veličine najvećeg limfnog čvora nađena je statistički značajna negativna korelacija između dobi i ukupnog broja izoliranih limfnih čvorova (p=0,031) (tablica 2).
U grupi bolesnika dobi od 65 godina i mlađih, nađena je statistički značajna pozitivna korelacija između dobi i promjera tumora (p=0,027) te između dobi i postotka zahvaćenosti limfnih čvorova (p=0,041) (tablica 3).
U grupi starijih od 65 godina, nađena je statistički značajna negativna korelacija između dobi i debljine tumora (p=0,008) (tablica 4).

RASPRAVA

Karcinom želuca drugi je po učestalosti uzrok smrti od zloćudnih bolesti u svijetu i predstavlja značajni zdravstveni i ekonomski problem (1, 2). Kirurško liječenje danas predstavlja jedini terapijski pristup koji pruža šansu za izlječenje (1). Još početkom prošlog stoljeća postalo je jasno da kirurgija zloćudne bolesti ne bi trebala biti samo kirurgija tumorom zahvaćenih organa, već da se odstranjivanjem regionalnih limfnih čvorova ujedno odstranjuju i postojeće metastaze i prekidaju

putovi limfne drenaže, čime se može umanjiti mogućnost daljnjeg rasapa bolesti. Međutim, opsežne limfadenektomije povezane su često s većom učestalosti komplikacija (11).

Danas u svijetu ne postoji jedinstveni stav o najpogodnijem opsegu limfadenektomije kod bolesnika s karcinomom želuca (5, 11). Djelomično su razlog tome i različiti klasifikacijski sustavi određivanja stupnja uznapredovalosti karcinoma želuca, koji mogu otežati uspoređivanje rezultata liječenja u raznim centrima (4, 12). Godine 1997. donesena je 5. revizija TNM klasifikacije stupnja uznapredolavlosti tumora prema kojoj se stadij tumora određuje i prema broju pozitivnih limfnih čvorova (4, 7). Obzirom da se N3 stadij definira kao tumor s preko 15 zahvaćenih regionalnim limfnih čvorova, proizlazi da je za točno klasificiranje uzbaredovalosti karcinoma želuca potrebno kirurški odstraniti i histološki pregledato najmanje 16 limfnih čvorova.

Poznato je da broj i veličina limfnih čvorova u pojedinim anatomskim regijama pokazuju izrazitu varijabilnost, poglavito ovisno o dobi i spolu 8(-10). Prema nekim autorima, analizom na anatomskim preparatima je pokazano da se broj perigastričnih limfnih čvorova povećava s dobi, dok se veličina limfnih čvorova smanjuje (9). Postoje, međutim, i suprotna zapažanja, prema kojima se broj limfnih čvorova s dobi smanjuje uz porast veličine (13). Ultrazvučnim pregledima pojedinih anatomskih regija ustanovljeno je da je broj limfnih čvorova znatno veći kod zdravih ispitanika mlađe životne dobi (20-39 godina), a da se s porastom životne dobi broj limfnih čvorova koji se mogu prikazati značajno smanjuje (10). Također, u istoj studiji je pokazano da je u dobnoj grupi 20-39 godina veličina limfnih čvorova manja u odnosu na veličinu limfnih čvorova zdravih ispitanika starijih od 40 godina (10).

Rezultati provedenog istraživanja pokazali su da je broj odstranjenih limfnih čvorova veći kod bolesnika u dobi 65 godina i mlađih (prosječno 16,6) u odnosu na bolesnike starije od 65 godina (prosječno 14,2) (tablica 1). Premda, obzirom na broj bolesnika uključenih u studiju, ova razlika nije statistički značajna, analizom korelacije dobi bolesnika s brojem izoliranih limfnih čvorova pokazana je statistički značajna negativna korelacija (r=-0,35, p=0,031).

Kada su rezultati analizirani posebno u dvije dobne grupe, nađena je kod bolesnika do 65 godina starosti granično statistički značajna negativna korelacija između dobi bolesnika i broja izoliranih limfnih čvoro-

Tablica 1. Usporedba pojedinih obilježja primarnog tumora i opsega limfadenektomije u grupama bolesnika od 65 godina i mlađih te onih starijih od 65 godina

	Dob ≤ 65 godina					Dob > 65 godina					
	Mean	Median	Min	Max	SD	Mean	Median	Min	Max	SD	p
Promjer tumora (cm)	5.54	4.00	2.0	12.0	2.96	7.13	6.00	3.0	16.0	4.02	**0.257**
Debljina tumora (cm)	1.83	2.00	1.0	2.5	0.53	2.42	2.10	0.5	6.0	1.46	**0.307**
Broj izoliranih l.č.	16.59	16.50	8.0	26.0	5.00	14.19	13.50	5.0	24.0	5.68	**0.231**
Broj zahvaćenih l.č. tumorom	6.57	4.00	0.0	25.0	7.10	6.38	5.50	0.0	20.0	6.66	**0.976**
Promjer najvećeg l.č.	1.14	1.00	0.5	2.2	0.60	0.98	0.75	0.3	3.0	0.81	**0.321**
Postotak zahvaćenosti l.č. tumorom	0.41	0.33	0.0	1.0	0.38	0.45	0.56	0.0	1.0	0.39	**0.818**

l.č. = limfni čvor; Mean = srednja vrijednost; Median = središnja vrijednost po raspodjeli; Min = najmanja vrijednost; Max = najveća vrijednost; SD = standardna devijacija; p = razina statističke značajnosti.

Tablica 2. Prikaz korelacije dobi bolesnika i pojedinih obilježja tumora i limfadenektomije

		Spearman	p
Dob (godine)	Promjer tumora (cm)	0.2841	0.088
Dob (godine)	Debljina tumora (cm)	-0.0227	0.927
Dob (godine)	Broj izoliranih l.č.	-0.3503	0.031
Dob (godine)	Broj zahvaćenih l.č. tumorom	0.1332	0.432
Dob (godine)	Promjer najvećeg l.č.	-0.1819	0.406
Dob (godine)	Postotak zahvaćenosti l.č. tumorom	0.2050	0.224

l.č. = limfni čvor; Spearman = koeficijent korelacije; p = razina statističke značajnosti.

va, te pozitivne korelacije između dobi i broja tumorom zahvaćenih limfnih čvorova odnosno postotka tumorom zahvaćenih limfnih čvorova.
U dobnoj grupi preko 65 godina starosti, nađene su negativne korelacije između dobi bolesnika i broja izoliranih odnosno tumorom zahvaćenih limfnih čvorova.
Usporedbom najvećeg promjera i debljine primarnog tumora želuca između naveden dvije skupine bolesnika prema dobi, nisu nađene statistički značajne razlike, premda su karcinomi u bolesnika u dobnoj grupi do 65 godina bili u prosjeku 1,6 cm manji i 0,6 cm tanji. Također, analizom korelacije nije pokazana statistički značajna korelacija između dobi bolesnika i promjera odnosno debljine primarnog tumora želuca (tablice 2, 3, 4). Međutim, kada su analizirani promjer i debljina primarnog tumora posebno u grupama bolesnika podijeljenih prema dobi, nađena je kod bolesnika do 65 godina starosti statistički značajna korelacija između dobi bolesnika i promjera tumora. S druge strane, kod bolesnika starijih od 65 godina, nađena je negativna korelacija između dobi bolesnika i promjera tumora te statistički značajna negativna korelacija između dobi i debljine tumora.
S obzirom da se limfadenektomija danas smatra glavnom karikom u kirurškom liječenju karcinoma želuca, rezultati ove studije ukazuju na potrebu minucioznog prepariranja i temeljite limfadenektomije svih drenažnih područja. Kao što su pokazali rezultati ove studije, broj izoliranih limfnih čvorova smanjuje se s porastom dobi bolesnika, što uz istovremenu pojavu smanjivanja veličine limfnih čvorova s porastom dobi zahtijeva posebnu pažnju prilikom određivanja stadija zahvaćenosti limfnih čvorova kod bolesnika s karcinomom želuca.

Tablica 3. Prikaz korelacije dobi bolesnika i pojedinih obilježja tumora i limfadenektomije kod bolesnika od 65 godina i mlađih.

		Spearman	p
Dob (godine)	Promjer tumora (cm)	0.4812	0.027
Dob (godine)	Debljina tumora (cm)	0.0000	1.000
Dob (godine)	Broj izoliranih l.č.	-0.4093	0.059
Dob (godine)	Broj zahvaćenih l.č. tumorom	0.4263	0.054
Dob (godine)	Promjer najvećeg l.č.	0.3744	0.208
Dob (godine)	Postotak zahvaćenosti l.č. tumorom	0.4498	0.041

l.č. = limfni čvor; Spearman = koeficijent korelacije; p = razina statističke značajnosti.

Tablica 4. Prikaz korelacije dobi bolesnika i pojedinih obilježja tumora i limfadenektomije kod bolesnika starijih od 65 godina.

		Spearman	p
Dob (godine)	Promjer tumora (cm)	-0.1886	0.484
Dob (godine)	Debljina tumora (cm)	-0.7785	0.008
Dob (godine)	Broj izoliranih l.č.	-0.2978	0.263
Dob (godine)	Broj zahvaćenih l.č. tumorom	-0.0399	0.884
Dob (godine)	Promjer najvećeg l.č.	-0.5356	0.111
Dob (godine)	Postotak zahvaćenosti l.č. tumorom	0.0844	0.756

l.č. = limfni čvor; Spearman = koeficijent korelacije; p = razina statističke značajnosti.

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NAŠA ISKUSTVA U LIJEČENJU MALIGNIH TUMORA BRONHA I PLUĆA
OUR EXPERIENCE IN THE TREATMENT OF MALIGNANT TUMORS OF THE BRONCHI AND LUNGS

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SAŽETAK

Autori iznose svoja iskustva u liječenju malignih tumora bronha i pluća u razdoblju od 01. 01. 1992. - 31. 12. 2003. godine u Kirurškoj klinici KB Split. U tom razdoblju zbog maligne bolesti pluća 486 bolesnika je podvrgnuto operacijskom zahvatu. Muškaraca je bilo 436 (89,71%), dok je žena bilo mnogo manje, samo 50 (10,29%). Dob je bolesnika s malignim tumorima pluća bila od 34 do 78 godina, uz napomenu da je najveća incidencija bila u sedmom desetljeću života. Najčešće izvođen zahvat bila je lobektomija 297 (61,11%), zatim pulmektomija 105 (21,62%), eksploracijska toraktomija 52 (10,7%) i na kraju bilobektomija 32 (6,58%). Patohistološka analiza operiranih bolesnika je pokazala da je planocelularni karcinom nađen u 313 (64,4%), adenokarcinom u 139 (28,6%) i drugi oblici u 34 (7%) operirana bolesnika. Manje od jedne petine bolesnika - 97 (19,96%) imalo je lokalizirani, ograničeni tumor pluća (I. stadij), dok smo u nešto više od jedne trećine bolesnika 181 (37,24%) našli lokalno uznapredovali karcinom pluća. Preostali bolesnici, njih 208 imali su uznapredovali karcinom, a time i manje izglede za izlječenje. Rani poslijeoperacijski mortalitet - unutar prvih 30 dana nakon operacije imali smo u 3 bolesnika (0,62%) i bio je uzrokovan kardiopulmonalnom insuficijencijom. Mišljenja smo da je kirurška resekcija jedina terapijska metoda koja može dovesti do izlječenja bolesnika. Stoga je treba izvesti u svim indiciranim slučajevima - i to što prije.

Ključne riječi: *Rak bronha i pluća; Resekcijski zahvati; Adjuvantna terapija*

SUMMARY

The authors relate their experience in the treatment of malignant tumors of the bronchi and lungs in the period from 01. 01. 1992. to 31. 12. 2003. in the Surgical Clinic of the Clinical Hospital »Split« in Split. During that period 486 patients underwent an operation for malignant lung diseases. Of this number 436 (89,71%) were men and only 50 (10,29%) were women. The patients with malignant lung diseases were from 34 to 78 years of age the greatest incidence being with the patients in their sixties. The most frequent operation performed was lobectomy 297 (61,11%), followed by pulmectomy 105 (21,62%), explorative thoracotomy 52 (10,7%) and finnaly bilobectomy 32 (6,58%). Patohistological analysis has shown that of all the operationally treated patients 313 (64,4%) had squamous cell carcinoma, 139 (28.6) adenocarcinoma and 34 (7%) patients had other forms of cancer. Less than one fourth of patients 97 (19,96%) had localised lung tumor (1st stage), while almost one third of the patients 181 (37,24%) had locally advanced lung carcinoma. The rest of the patients 208 of them, had carcinoma in later stages wich gave them less chance of being cured. We had early postoperational mortality (within 30 days following the operation) in 3 (0,62%) cases and this was caused by cardiorespiratory insufficiency. We think that surgical resection is the only therapeutic method which can cure a patient. Hence it should be performed in all indicated cases as early as possible.

Descriptors: *cancer of the bronchi and lungs; resectional interventions*

UVOD

Prije samo 85 godina Adler piše prvu monografiju o raku bronha i pluća i pita se ima li uopće smisla pisati o tako rijetkoj bolesti (1). Već slijedeće godine skupljaju se podaci o raku bronha i pluća i Wedler nalazi samo 89 slučajeva u svijetu (2). Iako se tu i tamo u literaturi i nađu nešto drukčiji i veći brojevi, stoji činjenica da je rak bronha i pluća do početka ovog stoljeća bio dosta rijedak. Danas, kad su u pitanju slućudni tumori, rak bronha i pluća se nalazi uvjerljivo na prvom mjestu uzroka smrti u muškaraca iznad 40 godina života (1,3). U rizičnim skupinama stanovništva - pušači iznad 45 godina starosti - ta bolest poprima značajke masovne bolesti, pa nameće neizostavnu potrebu za stalnim praćenjem njezine pojave i širenja kako bi se epidemiološki podaci mogli iskoristiti u borbi protiv nje i raka uopće. Morbiditet i mortalitet od raka bronha i pluća raste iz godine u godinu. Prvi pokušaj kirurškog liječenja karcinoma pluća pri-

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pisuje se Grahamu koji je 1933. izveo prvu uspješnu pulmektomiju lijevog pluća. Bolesnik je poslije zahvata živio više od 30 godina (4). Prvu uspješnu desnu pulmektomiju izveo je Overholt 1934. godine. Lobektomija ulazi u terapiju karcinoma pluća 1938. godine i to u bolesnika u kojih su postojale kontraindikacije za pulmektomiju. Opaženo je da obje metode daju slične rezultate i poslije toga lobektomija postaje metoda izbora u liječenju lokaliziranih karcinoma pluća koji nisu metastazirali u limfne čvorove (4).

Unatoč sasvim zadovoljavajućim rezultatima koji se postižu operacijskim liječenjem malignih procesa na plućima i koji su bolji od rezultata u kirurškom liječenju raka želuca ili rektuma, još uvijek ne postoje ujednačena mišljenja niti stavovi o mogućnostima liječenja raka bronha i pluća. Tako ni statistički podaci koji se objavljuju u člancima iz različitih kirurških odjela ili klinika s relativno dobrim i visokim petogodišnjim preživljenjem nisu do kraja odagnali negativistički stav prema bilo kakvu, posebice kirurškom liječenju malignih bolesti pluća. Tako neki pišu da su sve metode liječenja razočarale ili da je svako liječenje raka pluća bezuspješno, jer se bolest otkriva ksano. Međutim, ako promatramo bolesnike s rakom pluća i bronha koji su bili liječeni različitim metodama, tada se može zaključiti da neliječeni ili samo iradijacijom liječeni prolaze mnogo gore i da ih gotovo 90% umire unutar prve godine od postavljanja dijagnoze, te da ih manje od 1% živi dulje od 2 godine. To je potvrdila i jedna studija rađena u KB »Split« gdje se došlo do zaključka da u svim testiranim stadijima bolesti postoji vjerodostojno duže preživljavanje u skupini liječenih nego neliječenih bolesnika, te da se samo u onih bolesnika u kojih je obavljen radikalni kirurški zahvat može očekivati duže razdoblje preživljenja (6,7).

ISPITANICI I METODE

Rad je retrospektivna studija od 486 bolesnika s malignim tumorima pluća koji su liječeni u Kirurškoj klinici KB »Split« u Splitu od 01. 01. 1992. - 31. 12. 2003. godine. U tom razdoblju analizirana je medicinska dokumentacija svih bolesnika koji su statistički obrađeni po dobi, spolu, lokalizaciji maligne bolesti pluća, po patohistološkom tipu, stadiju uznapredovalosti, učestalosti metastaziranja itd. Pažnja je posvećena i najčešćim simptomima, analizirane su dijagnostičke metode i njihove vrijednosti, vrste izvedenih operacijskih zahvata, poslijeoperacijske komplikacije i rana poslijeoperacijska smrtnost.

REZULTATI

Od 486 bolesnika s malignom bolesti bronha i pluća koji su liječeni u Kirurškoj klinici KB »Split« u Splitu, muškaraca je bilo 436 (89,71%), a žena 50 (10,29%). Bolesnici su bili u dobi od 34 do 78 godina, s prosjekom od 53,7 godine, a samo za žene 46,6 godina (tablica 1). Prosječno vrijeme hospitalizacije iznosilo je 11,9 dana. Lokalizacija malignih tumora pluća bila je nešto češća desno 264 (54,32%), nego lijevo 222 (45,68%). Najzastupljeniji je desni gornji režanj 118 (24,28%). Distribucija po ostalim režnjevima uglavnom je ravnomjerno raspoređena.

Planocelularni karcinom u našoj seriji je najčešći tip malignog tumora pluća. Našli smo ga u 313 (64,4%) operiranih bolesnika. Potom slijedi adenokarcinom u 139 (28,6%), adeno-planocelularni u 27 (5,56%) i karcinom malih stanica u 7 (1,44%) bolesnika (tablica 2). Samo 97 bolesnika (19,96%) imalo je lokalizirani, ograničeni tumor pluća, dok se u ostalih tumor proširio u hilusne ili medijastinalne limfne čvorove (tablica 3). S obzirom na zahvaćenost limfnih čvorova u bolesnika s karcinomom pluća, medijastinalni limfni čvorovi su bili zahvaćeni u 115 (23,66%), a hilarni u 177 (36,42%). Vrste operacijskih zahvata u naših bolesnika prikazali smo na tablici 4. Ako je neoplazma zahvaćala okolne strukture - perikard, velike krvne žile ili limfne čvorove, radili smo proširene zahvate koji su tražili resekcije zahvaćenih organa. Eksploracijska to-

Tablica 1. Prikaz ukupnog broja operiranih bolesnika s malignim tumorom bronha i pluća po dobi i spolu.
Table 1. Age and sex distribution of patients who underwent surgical treatment because of malignant tumors of the bronchi and lungs

Dobne skupine *Distribution by age*	**Muškarci/Male** *broj/number*	*%*	**Žene/Female** *broj/number*	*%*
30-39	7	1,44	0	0
40-49	39	8,03	7	1,44
50-59	137	28,19	15	3,09
60-69	223	45,88	24	4,94
70-79	30	6,17	4	0,82
Svega/Total	**436**	**89,71**	**50**	**10,29**

Tablica 2. Operirani bolesnici s tumorom bronha i pluća prema histološkom tipu
Table 2. Patohistological analysis of tumors among surgically treated patients

Patohistološki tip/ *Patohistological type*	**Broj bolesnika/** *Number of patients*	%
Carcinoma planocellulare	313	64,40
Adenocarcinoma	139	28,60
Adeno - plano	27	5,56
Carcinoma microcellulare	7	1,44
Svega/Total	**486**	**100,00**

Tablica 3. Prikaz naših bolesnika u odnosu na stadij bolesti
Table 3. Distribution of patients considering TNM stage

Stadij tumora *Tumor stage*	**Broj bolesnika/** *Number of patients*	%
I. stadij / Stage I	97	19,96
II. stadij / Stage II	181	37,24
III. A stadij / Stage III A	169	34,77
III. B stadij / Stage III B	36	7,41
IV. stadij / Stage IV	3	0,62
Svega/Total	**486**	**100,00**

Tablica 4. Vrste i broj operacijskih zahvata u naših bolesnika s tumorom pluća
Table 4. Types and number of operations performed on our patients treated for lung tumors

Vrsta zahvata *Type of intervention*	**Broj bolesnika/** *Number of patients*	**Postotak** *%*
Lobektomija/Lobectomy	297	61,11
Bilobektomija/Bilobectomy	32	6,58
Pulmektomija/Pneumonectomy	105	21,62
Eksploracijska toraktomija/ Explorative thoractomy	52	10,70
Svega/Total	**486**	**100,00**

rakotomija je rađena kod inoperabilnih karcinoma pluća.
Poslijeoperacijske komplikacije imali smo u 55 (11,32%) od 486 torakotomirana bolesnika s malignim tumorom pluća. Najčeše su poslijeoperacijske komplikacije bile: hemoragični izljev u prsište, empijem pleure, bronhopleuralna fistula, atelektaza, febrilitet itd. U ranom poslijeoperacijskom tijeku (do 30 dana) smrtni ishod imali smo kod 5 (1,03%) bolesnika. Preživljenje po stadijima za pojedine vrste karcinoma nismo obradili zbog kratkoće vremena od obavljenih zahvata. Ali, u našoj je ustanovi u razdoblju od 1981. do 1983. godine hospitalizirano 330 bolesnika s dijagnozom raka bronha i pluća. Od toga su bila 302 (91,52%) muškaraca i 28 (8,48%) žena. Ta je skupina bolesnika podvrgnuta mnogim analizama, a posebnu smo pozornost posvetili njihovu preživljenju s obzirom na spol i podjelu raka na dvije velike skupine: a) nemikrocelularni i b) mikrocelularni-anaplastični tip. U 239 bolesnika (72,4%) je dijagnosticiran nemikrocelularni tip raka bronha i njihovo ukupno preživljenje (liječenih i neliječenih) iznosilo je 13,7 mjeseci. Od 219 (91,63%) muškaraca, njih 110 (52,2%) je liječeno s prosječnim preživljenjem od 18,3 mjeseca. Neliječeni bolesnici 109 (49,8%) su živjeli samo 8,2 mjeseca, što je statistička značajnost u preživljenju između liječenih i neliječenih muškaraca (t=5,2; P>0,0001). Preživljenje svih liječenih i neliječenih bolesnika bez podjele na stadij bolesti i tip raka iznosi 172 (52,1%), 16,3 mjeseca, a za neliječene 158 (47,9%) samo 6,9 mjeseci.
Vrijedno je spomenuti da su operirani bolesnici iz obiju skupina imali značajno duže preživljenje u odnosu na one koji su liječeni radioterapijom i polikemoterapijom.

RASPRAVA

Karcinom bronha je najučestalija lokalizacija u morbiditetu i mortalitetu od malignoma muškaraca (8,9). I dok je omjer oboljelih muškaraca i žena početkom

ovog stoljeća bio 1:1, posljednjih godina taj omjer iznosi 10:1. To potvrđuje poznatu činjenicu da je karcinom bronha masovna bolest u »vulnerabilnoj skupini« muškaraca-pušača iznad 45 godina.

Simptomatologija karcinoma bronha i pluća nespecifična je i nekarakteristična, osobito u samome početku, kada može oponašati svaku plućnu bolest. Stoga je razumljivo da se razvoj raka bronha i pluća može podijeliti u sljedeće faze: 1) nedetektabilna faza, 2) pretklinička ili predsimptomatska, ali detektabilna i 3) klinička ili simptomatska faza (3). Prva faza bolesti vjerojatno nastaje mjesecima ili godinama i u današnje vrijeme još je uvijek nedostupna ranoj dijagnostici. Po Beddsu epidermoidnom raku je potrebno čak oko 7,2 godine dok postane radiološki uočljiv (promjer oko 1 cm), adenokarcinomu čak oko 13,2 godine, mikrocelularnom 2,4 i nediferenciranim oblicima raka bronha i pluća oko 7,1 godina razvoja (10).

Samo u oko 5-15% slučajeva rak bronha i pluća se otkrije u asimptomatskoj fazi, rutinskom radiologijom toraksa i pluća. Klinički simptomi, radiološka prezentacija i fizikalni znaci bolesti ovise o: lokalizaciji procesa, o lokalnoj proširenosti tumora, invaziji okolnih struktura, o limfogenom širenju i propagaciji u limfne čvorove, o komplikacijama osnovne bolesti, o udaljenim hematogenim metastazama, te o drugim paraneoplastičkim učincima tumora. Dalje razlikujemo nespecifične, respiracijske, intratorakalne, ekstratorakalne i paraneoplastične simptome. Od pojave prvih simptoma pa do početne terapije prođe vrijeme dugo 6-10 mjeseci, a do dolaska kirurgu još dodatna 2-3 mjeseca. Zanimljivo je da se veliki broj bolesnika, oko 50-70% liječi pod dijagnozom neke druge bolesti, prije definitivnog postavljanja dijagnoze.

Dijagnostičke postupke možemo podijeliti u više namjenskih skupina. Prvu skupinu čine postupci kojima se u ranoj dijagnozi na prvo mjesto stavlja mogućnost karcinoma bronha. Druga skupina su dijagnostički postupci radi verifikacje procesa. Treća obuhvaća metode kojima se želi potvrditi ili isključiti bolest, dok u četvrtu skupinu spadaju postupci radi dopune »dijagnostičkog mozaika« i verifikacije procesa. I na kraju, peta skupina obuhvaća procese kojima se procjenjuje sveukupni status bolesnika zbog izbora i odluke o terapijskom postupku (9-13). Dijagnostičke postupke treba iskoristiti pod svaku cijenu s ciljem što ranijeg otkrivanja malignog procesa u plućima. Jer otprilike 80% bolesnika bilo bi potencijalno izlječivo kada bi se bolest otkrila dovoljno rano. Stoga je najvažniji čimbenik u procjeni ishoda i određivanja terapije stadij bolesti (14).

Prognoza bolesnika s rakom bronha ovisi o brzini rasta i biologiji tumora s jedne strane i o brzini kvalitetne dijagnostike i promijenjene terapije s druge strane (14). Poznato je da brzina rasta tumora ovisi o histološkoj slici, pa tako planocelularni karcinom raste najsporije, a anaplastični malih stanica najbrže (10). Razumljivo je da su karcinomi bržeg rasta maligniji i da češće metastaziraju (15-17).

Liječenje raka pluća se temelji na načelima koja vrijede općenito za sve malignome (18). Za sada se može reći da mogućnost radikalnog izlječenja treba tražiti u kirurškom odstranjenju cijelog tumora, do u zdravo (7, 14, 17, 19). Sve ostale terapijske metode su palijativne, pa stoga nastojimo što šire primijeniti načela radikalne operacije, posvećujući osobitu pažnju lokalizaciji karcinoma, limfnim putovima širenja i regionalnim limfnim čvorovima (14, 20). Iz tog razloga je od vremena uvođenja resekcijskih zahvata pulmektomija smatrana jedinim dovoljno radikalnim zahvatom, jer ona omogućuje istovremeno odstranjenje regionalnih limfnih čvorova, lobarnih, hilarnih, peritrahelanih i drugih (11). No, tijekom godina sve se češće izvodi lobektomija kod raka bronha, a petogodišnje preživljenje se ne razlikuje od rezultata koje postižemo pulmektomijom. Istina, pri postojanju metastaza u hilusnim limfnim čvorovima radikalnost lobektomije je podložna kritici i ne treba je izvoditi ako se želi palijacija. Palijativne resekcije se izvode samo u bolesnika u kojih nije moguć radikalni zahvat ili radi izbjegavanja sekundarnih komplikacija. Tako se smanjuje broj eksplorativnih torakotmija, odstranjuje se glavni proces i sprječava razvoj upalnih poststenotičnih promjena. Sve navedeno ima vrlo povoljan utjecaj na provedbu iradijacije i citostatske terapije. Radioterapija često može kontrolirati lokaliziranu bolest, premda ne utječe na sveukupno preživljenje. Postojeća kemoterapija može produžiti preživljenje u usporedbi s tzv. »suportivnom terapijom«, ali radi se o tjednima ili mjesecima. Eksploracijska torakotomija nije temeljni zahvat u bolesnika s rakom bronha i ona nepovoljno utječe na daljnu sudbinu inoperabilnih bolesnika. U njih zbog perzistiranja lokalne opstrukcije ne može doći do reekspanzije pluća što pogoduje razvoju atelektaze s pneumonijom. U šupljinama nastalim nakon nepotpune reekspanzije formira se izljev i hematom. Potom slijedi razvoj infekcije i posljedična intoksikacija organizma. Budući da su eksploracijske torakotomije praćene mortalitetom i do 10%, prijeoperacijska obrada mora biti što je moguće kvalitetnija, kako bi se izbjegla nepotrebna eksploracija (7).

Poboljšanjem dijagnostike i što ranijim dolaskom kirurgu sve veći broj bolesnika biti će dostupan kirurškoj terapiji, radikalnog ili palijativnog tipa, pose-

bice stoga što je razvoj medicine u cijelosti i potrebne prateće tehnike mogućio izvođenje proširenih resekcijskih zahvata (13, 17, 18, 19, 20). Mišljenja smo da su oni opravdani, jer, bili radikalni ili palijativni, smanjenjem tumorske mase smanjuju se toksemija, nekroza, krvarenje ili gnojenje koji ugrožavaju život, pa ovakvi zahvati omogućuju preživljenje u kvalitetnijem obliku. Kirurška resekcija je jedina terapijska metoda koja može dovesti do izlječenja bolesnika. Stoga je treba izvoditi u indiciranim slučajevima, i to što prije. Resekcijski zahvat treba biti što radikalniji s obzirom na bolest i što poštedniji s obzirom na bolesnika, pa je lobektomija, ako je izvodiva, metoda izbora u liječenju malignih bolesti bronha i pluća. Posljednjih godina resekcijski zahvati se izvode i torakoskopskom metodom o kojoj, barem za sada, postoji dosta kontroverzi (21). Vrijednost ove metode treba usporediti s konvencionalnom resekcijom, a za to je još prerano.

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Metode
Clinical Trial

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TROMBOPROFILAKSA KOD BOLESNIKA OPERIRANIH ZBOG MALIGNIH TUMORA DEBELOG CRIJEVA
THROMBOPROPHYLAXIS IN PATIENTS UNDERGOING COLORECTAL SURGERY

Dubravka Bušić, Domagoj Lemac, Željko Bušić, Igor Stipančić, Toni Kolak, Bojan Dojčinović

SAŽETAK

Cilj: Usporediti tromboprofilaksu reviparinom i enoksaparinom kod operacijskih zahvata zbog malignih bolesti debelog crijeva.
Metode: Napravljena je prospektivna analiza kod 97 bolesnika koji su operirani zbog malignih tumora debelog crijeva na Odjelu za abdominalnu kirurgiju II, Kliničke bolnice Dubrava, Zagreb, Hrvatska u periodu od 2 godine (1. siječnja 2003.g. do 31. prosinca 2004.g.). Za tromboprofilaksu je korišten niskomolekularni heparin, i to; u 2003. g. reviparin, a u 2004. g. enoksaparin. Praćeni su parametri koagulacije preoperativno, duljina trajanja tromboprofilakse, učestalost tromboembolijskih komplikacija, plućne embolije i duboke venske tromboze, te smrtnost.
Rezultati: U 2003. godini operirano je 55 bolesnika. Za tromboprofilaksu je korišten reviparin kod 54 (98,18%) bolesnika. Prosječno trajanje tromboprofilakse bilo je 9,56 dana (raspon 3-25). Jedan preostali bolesnik je zbog ranije kardiokirurške operacije bio pod terapijom varfarinom. U 2004. godini operirana su 42 bolesnika Za tromboprofilaksu je korišten enoksaparin koji je dobio 41 (97,62%) bolesnik. Prosječno trajanje tromboprofilakse bilo je 8,46 dana (raspon 3-27), a kod jednog preostalog bolesnika nije provedena tromboprofilaksa. Umrlo je 5 (5,15%) bolesnika. U 2003. godini jedna bolesnica je umrla pod kliničkom slikom plućne embolije što je potvrđeno i na obdukciji. Ostali bolesnici nisu umrli zbog tromboembolijskih komplikacija već zbog kardiorespiratorne insuficijencije u terminalnom stadiju maligne bolesti.
Zaključak: Uzimajući u obzir morbididet i mortalitet koje imaju duboka venska tromboza i plućna embolija, tromboprofilaksa je opravdana kod svih bolesnika kod kojih se planira operativni zahvat na debelom crijevu. S obzirom na relativno manji rizik komplikacija vezanih uz krvarenje danas se u tromboprofilaksi najviše koristi niskomolekularni heparin kao alternativa nefrakcioniranom heparinu. Mi preporučamo enoksaparin u dozi 40 mg subkutano kroz 7 dana.
Ključne riječi: *tromboprofilaksa, karcinom kolona, niskomolekularni heparin, tromboembolijske komplikacije*

SUMMARY

Aim: To compare the reviparin and enoxaparin thromboprophylaxis in patients undergoing colorectal surgery.
Methods: We have prospectively analyzed at 97 patients undergone colorectal surgery for colon malignancy in Department for Abdominal Surgery II, Dubrava University Hospital, Zagreb, Croatia, for two years period (01.01.2003-01.01.2004). Reviparin was used in 2003 for thromboprophylaxis, and in 2004 enoxaparin was used. The blood coagulation parameters preoperatively, duration of thromboprophylaxis, incidence of the thromboembolic diseases, deep venous thrombosis and pulmonary embolism, and mortality were analyzed.
Results: In year 2003, 55 patients underwent surgery for colorectal carcinoma. The reviparin was used for thromboprophylaxis in 54 (98,18%) patients and another 1 patient had warfarin in therapy because of earlier cardiac surgery. Median thromboprophylaxis length was 9,56 days (range 3-25). In year 2004, 42 patients underwent surgery. The enoxaparin was used for thromboprophylaxis in 42 (97,62%) patients and another one patient had no prophylaxis. Median thromboprophylaxis length was 8,46 days (range 3-27). The mortality rate for both years was 5,15% (5 patients) and one patient died because of pulmonary embolism in year 2003. In another 4 patients cause of death were not tromboembolic complications but cardiorespiratory insufficience of patients with terminal-stage cancer.
Conclusion: Due to morbidity and mortality of pulmonary embolism and deep venous thrombosis patients undergoing colorectal surgery should have thromboprophylaxis. The low-molecular weight heparin is a recommended alternative to unfractionated heparin because it may offer increased efficacy without increasing the bleeding risk. We can recommend enoxaparin in 40 mg subcutaneus single dose.
Key words: *thromboprophylaxis, colon cancer, low-molecular weight heparin, venous thromboembolism*

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UVOD

Venska tromboembolija (VTE) je česta i ozbiljna bolest koju uvjetuju mnogi čimbenici te je najčešći uzrok morbiditeta i mortaliteta u bolesnika kod kojih se provode kirurško liječenje i drugi medicinski postupci. Rizični čimbenici koji povećavaju rizik duboke venske tromboze (DVT) i plućne embolije (PE) se mogu podijeliti na predisponirajuće tj. one koje su prisutni kod bolesnika i prije primitka u bolnicu te na eksponirajuće koji nastaju primitkom bolesnika u bolnicu zbog određenog medicinskog stanja ili kirurškog postupka. Najvažniji predisponirajući faktori su dob, terapija antipsihoticima i oralnim kontraceptivima, nadomjesna hormonska terapija, debljina, ranije tromboembolijske bolesti kod bolesnika ili u obiteljskoj anamnezi, pušenje, muški spol te poremećaji zgrušavanja koji uvjetuju hiperkoagulabilnost krvi. Bolesnici koji su primljeni u bolnicu radi kirurškog zahvata, kongestivne srčane greške, maligne bolesti, ishemijskog moždanog udara, srčanog infarkta, venske insuficijencije te oni kod kojih se provodi imobilizacija ili je postavljen venski kateter imaju povećan rizik od tromboembolijskih bolesti, a ovi faktori spadaju u eksponirajuće.

Studije provedene u prošlom desetljeću pokazuju da je incidencija dijagnosticirane VTE u općoj populaciji 1 do 2 na 1000 osoba godišnje s 90-dnevnim preživljenjem oko 69% (1,2). Zbog ovakvih podataka tromboprofilaksa treba biti važan dio moderne medicine.

Poznato je da je incidencija VTE nakon kirurških zahvata na kolonu veća nego prosječna incidencija nakon svih kirurških zahvata (3). Upravo zbog toga smo analizirali bolesnike koji su operirani zbog malignih bolesti kolona i rektuma u proteklom dvogodišnjem periodu na našem odjelu s obzirom na način provođenja tromboprofilakse te učestalost VTE.

MATERIJALI I METODE

Prospektivna studija je provedena na Odjelu za abdominalnu kirurgiju II Kliničke bolnice Dubrava Zagreb. U studiju su uključeni svi bolesnici koji su operirani zbog maligne bolesti rektuma i kolona u dvogodišnjem periodu i to od 1 siječnja 2003.g do 31. prosinca 2004. godine. Kod svih bolesnika histološki nalaz postoperativno je bio adenokarcinom.

U 2003. godine za tromboprofilaksu je korišten reviparin (Clivarin, Abbott, Njemačka) u dozi 1750 IJ dnevno apliciran subkutano. U 2004. godini korišten je enoksaparin (Clexane, Aventis, Njemačka) u dozi 40 mg dnevno.

Analizirani su parametri koagulacije preoperativno - protrombinsko vrijeme (PV, referentni raspon od 0,70-1,30), aktivirano parcijalno tromboplastinsko vrijeme (APTV, referentni raspon od 28-40 s). Uzeto je u obzir da li je bolesnik operiran elektivno nakon preoperacijske pripreme ili je operacijski zahvat učinjen hitno. Praćena je duljina trajanja tromboprofilakse i hospitalizacije, te su analazirani broj DVT i PE te ukupna smrtnost.

REZULTATI

Ukupno je na našem odjelu radi maligne bolesti kolona i rektuma u dvogodišnjem periodu operirano 97 bolesnika.

U 2003. godini operirano je 55 bolesnika prosječne dobi 65,26 godina (raspon 40-90). Bilo je 35 muškaraca te 25 žena. Na elektivnom programu operirana su 44 bolesnika, a ostalih 11 operirani su hitno zbog ileusa uzrokovanog tumorom. Protrombinsko vrijeme, mjereno preoperativno, je bilo u granicama referentnog raspona kod 52 (94,55%) bolesnika, a kod 3 (5,45%) bolesnika je bilo niže. Preoperativno APTV je bilo u granicama referentnog raspona kod 47 (85,45%) bolesnika, te je kod 5 (9,10%) bolesnika bilo skraćeno, a kod preostala 3 (5,45%) bolesnika produljeno. Za tromboprofilaksu je korišten reviparin (Clivarin) u navedenoj dozi kod 54 (98,18%) bolesnika. Prosječno trajanje tromboprofilakse bilo je 9,56 dana (raspon 3-25), a jedan preostali bolesnik je zbog ranije kardiokirurške operacije bio pod terapijom varfarinom, koji je ukinut iz terapije 7 dana prije operacije te ponovo uveden 2 dana nakon zahvata. Prosječno trajanje hospitalizacije bilo je 13,51 dan (raspon 7-39). Umrlo je 4 bolesnika. Jedna bolesnica u dobi od 72 godine, operirana elektivno, s urednim parametrima kagulacije preoperativno, kod koje je provedena tromboprofilaksa reviparinom je umrla naglom smrću 12. postoperativni dan pod kliničkom slikom plućne embolije što je potvrđeno obdukcijskim nalazom. Ostala 3 bolesnika su umrla zbog kardiorespiratorne insuficijencije, sva tri u terminalnom stadiju maligne bolesti.

U 2004. godini operirana su 42 bolesnika prosječne dobi 68,05 godina (raspon 35-90), Muških je bilo 28, a 14 ženskih bolesnika. Na elektivnom programu operirano je 32 bolesnika, a ostalih 10 operirani su hitno zbog ileusa uzrokovanog tumorom. Protrombinsko vrijeme, mjereno preoperativno, bilo je u granicama referentnog raspona kod 39 (92,86%) bolesnika, a kod 3 (7,14%) bolesnika je bilo niže. Preoperativno APTV je bilo u granicama referentnog raspona kod 37 (88,10%) bolesnika, kod 4 (9,52%) bolesnika bilo je skraćeno, a kod 1 (2,38%) bolesnika produljeno. Za tromboprofilaksu je korišten enoksaparin (Clexane) u navedenoj dozi, kojega je dobio 41 (97,62%) bolesnik. Trajanje

tromboprofilakse bilo je prosječno 8,46 dana (raspon 3-27). Kod jednog preostalog bolesnika nije provedena tromboprofilaksa. Prosječno trajanje hospitalizacije bilo je 14,74 dan (raspon 7-42). Umro je 1 bolesnik u terminalnom stadiju maligne bolesti zbog kardiorespiratorne insuficijencije .

RASPRAVA I ZAKLJUČCI

Današnja strategija tromboprofilakse se temelji na prepoznavanju i prevenciji rizičnih faktora kod bolesnika koji se prema tim faktorima svrstavaju u grupe kao nisko, srednje ili visoko rizični (3). U našoj seriji tromboprofilaksa je provedena kod svih bolesnika s malignom bolešću kolona. S obzirom da je tromboza bolest uvjetovana mnoštvom čimbenika, kod bolesnika koji u početku može biti svrstan u grupu s niskim rizikom, neki neočekivani događaj može trajno ili prolazno povisiti rizik tromboembolije pa bi stoga tromboprofilaksu trebalo individualno prilagoditi svakom bolesniku (2).

Veliki kirurški zahvati su dobro poznati rizični čimbenik venske tromboze. Operacija povećava rizik od 4-22 puta, s velikom varijacijom ovisno o vrsti kirurškog zahvata, i to ne samo u perioperativnom razdoblju nego i nekoliko mjeseci kasnije posebno u visoko rizičnih bolesnika kao što su oni koji su operirani zbog maligne bolesti (3).

Povezanost između maligne bolesti i VTE je dobo poznata. Postoji 2-6 puta veći rizik od DVT i PE kod bolesnika s dijagnosticiranom zloćudnom bolesti (3). Rizik kod bolesnika koji su operirani zbog maligne bolesti je 2 puta veći nego kod onih koji su operirani radi drugog razloga (3). Kemoterapija dalje povisuje rizik što je teško brojčano izraziti zbog velikog broja kemoterapeutika koji se koriste (4). Brojne epidemiološke studije pokazuju povezanost vrste tumora i rizika VTE. Rickles i Edwards pokazuju da je rak koji je najčešće povezan s VTE rak pluća (25,6%), te ga slijede rak gušterače (17,4%), želuca (16,8%) i kolona (15,2%) (5).

Tromboprofilaksa bilo kojom vrstom heparina je opravdana te smanjuje učestalost VTE u usporedbi s učestalosti kod bolesnika bez profilakse ili s placebom (6). Nefrakcionirani heparin i heparin niske molekularne mase imaju jednaku učinkovitost u profilaksi (7). Heparin niske molekularne mase ima nižu učestalost komplikacija vezanih uz sklonost krvarenju od nefrakcioniranog heparina (8). U našoj seriji bolesnika, koristeći niskomolekularni heparin, nismo imali komplikacija vezanih uz povećanu sklonost krvarenju i stvaranju hematoma na mjestu aplikacije.

Bergqvist je u svojoj studiji pokazao benefit od proflakse niskomolekularnim heparinom 4 tjedna postoperativno kod bolesnika operiranih zbog maligne bolesti u trbuhu u usporedbi s nefrakcioniranim heparinom s obzirom na jednaku učinkovitost profilakse, a manju sklonost krvarenju (9).

U našoj grupi bolesnika koja je za tromboprofilaksu dobijala reviparin (Clivarin) bila je jedna plućna embolija sa smrtnim ishodom što iznosi 1,82% a u grupi koja je dobijala enoksaparin (Clexane) nije bilo plućnih embolija. Ramirez i sur. u svojoj studiji pokazuju incidenciju od 0,78% klinički manifestnih VTE nakon kirurških zahvata na kolonu (10). Lee i sur. u svojoj seriji od 48 bolesnika nalaze 20 UZV verificiranih DVT, a niti jednu klinički manifestnu (11). U našoj seriji od 97 bolesnika nije bilo klinički manifestne DVT.

Naša preporuka je da se kod operacijskih zahvata zbog malignih bolesti debelog crijeva za tromboprofilaksu koristi enoksaparin (Clexane) u dozi od 40 mg subkutano i to kroz 7 dana.Uz to potrebna je rana fizikalna terapija (vježbe disanja, pokreti nogama i rukama) te ustajanje iz kreveta već prvi postoperacijski dan.

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LAPAROSKOPSKA APENDEKTOMIJA: DA LI SE ISPLATI?
LAPAROSCOPIC APPENDECTOMY - IS IT FEASIBLE?

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SAŽETAK

Laparoskopska apendektomija se radi od početka laparoskopske kirurgije. Vremenom se postavilo pitanje isplativosti laparoskopske apendektomije, budući da su troškovi takvog zahvata veći od troškova klasične apendektomije, a ne slažu se svi u bolji ishod laparoskopske operacije. Mi smo od lipnja 2002. do lipnja 2004. godine kod 32 bolesnika izvršili laparoskopsku apendektomiju. Nismo imali niti jedan slučaj konverzije u otvorenu operaciju. Postoperativno smo imali samo dvije komplikacije: jedan paralitički ileus, zbrinut konzervativno, i jedno krvarenje iz trbušne stijenke, zbrinuto minilaparotomijom. Nismo imali niti jednu infekciju kirurške rane, koja se navodi kao najčešća komplikacija nakon apendektomije. Prosječna hospitalizacija je bila 4 dana, a prosječno bolovanje 9 dana. Svi bolesnici su u potpunosti zadovoljni kozmetičkih ishodom operacije. Naš zaključak je da je laparoskopska apendektomija preporučljiva metoda, bez obzira na težinu apendicitisa.
Ključne riječi: *akutni apendicitis, laparoskopija*

SUMMARY

Introduction: Laparoscopic appendectomy was accepted as a way of treating acute appendicitis in the very dawn of laparoscopic surgery. However, since it is more expensive than open appendectomy, questions were raised regarding it's feasibility. There are numerous reports that laparoscopic appendectomy is feasible because of it's shortened postoperative recovery, but some studies report equal lengths of hospital stay and recovery times after open and laparoscopic appendectomy. An alternative, extracorporal method of laparoscopic appendectomy has evolved, that is not as expensive as normal laparoscopic appendectomy, but has greater wound infection rate. Here we present our series of 32 cases of laparoscopically operated appendicitis.
Patients and methods: From June 2002 to June 2004 we performed 32 laparoscopic appendectomies, which accounted for 22% of all appendectomies carried out at our department in that period. In 30 cases, the diagnosis was acute appendicitis, and in 2 cases chronic appendicitis with palpable perityphlitic inphiltrate. We used a 3-trocar technique. The appendix was resected using an endo-GIA stapling device. If the appendix was gangrenous or perforated, we extracted it using an endo-pouch device.
Results: We were able to successfully carry out all the operations, without a single conversion to open procedure. Postoperatively, we had only two complications: one paralytic ileus, resolved conservatively, and one postoperative bleeding from a trocar insertion site, that required surgical intervention througm 5 cm minilaparotomy. Average length of hospital stay was 4 days. The patients averagely spent only 9 days on sick leave. Only one patient used analgetics after hospital discharge, others were without pain. At a later controll, all the patients and the surgeon rated the postoperative scars as excellent.
Discussion: In our series we successfully performed all laparoscopic appendectomies, without conversions. We only had 2 complications, and no surgical wound infections, a complication that is most frequent after appendectomy. Length of hospital stay was shorter than after open appendectomy, and average sick leave was shorter than reported sick leave after open appendectomy. Therefore we can only conclude that laparoscopic appendectomy has outcome superior to that of open appendectomy. We therefore suggest that laparoscopic appendectomy is the method of choice for acute appendicitis, regardless of the severity of disease.
Key words: *acute appendicitis, laparoscopy*

UVOD

U samom početku laparoskopske kirurgije, apendektomija je uvrštena među operacije pogodne za laparoskopski pristup. Već rani radovi pokazuju da je laparoskopska apendektomija sigurna metoda kod koje se komplikacije ne javljaju u većem postotku nego kod otvorene apendektomije (1). Međutim, vremenom se postavilo pitanje isplativosti laparoskopske apendektomije, budući da se radi o skupljoj metodi, te da sama operacija duže traje (2, 3). Neki autori navode da je laparoskopska apendektomija ipak isplativa budući da

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tako operirani bolesnici kraće ostaju u bolnici i brže se oporavljaju (4-6). S druge strane, postoje radovi koji laparoskopskoj apendektomiji osporavaju takve prednosti i koji preferiraju otvorenu tehniku radi manjih troškova (7,8). Alternativna metoda koja se razvila iz laparoskopske apendektomije je ekstrakorporalna laparoskopska apendektomija, za koju se mogu naći navodi da je brža i jeftinija metoda od laparoskopske, ali je povezana s većom incidencijom infekcija operativnih rana (8,9). Također, pokušaj smanjenja troškova pri lapaoskopskoj apendektomiji i laparoskopskim operacijama uopće predstavlja uvođenje instrumenta bez korištenja troakara (10). U ovom radu prikazujemo našu seriju od 32 bolesnika kojima smo učinili laparoskopsku apendektomiju.

BOLESNICI I METODE

U studiju su uključeni bolesnici primljeni putem hitne kirurške službe radi kliničke slike akutnog apendicitisa, u periodu od lipnja 2002. do lipnja 2004. godine, uz 2 bolesnika koja su operirana radi kroničnog apendicitisa, 6 odnosno 8 tjedana nakon epizode akutnog apendicitisa, uz palpabilni peritiflitički infiltrat. Radilo se o 32 bolesnika, 10 muških i 22 ženskih. Prosječna dob je bila 30 godina (16-58 god.). Ukupno u tom periodu na našem odjelu je izvršeno 145 apendektomija, tako da je laparoskopskih apendektomija bilo 22%.

Bolesnicima je dijagnoza postavljena prvenstveno na temelju kliničkog nalaza (bol u ileocekalnoj regiji praćena mučninom, povraćanjem i inapetencijom, uz pozitivne znake kao što su Blumbergov, Rowsingov ili Grassmanov, te povišena tjelesna temperatura). Bolesnicima smo učinili osnovne laboratorijske pretrage koje su obično pokazale blagu do umjerenu leukocitozu. Nakon postavljanja dijagnoze, bolesnici su operirani odmah po završenoj preoperativnoj obradi.

Supraumbilikanom poprečnom incizijom dužine 1 cm uveli smo Veressovu iglu te insuflirali CO_2 u trbušnu šupljinu do tlaka od 13 mm Hg. Uveli smo laparoskop, pregledali cijelu trbušnu šupljinu, zatim pregledali tanko crijevo radi eventualnog Meckelovog divertikla. Zatim smo uveli sljedeći troakar, od 5 mm, u medioklavikularnoj liniji desno nešto iznad razine pupka. Slijedilo je uvođenje troakara od 12 mm u medioklavikularnoj liniji lijevo nešto ispod razine pupka. Nakon prikazivanja crvuljka, hvataljkom smo prihvatili njegov vrh, skeletirali mezoapendiks elektrokoagulacijom, te apendikularnu arteriju zbrinuli metalnim kopčama. Crvuljak smo na bazi presijekli endo-GIA 30 staplerom (Autosuture, Ascot, Velika Britanija). Ako crvuljak nije bio gangrenozan ili perforiran, odstranili smo ga kroz 12-milimetarski troakar, zajedno s troakarom, tako da ne dođe do kontakta između crvuljka i trbušne stijenke. Ako crvuljak nije stao u troakar, ili je bio gangrenozni ili perforirani, prvo smo ga stavili u plastičnu vrećicu pa tek onda izvadili. Operaciju smo završili lavažom Douglasovog i parakoličnog prostora fiziološkom otopinom te postavljanjem drena u Douglasov prostor. Bolesnici su 24 sata bili na profilaktičkoj antibiotskoj terapiji gentamicinom, 2 puta po 120 mg, i metronidazolom, 3 puta po 500 mg dnevno. Profilaktička terapija je u slučaju gangrenoznog crvuljka trajala 2 dana, a u slučaju perforacije terapija je trajala 4 dana. Dren smo odstranjivali nakon 24 sata, a u slučaju gangrenoznog crvuljka ili perforacije nakon 72 sata.

REZULTATI

Prosječno trajanje operacija bilo je 65 (raspon 50-90) minuta. Niti u jednom slučaju nije bila potrebna konverzija. U 2 slučaja imali smo postoperativne komplikacije (6%). U jednom slučaju, nakon operacije perforiranog crvuljka, došlo je do razvoja paralitičkog ileusa, koji je konzervativno zbrinut parenteralnom ishranom, stimulacijom crijevne peristaltike Prostigmine (Neostigmine methylsulfate, Birsfelden, Switzerland) ampulama od 0,5 mg svakih 8 sati te Dulcolax (Bisakodil, Boehringer Ingelheim, Italia) čepićima od 10 mg. U drugom slučaju, došlo je do krvarenja u trbušnu šupljinu iz grane epigastrične arterije trbušne stijenke na mjestu postavljanja troakara u desnoj medioklavikularnoj liniji, nakon odstranjenja troakara i dekompresije ozlijeđene arterije. Krvarenje je 2 sata nakon prve operacije zbrinuto minilaparotomijom dugom 5 cm i podvezivanjem krvne žile. Niti u jednom slučaju nije došlo do infekcije rane.

Patohistološkim pregledom u 14 slučaja ustanovljen je akutni apendicitis, u 6 slučajeva akutni flegmonozni apendicitis, u 4 slučaja gangrenozni apendicitis, te u 6 slučajeva perforacija crvuljka. U 2 slučaja patohistološka dijagnoza je bila kronični apendicitis i periapendicitis. Kao dodatni nalaz, u jednom slučaju smo ustanovili malrotaciju crijeva s cekumom i crvuljkom ispod jetre, te u jednom slučaju pupčanu kilu, koja je u istom aktu operativno zbrinuta.

Prosječno trajanje hospitalizacije je bilo 4 (raspon 3-6) dana.

Prilikom kasnije kontrole, svi bolesnici su izjavili da su u potpunosti zadovoljni ishodom operacije. Zamolili smo ih da procjene svoje postoperacijske ožiljke ocjenom od 1-5, a ožiljci su na isti način bili pregledani od strane kirurga i dermatologa. U svim slučajevima ocjena ožiljka je bila odlična.

Dvadeset četiri bolesnika (75%) na bolovanju je ukupno bilo samo tjedan dana, a po zanimanju su bili učenici, studenti, učitelji i sl. Osam bolesnika (25%) na bolovanju je bilo 2 tjedna, a radilo se o ljudima s fizič-

ki zahtjevnijim zanimanjima (radnik, poljoprivrednik). Ukupno prosječno trajanje bolovanje je bilo 9 dana. Samo jedan bolesnik (3%) je nakon otpusta iz bolnice koristio analgetike, i to kroz nekoliko dana, dok drugi nisu imali potrebe za korištenjem lijekova.

RASPRAVA

Rezultati koje smo u ovoj studiji dobili koristeći laparoskopsku tehniku apendektomije su zaista pozitivni. Nismo imali niti jednu konverziju u otvorenu apendektomiju. Zahvaljujući pažljivom vadenju crvuljka zajedno s troakarom ili u plastičnoj vrećici nismo imali niti jednu infekciju operativne rane, koja se navodi kao najčešća komplikacija kod apendektomije (11, 12).

Jedina komplikacija koja je zahtijevala dodatno kirurško liječenje je bilo krvarenje iz trbušne stijenke, iz mjesta postavljanja troakara. Takve komplikacije se lako mogu izbjeći ako se prije postavljanja troakara u zamračenoj operacijskoj sali laparoskopom prosvijetli trbušna stijenka te se tako prikažu veće krvne žile u njoj. Na taj način se troakari mogu postavljati bez rizika od ozljede krvnih žila. Nakon što smo počeli koristiti tu tehniku, više nismo imali problema s krvarenjem na mjestu postavljanja troakara. Trajanje hospitalizacije kod naših bolesnika je prosječno bilo 4 dana, što je manje od trajanja hospitalizacije bolesnika operiranih klasičnom metodom. Isto tako, bolesnici nakon otpusta nisu imali potrebe uzimati dodatne lijekove, a period bolovanja im je bio kratak, u prosjeku 9 dana. Nismo ispitivali prosječno trajanje bolovanja nakon otvorene apendektomije, ali naš prosjek je znatno kraći od prosjeka navedenog u literaturi, koji je za otvorenu apendektomiju bio 14 dana (13).

Možemo zaključiti da je laparoskopska apendektomija metoda izbora za bolesnike s kliničkom slikom akutnog apendicitisa, bez obzira na težinu bolesti. Evidentno veća cijena samog zahvata je i više nego kompenzirana prednostima kao što su kraći ostanak u bolnici, brži oporavak i kraće trajanje bolovanja. Dodatne prednosti laparoskopske nad otvorenom apendektomijom se sastoje u mogućnosti inspekcije cijele trbušne šupljine što omogućuje adekvatno zbrinjavanje u slučaju neupaljenog crvuljka ili koegzistirajuće bolesti. Nadalje, ispiranje trbušne šupljine nakon laparoskopske apendektomije je mnogo bolje nego kod otvorene apendektomije.

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Clinical Trial

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ISTOVREMENE OPERACIJE REVASKULARIZACIJE MIOKARDA I VASKULARNE REKONSTRUKCIJE
SIMULTANEOUS CORONARY AND VASCULAR SURGERY OPERATIONS

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SAŽETAK

Cilj: Cilj ove studije je prikaz učinjenih istovremenih operativnih zahvata revaskularizacije miokarda i vaskularnih rekonstruktivnih zahvata te definiranje najboljeg načina za njihovo liječenje.
Metode: Tijekom četiri godine (2000-2004) u našoj ustanovi učinjena su 53 istovremena zahvata revaskularizacije miokarda i jednog od vaskularnih rekonstruktivnih zahvata. Uz revaskularizaciju miokarda učinjeno je istovremeno: kod 44 bolesnika karotidna endarterektomija, kod 4 bolesnika resekcija i rekonstrukcija aneurizme abdominalne aorte, kod 1 rekonstrukcija aneurizme torakalne aorte, kod 2 bolesnika aortobifemoralno premoštenje i kod 2 femoropoplitealno premoštenje.
Rezultati: Ukupno smrtnost iznosi 3.7% (2 bolesnika). Kod oba umrla bolesnika uz revaskularizaciju miokarda učinjena je i karotidna endarterektomija. Jedan bolenik umro je iznenadnom smrću (bez patološkog supstrata na obdukciji), dok je drugi umro kao posljedica perioperativnog infarkta miokarda (1.8%). Neuroloških komplikacija nismo imali. U skupini bolesnika kojima je uz revaskularizaaciju miokarda učinjena ili rekonstrukcija aneurizme abdominalne odnosno torakalne aorte ili aortobifemoralno ili femoro-poplitealno premoštenje nismo imali niti kardijalnih niti komplikacija vezanih uz vaskularni rekonstruktivni zahvat.
Zaključak: Istovremeni operativni zahvati kiruške revaskularizacije miokarda i vaskularne rekonstrukcije predstavljaju siguran način liječenja polivaskularnih bolesnika.
Ključne riječi: *koronarna bolest, koronarna revaskularizacija, vaskularne rekonstrukcije.*

SUMMARY

Aim: The aim of this study is to present our result with simultaneous coronary artery revascularisation and vascular operations and to define the best method of treating those patients.
Methods: During four years period (January 2000. - January 2004.) we have performed 53 simultaneous coronary artery revascularisation and vascular operations. Simultaneously with coronary artery revascularisation we have performed: in 44 patients carotid artery endarterectomy, in 4 patients reconstruction of abdominal aortic aneurysm, in 1 patient reconstruction of thoracic aortic aneurysm, in 2 patients aortobifemoral by pass and in 2 patients femoropopliteal by pass.
Results: Mortality in this group of patients was 3.7% (2 patients). In both cases coronary artery revascularisation and carotid endarterectomy was done. Cause of death was: in one patient sudden cardiac death and the other patient suffered perioperative myocardial infarction. There were no neurological complications. In group of patients with coronary revascularisation and simultaneous reconstruction of abdominal aortic aneurysm or reconstruction of thoracic aortic aneurysm or aortobifemoral by pass or femoropopliteal by pass we have no cardiac or vascular related complications.
Conclusions: Simultaneous coronary artery revascularisation and vascular operations is safe method of treating polivascular patients.
Key words: *coronary artery disease, coronary revascularisation, vascular reconstruction.*

UVOD

Bolesnici sa koronarnom bolešću često imaju difuzni oblik ateroskleroze koja zahvaća ekstrakranijalne krvne žile, aortoilijakalni segment ili infraingvinalne krvne žile (1-3). Također, oko 50% bolesnika koji zahtjevaju operaciju aneurizme abdominalne aorte (AAA) imaju koronarnu bolest srca (4,5). Takvi bolesnici prezentiraju se ili sa anginoznim tegobama ili sa simptomima hipoperfuzije ciljnog organa. U slučaju pre-

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dominantno vaskularnih simptoma ishod predviđene vaskularne rekonstrukcije limitiran je kardijalnim statusom, dok u slučaju predominacije kardijalnih simptoma hipoperfuzija kompromitiranog vaskularnog sliva može se akutizirati i tako kompromitirati ishod operativnog zahvata. Ovi bolesnici zahtjevaju temeljitu dijagnostičku evaluaciju i seriozni kiruški pristup.

Indikacije za istovremeno učinjeni operacijski zahvati kiruške revaskularizacije miokarda i vaskularnih rekonstrukcija predstavljaju još uvijek predmet prijepora u kirurškim krugovima. Kardiokiruški bolesnici koji zahtjevaju operativni zahvat na koronarnim arterijama i vaskularnu rekonstruktivnu operaciju mogu biti najbolje zbrinuti istovremenim operacijskim zahvatom.

METODE I BOLESNICI

Tijekom razdoblja od četiri godine (siječanj 2000. - siječanj 2004.) u našoj ustanovi operirano je 1302 bolesnika kojima je učinjena koronarna revaskularizacija (CABG). Od tog broja učinjeno je 53 (4%) kombinirana operativna zahvata revaskularizacije miokarda i vaskularne rekonstrukcije. Kod 44 bolesnika učinjeno je CABG i karotidna endarterektomija (CEA). Indikacije za istovremeni operativni zahvat revaskularizacije miokarda i karotidne endarterektomije bile su: planirani operativni zahvat na koronarnim krvnim žilama (signifikantna stenoza stabla lijeve koronarne arterije, angina u naporu ili nestabilna angina) te pridružena stenoza unutrašnje karotidne arterije (simptomatska ≥ 60%, asimptomatska ≥ 75%).

Kod dva bolesnika učinjeno je CABG i aortobifemoralno premoštenje. Indikacija za istovremeni operativni zahvat revaskularizacije miokarda i aortobifemoralnog odnosno femoropoplitealnog premoštenje uz planiranu revaskularizaciju miokarda bila je hodna pruga manja od 50 metara odnosno kritična ishemija noge.

Kod četiri bolesnika učinjena je koronarna revaskularizacija i resekcija aneurizme abdominalne aorte (AAA). Kod jednog bolesnika istovremeno je učinjeno CABG i resekcija torakalne aneurizme (TAA). Indikacija za istovremeni operativni zahvat revaskularizacije miokarda i resekcije aneurizme bila je, uz planiranu revaskularizaciju miokarda, veličina aneurizme (TAA≥6 cm odnosno AAA ≥ 5 cm) odnosno njihov rast unutar 6 mjeseci za više od 0.5 cm.

Bolesnike smo podjelili u tri skupine. Prva skupina su bolesnici kojima je učinjeno CABG i CEA. Drugu skupinu čine bolesnici kojima je učinjena CABG i resekcija i rekonstrukcija aneurizme (AAA / TAA). Treća skupina su bolesnici kojima je učinjen CABG i premoštenje aortoilijakalnog ili infraingvinalnog arterijskog sistema. Preoperativne karakteristike bolesnika prikazane su u tablici 1.

TABLICA 1. DEMOGRAFSKE I KLINIČKE KARAKTERISTIKE

	CABG+CEA (44pt)	CABG+AAA/TAA (5pt)	CABG+POVD (4pt)
DOB (SREDNJA)	64.65	67.2	66.3
RASPON	50-76	60-72	63-74
SPOL	M 37 (84%) Ž 7 (16%)	M 5 (100%)	M 4(100%)
KARDIJALNI SIMPT.			
ASIMPTOMATSKI1	1	0	0
ANGINA U NAPORU	31	4	2
NESTABILNA ANGINA	12	1	2
VASKULARNE MANIFESTACIJE			
CVI /TIA	9	–	-
SIMPTOMATSKA ANEURIZMA	-	2	-
CLI	-	-	4
LVEF			
NORMALNA	36	3	4
REDUCIRANA	8	2	-

CVI - Cerebrovaskularni inzult
TIA - Tranzitorna ishemička ataka
CLI - Kritična ishemija ekstremiteta
LVEF - Istisna frakcija lijevog ventrikula

KIRUŠKE PROCEDURE

Bolesnici sa istovremeno učinjenim CABG +CEA imali su prvo učinjenu CEA. CEA je učinjena na dva načina. Klasično sa uzdužnom incizijom untrašnje karotidne arterije uz upotrebu shunta ili everzionom tehnikom bez upotrebe "shunta". Shunt smo primjenjivali kod bolesnika kod kojih je postojala kontralateralna stenoza unutrašnje karotidne arterije ≥ 50% ili kada bi povratni krvotok iz operirane unutrašnje karotidne arterije bio oskudan. Po završenju endarterektomije pristupilo se medijalnoj sternotomiji i preparaciji graftova potrebitih za revaskularizaciju miokarda. Premoštenja su učinjena s arterijom mamarijom i venskim graftovima. Revaskularizacija miokarda učinjena je kod dijela bolesnika uz pomoć stroja za izvantjelesni krvotok, a kod drugog dijela bolesnika metodom revaskularizacije na kucajućem srcu (*eng.* off pump) bez upotrebe stroja za izvantjelesni krvotok.

Po učinjenom operacijskom zahvatu nakon šivanja operativne rane na sternumu pristupilo se šivanju incizije na vratu.

Kod bolesnika kod kojih je učinjen istovremen CABG/AAA/ABIF/TAA najprije je učinjena koronarna revaskularizacija (s ili bez upotrebe stroja za izvantjelesni krvotok) i uz još uvjek otvoreno operacijsko polje na srcu, učinjena je separatna incizija na abdomenu radi pristupa na AAA/ABIF. Po učinjenom zahvatu na AAA /ABIF istodobno su zatvorene operativne rane na prsištu i abdomenu. Resekcija i rekonstrukcija TAA rađena je kroz već predhodno učinjenu sternotomiju. Kod bolesnika s istovremeno učinjenim CABG/FEMPOP premoštenjem prvo je učinjena revaskularizacija miokarda i nakon kompletnog zatvaranja operativne rane na prsištu pristupilo se izvedbi femoropoplitealnog premoštenja sa venskim graftom. Intraoperativne karakteristike prikazane au u tablici 2.

TABLICA 2. INTRAOPERATIVNI PARAMETRI

	CABG+CEA (44pt)	CABG+AAA/TAA (5pt)	CABG+POVD (4pt)
CPB OFF PUMP	23 21	3 2	0 4
KORONARNE PREMOSNICE RASPON LIMA	 3.7 1-5 40 (90%)	 3.2 1-5 5 (100%)	 3.5 2-4 4 (100%)
CEA LIJEVO DESNO SHUNT	 15 29 22 (50%)		

CPB - Kardiopulmonalni by-pass
LIMA - Lijeva unutrašnja grudna arterija
CEA - Karotidna endarterektomija

REZULTATI

U ovoj skupini od 53 bolesnika kojima je učinjena istovremena operacija revskularizacije miokarda i jedna od vaskularnih rekonstrukcija umrla su dva bolesnika (3,7%). Kod oba umrla bolesnika učinjen je operativni zahvat CABG i CEA i to na kucajućem srcu bez upotrebe stroja za izvantjelesni krvotok. Jedan bolesnik kojem je učinjeno jednostruko koronarno premoštenje umro je četvrti poslijeoperacijski dan na odjelu iznenadnom smrću. Provedena obdukcija nija našla patološkog supstrata koji bi korelirao sa smrtnim ishodom. Drugi bolesnik umro je nakon preboljelog perioperacijskog infarkta miokarda. Učinjeno mu je četverostruko koronarno premoštenje i karotidna endarterektomija. Radi hemodinamske nestabilnosti tijekom šivanja premosnica na kucajućem srcu učini se konverzija i operacija se nastavi uz potporu stroja za izvantjelesni krvotok. Nakon učinjenih premosnica uz maksimalnu inotropnu mehaničku (intraaortalna balon pumpa) i farmakološku potporu bolesnika se ne uspije odvojiti od stroja za izvantjelesni krvotok. Jedan bolesnik imao je produžen boravak u jedinici intenzivnog liječenja radi otežanog odvajanja od stroja za mehaničku respiraciju kao posljedicu svoje kronične

TABLICA 3. PERIOPERATIVNI PARAMETRI

	CABG+CEA (44pt)	CABG+AAA/TAA (5pt)	CABG+POVD (4pt)
SMRT	2	0	0
TIA/CVI	0	0	0
INFARKT MIOKARDA	1	0	0
AMPUTACIJA			
KOMPLIKACIJE VEZANE UZ GRAFT	-	0	0
RESPIRATORNE KOMPLIKACIJE	1	0	0
KRVARENJE	0	0	0
BORAVAK U JIL (DANI) RASPON	3.55 1-24	3 2-4	3.5 1-7
BORAVAK U BOLNICI (DANI) RASPON	10.99 5-32	11.2 9-15	13.25 10-20

JIL - Jedinica intenzivnog liječenja

opstruktivne bolesti pluća. Nije bilo neuroloških komplikacija.

U skupini bolesnika sa revaskularizacijom miokarda i istovremenom zahvatu na AAA/TAA/ABIF/FEM-POP nije bilo mortaliteta niti drugih komplikacija tijekom bolničkog liječenja tablica 3.

RASPRAVA

Bolesnici s koronarnom bolešću te manifestacijama ateroskleroze u cerebrovaskularnom, aortoilijakalnom i infraingvinalnom vaskularnom sistemu spadaju u posebnu skupinu bolesnika s povišenim rizikom. Ti bolesnici stariji su, imaju nižu ejekcijsku frakciju u usporedbi sa bolesnicima koji aterosklerozom imaju zahvaćenu samo koronarnu cirkulaciju (6-9). Bilo bi pogrešno uspoređivati ih s bolesnicima koji imaju oboljelu samo koronarnu cirkulaciju i zahtijevaju izoliranu revaskularizaciju miokarda (10).

Ustanovljeno je da između 6 do 12% bolesnika kojima je potreban zahvat revaskularizacije miokarda imaju stenozu karotidne arterije ≥80% (1,2,11,12). Mortalitet u skupini bolesnika koji imaju signifikantnu stenozu karotidne arterije i koronarnu bolest te im se učini samo izolirana CEA kreće se od 4% pa čak u nekim studijama doseže i do 20%(13-15). Vodeći uzrok smrtnosti kod bolesnika kojima se učini izolirana CEA, a imaju oboljenje na koronarnim krvnim žilama je infarkt miokarda (14).

Učestalost moždanih udara kod bolesnika sa poznatom karotidnom i koronarno bolešću, kod kojih se učini samo CABG, iznosi 4.1% kod asimptomatskih i 8.2% kod simptomatskih (13). Više studija pokazuje da se smrtnost u skupini bolesnika operiranih istovremenim zahvatom CEA+CABG kreće se od 0-5% sa učestalošću neuroloških poslijeoperacijskih ispada između 0-3% te s učestalošću poslijeoperacijsog infarkta miokarda od oko 3%.(11,17,18).

Smrtnost u našoj seriji bolesnika operiranih istovremenim zahvatom CEA+CABG iznosi 4.5% (2 bolesnika). Jedan bolesnik umro je iznenadnom smrću ,a kod drugog bolesnika radilo se perioperativnom infarktu miokarda (2.2%). Smatramo kako ovi rezultati opravdavaju naš stav o istovremeno učinjenim operacijskim zahvatima karotidne endarterektomije i revaskularizacije miokarda kao najboljoj metodi za zbrinjavanje oboljenja u oba vaskularna sustava.

Učestalost koronarne bolesti kod bolesnika predviđenih za operativni zahvat resekcije i rekonstrukcije AAA iznosi oko 50 %. Uz to perioperativna smrtnost, prilikom izolirane resekcije AAA, kod takvih bolesnika četiri puta je veća nego kod bolesnika bez signifikantnih promjena na koronarnim krvnim žilama (19,20).

Posebna opasnost kod bolesnika kod kojih je učinjena koronarna revaskularizacija, a resekcija aneurizme se ostavi za drugi operativni zahvat, je ruptura u periodu čekanja na resekciju AAA. Ustanovljeno je kako je smrtnost, kao posljedica rupture AAA, 33 % ako je period između revaskularizacije miokarda i resekcije i rekonstrukcije AAA više od 2 tjedna (21).

U našoj skupini bolesnika CABG + AAA/TAA/ABIF/FEMPOP nismo imali niti kardijalnih komplikacija, niti komplikacija vezanih uz vaskularni rekonstruktivni zahvat.

S obzirom na podatke iz literature i vlastita iskustva, mišljenja smo kako se i ova skupina bolesnika najbolje može zbrinuti simultanim operativnim zahvatom koronarne revaskularizacije i vaskularne rekonstrukcije osobito ako se u obzir uzme izuzetan rizik kojem su bolesnici izvrgnuti u slučaju odgođene vaskularne rekonstrukcije (22,23).

Uz sve gore navedeno ne smijemo zaboraviti niti na potrebu smanjivanja troškova u zdravstvu pa i na rizike kojima je bolesnik dodatno izložen u dva operativma zahvata (dvije anestezije, produljeno bolničko liječenje, uvećana vjerojatnost od poslijeoperativnih komplikacija).

Bolesnici kojima je uz koronarnu kirurgiju potrebit i dodatni vaskularni rekonstruktivni zahvat predstavljaju skupinu bolesnika s povišenim rizikom. Kod pravilno postavljenih indikacija ti bolesnici najbolje mogu biti zbrinuti istovremenim kombiniranim operacijskim zahvatom revaskularizacije miokarda i vaskularnom rekonstrukcijom. Ujedno izbjegavaju se neželjeni događaji tijekom bolesnikova čekanja između dva zahvata. Naposljetku, smanjuju se i troškovi liječenja koji bi nastali kod ponovljenih hospitalizacija.

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Osvrti
Editorial

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LAPAROSCOPIC SURGERY IN THE VISCERAL SURGERY

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Since the introduction of video - laparoscopy in the mid - 80 almost all general surgery standard surgeries in specialized centers were performed laparoscopically. Some of the interventions like the laparoscopic reflux surgery, the cholecystectomy and minimally invasive hernia surgery have more or less completely replaced the conventional method. For systematic reasons and due to the huge number of diseases, only a few examples were chosen.

ESOPHAGUS AND ESOPHAGUS RESECTION

The laparoscopical, i.e. toracical approach with gutartige esophagus disease like epiphrenic esophagus diverticles or the intramural benign tumor of the gullet are applied in our clinics as standardized surgery procedures with all the benefits and advantages of the minimally invasive approach.

Regarding the experience gathered in the past years in the major centers in connection with treatment of malignant esophagus diseases with the laparoscopic and thoracical procedure, this procedure has become more and more significant in our clinics. Conventional esophagus resections even today have a clinical lethality of 10% and a morbidity of 40%, mainly caused by post-surgery pulmonary problems with multi-morbid patients.

A number of researches clearly proof that the minimally invasive procedure gives a reduced trauma in approach and less post surgery pain and a shortened recovery period. Pulmonary complications are therefore found at less degree. Still, esophagus resections under minimally invasive treatment have been published so far only in very few individual cases.

Usually in such cases thoraxopically only the esophagus was prepared, but the abdominal and cervicular part operated in conventional procedures. Accordingly and because of the small number of cases no difference could be found between the conventional and minimally invasive procedure.

First experiences have been gathered with the laparoscopic transhiatal esophagus resection with cervical anastomosis. Laparoscopically the lymph nodes dissection can be done from the truncus coeliacus to the central mediastinum with the same oncological quality as with conventional procedures.

After the results found so far, the laparoscopic procedure even with esophagus resections can significantly decrease the morbidity and lethality. We have operated by now 10 patients with this method. Only in one case we could find a cervical anastmosis insufficiency (insufficiency rate conventional surgery 30%), none of our patients died. The patients stayed only the first night at intensive care and were given already on the first day after the surgery oral food. The stay in the hospital was 11 days against 22 with conventional procedures.

HIATUS HERNIA AND REFLUX SURGERY

In the meantime the laparoscopic approach is considered when treating a large hiatus hernia, a paraesophagial hernia and its extreme version - the "upside down stomach", or with the surgery treatment of the reflux disease, a standard procedure.

The reflux-esophagitis has been treated over years exclusively conservatively. After introduction of the laparoscopic fundoplication in 1991 it came to a sudden increase of numbers of surgeries. In some countries this surgery has almost completely replaced the conservative therapy.

Lundell could show in a prospectively randomized research, that the laparoscopic anti - reflux surgery is dominant over a permanent medication with 40 mg Omeprazol. Only at an increase of doses onto 80 mg the results equal.

Based on this the indication for the surgery is usually given only if the symptoms despite consequent application of a proton pump blocker persist after 12 months or return, then the doses has to be increased for the patients comfort or the patient declines permanent medication.

Post surgery complications are found at some 5% of cases. Very rare is a esophageal perforation or artifi-

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cial truncular vagotomy, it is mainly later bleeding, i.e. spleen lesions that appear. We are already monitoring over 300 patients that were treated with a laparoscopic funduplication. In the meantime 40 - 50 patients are operated annually for reflux esophagitis.

A post surgery dysphasia is after a 360° collar relatively common (20%), but last only very shortly, it is solved usually with a one time bougation.

We prefer a semi fundoplication by Dor, where the fundus is sawn ventrally onto the esophagus under reconstruction angle of His. Typical complications of the fundoplication like dysphagia or a gas bloat is found rather rarely, as the results of a prospective randomized research after the semifundoplication (Toupet, Dor, Thal) shows. The results of all surgery procedures are equally to a symptom control at 90 - 95%.

STOMACH SURGERY

Today's rather rare ulcers perforation in the stomach or the duodenum should, if possible even independent from the diagnosis and the duration of perforation be done laparoscopically. The laparoscopic over-sawing of the ulcers is burdened with a significantly less rate of wound infections and pulmonary complications than with the conventional procedure.

Also with treatment of benignant tumors and GIS tumors of the stomach, the wedge resection of the magenwand made laparoscopically, is an option.

The already developed new technologies and today's instruments we have at disposal enables us almost classical resections in the stomach, like Billroth I or Billroth II resection, as well as simple and extended gastrectomies with chosen indications with the help of minimally invasive procedures.

Even we will find only few written materials on experiences with the part of stomach resections at internal level, we in our clinics have gathered experiences with the entire spectrum of interventions in stomach interventions like wedge-, partial resection or gastrectomy. Ideal indications are benignant processes.

WEDGE RESECTION OF THE STOMACH WALL

The keeping up of oncological radicalism principles with carcinomas can be realized with gastrectomy laparoscopically, all decisive surgery steps can be done adequately with the oncological standard laparoscopically. The laparoscopical gastrectomy is surely technically possible and shows in results all known benefits of the minimally invasive technique for the patient: fast mobilization, smaller usage of analgetics, smooth start of the darmotility. Especially for the palpative gastrectomy in connection with quality of life, we see in future a good indication for the laparoscopic procedure.

The surgery technical efforts and costs and the requirements for laparoscopic readiness of the surgeon are to be evaluated as very high, which limits a fast wide application of this OP technique.

In future in studies evaluating goal parameters like no recidivism and long term survival are to be reviewed in order to get a sufficient basis for the evaluation and further optimization of the procedure of laparoscopic gastrectomy. Until then the technique doesn't give any standard procedure and should be only applied in laparoscopical centers.

In case of malignant stomach diseases based on good prognosis and the small rate of incidence of lymph nodes metastasis in the past years both endoscopic and laparoscopic limited resections were developed. Advantage of the laparoscopical wedge resection is the extraction of the entire wall and creation of a safety distance, so that a differentiation between T1a and T1b- because of the differing metastasis risks is necessary - can be done.

Prospectively randomized research done by Japanese authors could proof that at an early stage of stomach carcinoma the laparoscopic stomach resection is superior towards the purely endoscopic procedure in regard of return, survival and complication rates.

Advanced stomach cancers can be operated with the same radicalism as in conventional procedures. Based on the currently unreliably evaluated efficiency and effectivity the indication for the minimally invasive procedure is to be defined for every individual case.

STOMACH SURGERY WITH ADIPOSITAS PERMAGNA

In case of the adipostas the surgery procedures are accepted as therapy of choice conservative refractory adipositas permagna. Laparoscopically done interventions, in particular the implantation of a stomach band or a stomach bypass have been significantly improved based on the opinion of surgeons. The surgical procedures are only a support to the patient to get hold of the overweight problems.

For this all preconditions are given that need to be complied with by the patient to have such a surgery done.

The criteria for such a stomach band surgery are as follows:

- BMI > 40 (meaning Adipositas grade III)
- No success with other diets
- Cosurgery of the patient
- The overweight can not be result of consummation of sweets (for the stomach band)
- Eventual consequential diseases like high blood pressure

Besides this a psychologist evaluation is needed, as well as an opinion by an endocrinologist and a diet consultant (the surgeon will give the needed orders). These evaluations are send to the medical insurance together with the one issued by the surgeon. It may happen that the patient needs to be examined by an appointed physician of the medical insurance institute. In case of the stomach band the laparoscopic placement of a silicon band with a port system, which is positioned under the cardia and segments the stomach as a watch glass.

The pouch formed this way, as well as the artificial narrowness by the stomach band regulate mechanically the food consumption with the psycho-mental, decisive effect of a quick feeling of saturation - fullness of stomach. In case of a stomach bypass - also called gastric bypass or Roux-en-Y by-pass is cut with a string and a small "pre stomach" is created. The small intestine is cut through and connected with this pre stomach. The remaining stomach and the duodenum are by-passed. Food is in this case flowing from the gullet into the smaller stomach and directly into the small intestine.

LAPAROSCOPIC CHOLECYSTECTOMY

The laparoscopic cholecystectomy has in the meantime become the "gold standard" in the therapy of problems with the gall bladder. In our clinics we have annually over 600 gallbladder surgeries , of which 95% are done minimally invasive. Even a liver cirrhosis, coaugulation problems or a gall bladder empyema are by themselves no contraindication. In case of previous surgeries in the upper abdomen for the experienced surgeon an intervention in the laparoscopic procedure is easily done. In our patient bases some 10% of the patients already had a form of upper abdominal surgeries and the rate of transfer onto the new methods doesn't differ from the previously operated patients.

Alone the suspicion of carcinoma in case of a shrunk gall bladder seems to focus reasonable onto a conventional procedure.

The rather high rate on injuries of the gall bladder canals in the beginning, could be decreased after gathering more experience onto below 0,05% and the morbidity onto below 5%, with our own patients onto 0,1%, respectively 3%.

The further development of instruments has lead to a miniaturization of the intervention canals. In the meantime the instruments have a diameter of 2 mm instead of the previous 5 or 10 mm. This has resulted, as one of our own prospective study shows in a better cosmetic result along with a tendency of application of less painkillers. Only a half of the patients need once 20 drops of Novalgin and the post-surgery stay could be decreased onto 3 days.

The laparoscopic revision of the gall bladder canals in case of choledocholithasis could not be implemented because of the long time needed and other possibilities. The rate of success is between 70 and 95% at a morbidity of 1 - 12%. The therapeutic splitting is established with pre-surgery ERCP, EPT stone extraction and early elective cholecystectomy. The success rate of this procedure is at 90 - 95% with a morbidity of 15% and a mortality of 1%.

LAPAROSCOPIC APPENDECTOMY AND COLON SURGERY

The indication for the laparoscopic procedure in case of doubt of an acute appendicitis is subject of controversial discussions. In a meta analysis from over 20 prospectively randomized studies only few advantages could be found for the laparoscopic procedure in comparison with the conventional methods. In our prospective quality control we could see with about 300 appendectomies annually in a comparable patients collective after opened procedures at 12,5% effects with the wounds against 2% after minimally invasive surgeries.

The laparoscopical procedure therefore has become a procedure of choice in our clinics and is managed by all our employees.

The post surgery recovery was after laparoscopic procedures 3 days shorter than with conventional ones.

Along with the cosmetically convincing results (two 0,6 cm long incisions at the pubic hair border, one 2,5 cm long almost invisible incision in the navel area) we see especially with adipous patients significant benefits of the minimally invasive procedure, since the big stomach incision is not applied anymore with its morbidity.

An argument of prolonged surgery/surgery times and time for preparation, as well as higher costs can not be applied here, since we could find no difference in time during our practical experiences.

Laparoscopic duodena surgery

The laparoscopic sigma resection in cases of acute or chronically sigma diverticulitis has to be regarded as standard today. It is not justifiable why such an intervention is to be done through a large median lower laparatomy, when it can be done the same way over a 4 cm long cut through the symphysis, where the patient is hardly disturbed and can be released home often only after 6 six days, which is when after conventional interventions the patient is just being prepared for food consumption.

Also, with the surgical treatment of M. Crohn, colitis or multiple poyposis with or without the formation of

pouch, the minimally invasive approach is the method of choice in our clinics.

If one, on the other hand sees, that it is mainly young patients and that the intra- abdominal trauma is always high, we think that with compliance of other centers of experience, the benefits of a laparoscopical approach - like fast recovery, maintenance of the full abdominal wall and particularly the cosmetic result speak for themselves.

Benignant colorectal diseases let us believe in connection with laparoscopically achieved results on a long-term basis identical results as in conventional procedures, since in the short-term period the clinically relevant benefits for the patients could be evidenced through the minimally invasive procedure.

1. faster reconvalescence
2. reduction in post surgery complications
   - post surgery ileus
   - abdominal wall complications (infection of wounds, hernia)
3. shorter hospitalization
4. faster return to normal activities
5. less blood loss
6. less immuno suppression

An "outcome" Analysis for the evaluation of the clinical relevance of medical/health goals by physician and patient proofs on the example of the laparoscopical gall bladder extraction that the life quality index "quick re-establishment of full physical readiness (fitness "To be the old self again") is given a key role in the choice of methods.

In a comparison of methods "laparoscopic vs. conventional" the following parameters are highlighted:

1. traumatization of the abdominal wall
2. retracting measures
3. changes of surrounding in the peritoneal cave
4. local trauma on the targeted organ
5. prolongation and duration of the preparation

Based on the above especially colorectal resections, characteristic by large laparatomies and long-term retractions of abdominal walls and intestinum in conventional procedures, the laparoscopic procedure shows the following benefits:

1. less influence onto the post surgery lung functions
2. reduced pain symptoms despite less pain killers given
3. faster normalization of the gastro intestinal function
4. shorter fatigue syndrome
5. improvement of life quality

The goal of an optimization of the therapy comfort will remain to be the removal - transformation of conventional procedures, so that along with all other benefits of the laparoscopic intervention accompanied by a minimal aggressive surgery trauma, an improvement of the oncological result by further development of the used techniques and qualification of the operating surgeon will be added.

With more than 400 laparoscopical colon resections with benignant diseases we could through our clinic internal quality controls clearly proof the superiority of the laparoscopic procedure in regard to the complication rate, the post surgery life quality (like pain, fatique syndrome, costs etc.).

After now more than a decade of laparoscopical colorectal surgery, the controversies regarding benefits and risks are mainly limited onto the malignant part.

The introduction of an advanced minimally invasive technique has brought us to new methods of approaches to malignant tumors, which on the other side have impact onto the oncological results of patients with cancer.

In the evaluation of the existing results of studies - for the patient with tumor who has undergone a laparoscopic surgery, significant benefits arise regarding the survival rate.

The surgical trauma per se (conventional vs. laparoscopic) with its effects onto the local immune response in cases of carcinoma, as well as in connection with potential growth factors of the metastasis is taken into consideration as possible cause for this phenomena.

This journey of one decade has also brought us to new insights regarding the effects of surgical interventions onto the patients. It has also shown the importance of the immediate post - surgery time onto the direct tumor growth in increased stress situation.

These insights will hopefully lead to better surgical methods and new adjuvant therapies, increase the survival rate and decrease the return rate with cancer patients.

The acceptance of the fast growth of the laparoscopic techniques in the colorectal surgery proofs only the requirement of a wide qualification, problem oriented, since for quite some time now there is no doubt that qualifiedly applied techniques have been properly established in this part of surgery.

For the driving force oriented side "the consumers" - the patients, the benefits of a reduced procedure and less surgery trauma are obvious and clear, so we should not expect a drawback in the implementation of these procedures. This aspect is not only supported by the various studies, but also by the term short-term benefits. The also very actively involved "offering side"

- knows all the options of the laparoscopic techniques. One doesn't need to have any prophetical gift to realize the dynamics of this development process, despite possible drawbacks in the power of transformation within the conventional colorectal surgery.
Also, the fact that the success of laparoscopic interventions on the colorectum depends at the highest grade of the qualifications of the surgeon, is the decisive influence onto the speed of wide application of this procedure.
Therefore it can be expected and wished, that the laparoscopic technique will remain for a reasonable period of time a therapeutically option in specialized medical care centers, which should not be seen as competition to the conventional technique, but primarily a speed giver.
In other words, one must be able to perform it and than it will be done and will be without doubt of great benefit for the treated patient.
With the long term results that are soon to be expected the curative intended laparoscopic resection of the colorectal carcinoma, a positive impulse with a new development push could be created. Therefore qualification must be obtained.
Since January 1993 to the end of 2003 in our clinics 360 laparoscopically assisted resection of carcinoma were done. We already have the long term results of them.
The cumulative survival rates /Kaplan - Meier/ without age correction and after 55 months is at 80% in all stages of the curatively operated group. In stage I it was 94%, stage II 82% and in stage III 60 %.
In another prospective study in Bremerhaven on 20 laparoscopic rectum sections, both a inspectoral and angiographic, but in all cases an intact mesorectum could be found.
Due to the enlargement effect of camera systems the performance of a total mesorectum excision is ideally possible.
While in the open procedure problems with bladder emptying and the sexual functions could be noticed in 30 - 50%, laparoscopically the important plexus hypogastricus, which is crucial for the bladder could be significantly better visualized and saved.
Post surgery problems in this part we could find after laparoscopic interventions only in 5%. Regarding the scope of the resection, there is no differences between the open and laparoscopic procedure. Prospective and retrospective studies on comparison show unanimously that the resection volume, the proximal and distal safety distance and the number of extracted lymph node doesn't differ.
The previously often seen implantation metastasis can be found by adequate measures only in up to 1,4%. The incidence is therefore within the range of conventional surgery, which can be found in large series and a frequency of 1,0%.
In a prospective supervision study of over 400 patients, after 22 months no difference could be found between the returning rates and the survival time between the conventional and the laparoscopic procedure.
The post surgery morbidity and mortality is in many studies lower after minimally invasive interventions. The anastomosis insufficiency that scares all experts is in cases of rectum carcinoma independent from the applied procedure and in particular of the resection height, the sex of the patient and dependent on a possible previous radiation, so that with resections this is uniformly at about 15%.
Further, even if more rare indications are the laparoscopical treatment of istrogenous colono perforations after coloscopic extraction of polyps and the segment resection with benignant polyps.
A further development of minimally invasive colon surgery is the transanal micro-surgical extraction (TEM) of benignant rectum polyps and early stage rectum carcinoma with the surgery rectoscope. With a medium duration of stay of 4 days, we could see with over 550 patients a morbidity of 3,4% and no post surgery death case. The long term results are if viewed long - term and through comparing researches better than the transient extraction with the Park widener and less invasive than for instance rectotomia posterior. "Low risk" (lack of lymph vessel invasion, well to moderate differentiated).
T1 tumors have, based on these researches and after local extraction the same prognosis like after trans-abdominal surgeries (5 - years survival rate 79% vs. 81%), since the risk of lymph vessel metastasis is only 3%. The surgery risk is significantly lower and the post surgery life quality is significantly better. With advanced tumors or "high risk" malignoms this surgery technique is due to the incidence of lymph nodes metastasis in 12-83% only acceptable as palliative measure or with patients declining surgery.

ADRENAL GLAND SURGERY

In the shortest time the minimally invasive endoscopic procedure became the "gold standard" in the adrenal gland surgery. The small targeted organ with mostly benignant only few centimeters big neoplasts and the ablative character of the adrenalsectomy, which saves the surgeon of complex reconstructions.
The size of the organ is in disproportion to the relatively large and complex procedures and access routes in conventional surgery.

The indications for surgery of near kidney tumors is defined for a long time now and should not be changed by new surgery methods. Ideal indications for a minimally invasive procedure are hormone active adenomas at Conn or Cushing syndromes as well as hormone inactive tumors up to a size of 6 cm. In individual cases the extraction of large tumors may be justified isparoscopically.

Another good indication is the both sided by-kidney hyperplasia with otherwise uncontrollable M. Cushing or ectoper ACTH - production.

Pheochromocytomes may, after previous pretreatment with alpha blockers also be surgically treated with minimally invasive procedures. Contraindications are adrenal gland carcinoma, koagulopathia, cardio-pulmonary limitations of functions and pregnancies.

The central location of the adrenal gland has already contributed to four different minimally invasive approaches:

1. Laparoscopically from ventral
2. laparoscopically from lateral
3. retro-peritoneoscopically from dorsal
4. retro-peritoneoscopically from lateral

We preferred the laparoscopic approach from lateral.

All studies produced so far show unanimously that the laparoscopic adrenalectomy represents a safe and practicable surgery procedure with a complication rate (<2%) that is significantly lower than with the conventional procedure.

The benefits in comparison to open surgery are the ones of the "minimal access surgery" (less blood loss, less pain, short recovery, better cosmetic results).

The laparoscopical adrenalectomy is therefore, whenever practicable, to be used before open surgery.

Osvrti
Editorial

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EDUCATION IN ENDOSCOPIC SURGERY

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SUMMARY

Education in endoscopic surgery is of great importance. It can be implemented by means of endoscopic trainer, on imitated materials or on animal organs, on anaesthetized animals, during the assistance in and/or while performing the operation under the guidance of a skilful surgeon. An important role in education has been acquired by endoscopic courses. In Split, four courses of the kind have been held so far. Eight different subjects were elaborated during the last course. As compared with the course held in 2001, the 2002 course, which lasted 5 days and processed 6 subjects, included a greater number of trainees, more lecturers, while the lectures, practice and operation had a longer duration in total. The trainees were satisfied with the quality of the course, and in an anonymous questionnaire taken at the end of the course, they evaluated the lectures, practice and operations, as well as the course itself, with average grades ranging from 4.1 to 4.7. As a conclusion, it may be stated that the indispensable education in endoscopic surgery may reach a high quality level if implemented through courses where trainees achieve suitable initial knowledge from the theory and acquire skills in practice. The courses should be continually upgraded and updated with the objective of securing their high quality and responding interest and engagement of the participants.

Keywords: *endoscopic surgery, education*

INTRODUCTION

Having appeared in practice for a period slightly longer than a decade, the endoscopic surgery has found its place in the surgery in general and has become its constituent part. The present-day surgery cannot be articulated into endoscopic and conventional surgery, nor can surgeons be classified as endoscopic or conventional surgeons. A surgeon must be equally well trained for both, conventional or open surgery, as well as for endoscopic surgical procedures. On the other hand, an indirect approach to the operational area may cause a series of difficulties, as for instance is a limited visibility, insecure eye-hand co-ordination for the surgeon, difficulties in handling instruments, restricted immovability and alike. Consequently, to be able to carry out operations of the kind, it is necessary to be well trained, skilful and experienced. The fact that the need of introducing a permanent education for endoscopic surgeons was recognized at an early stage, has shown to be of utmost importance. At the beginning, only short courses for surgeons with experience were held, with the duration of only a couple of days. However, shortly after, education became obligatory during the specialist training[1-2].

It is well known that the duration of operation, the occurrence of lesions and complications in endoscopic surgery are related to the operator's experience, as well as to the so-called learning curve. Subsequently, the development of the minimally invasive surgery has imposed the need of implementation of an educational mechanism not only within the specialization programme, but also through adequate courses of endoscopic surgery. This way, the trainees are allowed a sufficient period of time bother, for studying the theory and for developing the indispensable motor skills[3-6]. Nowadays, there are a number of educational centers all over the world, where the courses of endoscopic and/or minimally invasive surgery are continually held. The best known educational centers in Europe are in Norderstädt - Hamburg[7], Strasbourg[8], Tuebingen[9], and Dundee[10].

Accordingly, the Society of the American Gastrological Endoscopic Surgeons (SAGES) has issued recommendations for learning the endoscopic surgery, as well as for releasing and extending licenses for carrying out operations based on the endoscopic technique. The objective of these instructions is to point out

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the principles and define practical recommendations in order to facilitate decision taking for hospital authorities in appointing individuals for practicing endoscopic surgery so as to allow for the right choice of surgeons appropriately drilled to perform the required procedures. The importance of learning endoscopic surgery during the specialization is accentuated in the course of the educational process, and a determined level of knowledge and skill required. Should such learning not show as satisfactory, postgraduate courses are indicated. Such courses should comprise theoretical lectures given by lecturers experienced in endoscopic surgery, as well as training in practice, assistance and carrying out operations supervised by experienced endoscopic surgeons. All these presumptions should be covered by the sponsorship of a qualified higher rank association. Furthermore, such courses should include instructions on how to handle instruments and equipment, how to accomplish a safe pneumoperitonum tissue handling, tying nodes, practical exercises aimed to the objective of the course etc. Course participants should demonstrate to the presenter their ability to carry out the complete operation, which should, in the end, result in issuing relative certificates by the course presenter. Attendance in short courses failing to provide education as above defined, shall not be certified[11-20].

The educational background of the course presenters is also of utmost importance. They can be classified in two groups. One group covers relatively young presenters, themselves adequately trained in endoscopic surgery not long ago. Their education was covered by a trustworthy sponsorship, as the case had been with many generations of surgical registrars before them. The other group of presenters-instructors represents the surgeons who had initiated the endoscopic surgery by starting to apply this technique on their own, with slight, or almost no experience whatsoever, after attending the basic courses in laparoscopic surgery, or being utterly self-educated. As a matter of fact, there was an urge to start with something after all. Oddly enough, the question is risen now of whether these presenters should be additionally educated, be it both, to become qualified for carrying out endoscopic interventions and for instructing others[6].

Finally, it is important to mention the ethical aspect of approaching equipment manufacturers. Many professionals have developed a business relationship with them. A positive ethical attitude would be to use the equipment of the company with convenient business ties as long as they are to the best advantage of patients. On the other hand, circumstances where products cannot be defined as the ones best suiting the benefit of patients, for being inadequate or poor in quality, cannot be defined as ethical. The same can be said abbot those product which are not necessary, and the objective of their choice is to create a stronger business relationship. As non-ethical should also be considered the case where, for the same reason, the presenter gives preference to the products of one company at the expense of another. The best policy is to recommend the use of products affirmed as being of high quality regardless of which company has manufactured them. Of course, this does not mean that on account of good trading relations equipment manufacturers would not be given the opportunity to promote their products through sponsorship for courses, various educational procedures, conferences and similar events as long as it will not influence the professional judgement[6].

In Croatia, courses of surgeons' permanent professional improvement have been held from the verity beginnings of endoscopic surgery[21]. The latest courses of the kind were organized in compliance with the above described SAGESA recommendations[22].

EDUCATIONAL METHODS IN ENDOSCOPIC SURGERY

One of the simplest techniques of the kind is learning how to perform operations in the endoscopic trainer. The endoscopic surgery work conditions higher or lower degree of precision.

Trainers look like more or less rounded boxes, some of them resemble the shape of the part of a body - e.g. part of abdomen. For this reason they are sometimes referred to as phantoms.

In general, endoscopic trainers may be classified as those which to be used require endoscopic equipment, and as those which do not impose such a requirement. On the other hand, training techniques carried out by means of a trainer may be defined as those based on artificial materials and those including natural tissues and organs. Trainers may be of simple design, not provided with electrical elements whatsoever, but there are also trainers with incorporated electrical assemblies.

Trainers differ from a common plastic box in their horizontal upper surface. In all trainers it must be, by all means, made of rubber, or it must have openings provided with inserted rubber pieces. Such a soft material will make it possible for trocars to be introduced in cases when the application of various instruments is required.

The trainer, which does not require endoscopic equipment, has its upper part, or the whole of it, manufactured from a transparent plastic material. On their upper surface, such trainers are provided with inserted

rubber pieces in order to facilitate the insight through the transparent side.

It is clear that they do not allow for the trocars to be moved. In other words the position of a trocar is determined by the position of the inserted rubber piece. Practice on the trainers of this type is much more economical. It is simpler and easier as compared to that with trainers designed with non-transparent sides and requiring the use of endoscopic equipment. Of course, the training will result in a significantly lower outcome, particularly due to the fact that the work performed requires less effort and to the lack of need for developing skills so peculiarly typical of and indispensable for endoscopic surgery, as it is operating while observing the image on the monitor, gaining the feeling of the third dimension while watching the two-dimensional image on the monitor, as well as working in the reduced sight field.

There are a number of types of trainers which require endoscopic equipment while in use. They are all provided with the upper side made of a non-transparent material provided with inserted rubber pieces or simply made of rubber altogether (Figures 1 and 4).

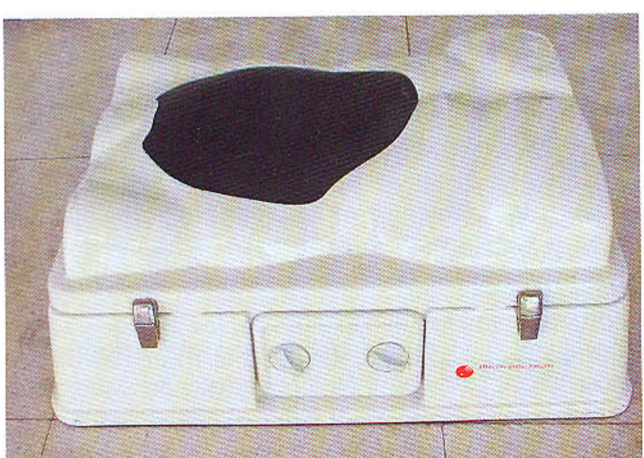

Figure 1. Endoscopic trainer.

Figure 2. Practice with endoscopic trainer - conditions resembling those in endoscopic operation.

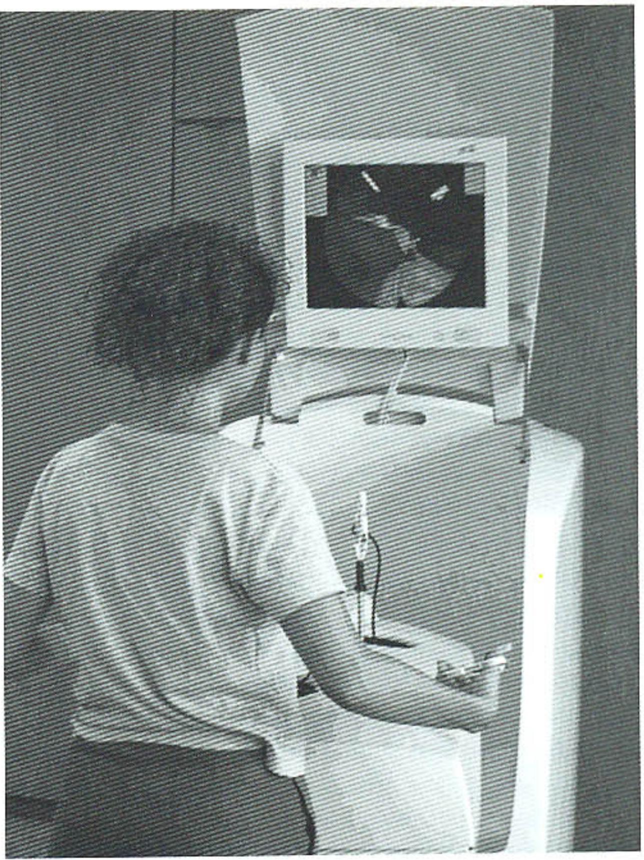

Figure 3. Practice with computer in a work station.

Trocars for endoscopes and instruments are introduced through such rubber. These trainers are very often used for training during various endoscopic courses. Most frequently, while being used they require assistance, while an extremely realistic endoscopic operation is being simulated (Figure 2). They may be provided with built-in endoscope holder to make the practice without assistance possible. The inside of a trainer is approached by lifting the upper non-transparent side. These trainers are normally provided with a special porthole allowing an easy access to the inside without removing the topside.

Some endoscopic trainers are fitted with special electrical assemblies similar to a pump. The system pumps the colored fluid in which it is immersed, which fluid is further injected into the blood vessel of the preparation and then circulated through the latter contained in the trainer. For this reason, these trainers are also defined as "perfusion trainers" as in them the preparation is permanently perfused by the colored fluid. Consequently, the virtual conditions resemble, with even more precision, the real operation as this way bleeding can also be simulated.

Practice on a trainer may be accomplished on artificial materials or on the preparations from the tissues and organs. Artificial preparations are used in practice

with the trainers not requiring the endoscopic equipment. However, in the practice with the preparations from the tissues and organs the trainers fitted with the endoscopic equipment are used. The application of tissue and organ preparations is definitely more efficient for education. On the other hand, it is connected with the difficulties of providing, adequate storing, preparing, handling and subsequent destroying such material, as well as with the very expenses arising therefrom. A distinct part of educational aids are operations and processes simulated by computer. The so-called "working stations" have been developed to this purpose, and their constituent parts are the computer with a monitor, holders simulating instruments and adequate computer programmes. Their disadvantages are reflected in their high cost equipment, unconvincing display and restricted diversity of the operations due to still deficient software possibilities not allowing for storing and programming all the possible variations and circumstances which may develop in the course of a true operation. A continual upgrading and promotion of such programmes has been in progress (Figure 3)[2,3].
In addition to the above described methods of education by means of different trainers or computer programmes, learning the endoscopic surgery is accomplished also on various animals. It stands to reason that this method resembles to a far greater extent the conditions of an operation carried out on a human, resulting, consequently, as the most efficient one.
Pigs are most frequently used to this purpose. The anatomy of a pig is similar to the human anatomy and pigs are available and relatively inexpensive. However, this method is most expensive, most complicated and most demanding and therefore, it is most infrequently practiced. This type of education is usually adopted by surgeons with certain experience and developed skills in endoscopic surgery. It is understood that during the learning process including pigs, all the rules concerning the treatment of animals used in laboratory research and testing are to be strictly observed.
The preparations and pigs used for practice are to be examined by a veterinary surgeon beforehand and under the veterinary supervision during the process of practice. During the learning practice and/or operations, surgical gloves must be worn and other precautions should be undertaken. Instruments and equipment not intended for use on humans will only be used (Figure 5).
Finally, education in endoscopic surgery is under way in everyday work, during the assistance in operations, as well as in carrying out operations under the supervision of a surgeon experienced in endoscopic process. Another educational technique is the mentorship of an experienced endoscopic surgeon with the scope of attaining a degree of skillfulness verified by a certificate. Such an education complies with the above mentioned recommendations of SAGES.

COURSES OF ENDOSCOPIC SURGERY IN SPLIT, CROATIA

Up to the present day, four courses of endoscopic surgery have been organized in Split, whereas about twenty courses of the kind have been organized in Croatia. The first course of the laparoscopic cholecystectomy was held in 1999 under the sponsorship of the Medical School of the University of Zagreb, while the subsequent three courses were held in 2001, 2002 and 2003, under the sponsorship of the Medical School of the University of Split. The last but one course was held from September 17-21, 2002, and it was for the first time that, in Croatia, an endoscopic course was held to cover more than one subject and to last more than

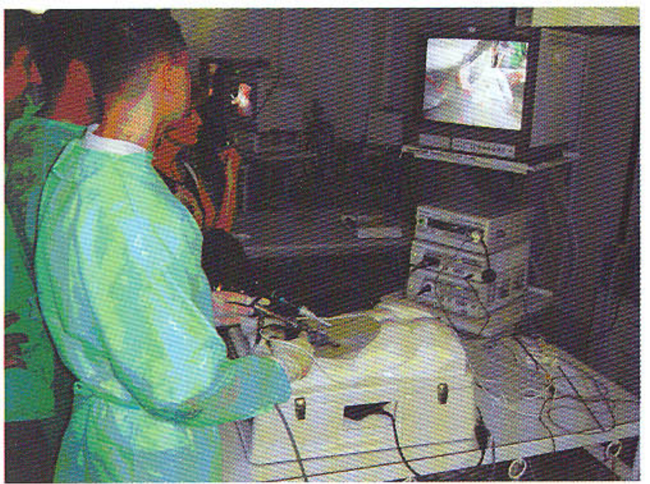

Figure 4. Practice with endoscopic trainer - true operation conditions are simulated (Split, 2003)

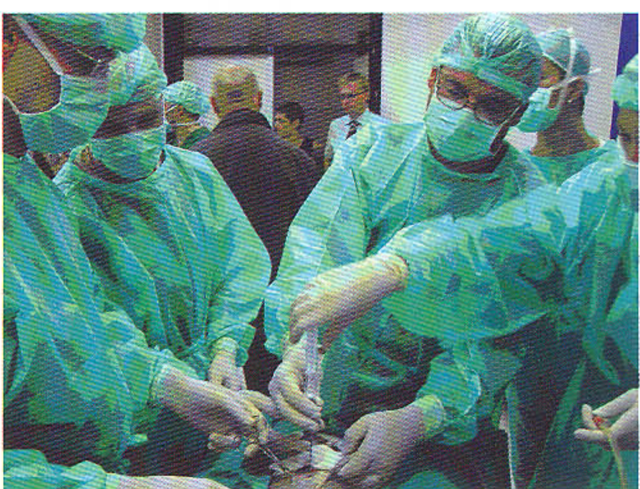

Figure 5. Operation on pigs - operating conditions equal to those in true operations (Split 2003)

two days. Also, it was then that for the first time a laparoscopic operation was accomplished on pigs outside the Veterinary Faculty of the University of Zagreb. During that course, a laparoscopic cholecystectomy was processed, as well as the open and endoscopic hernioplasy with the application of mesh reinforcement, appendectomy, introduction of peritoneal catheter and endoscopic stitching. The course included lectures, practice on pigs' livers and stitching on endoscopic trainer. (Fig. 4), operations on pigs (Fig. 5), and participating in a form of assistance during the operations. For all these reasons the course was defined as the First Autumn School of Endoscopic Surgery. A Book of Lectures was published for every course, whereas for the three last courses, the book was accompanied by a CD containing the lectures, the photographs of the instruments and videos of the operations. As compared with the Course of Laparoscopic Cholecystectomy from 2001, the First Autumn School of Endoscopic Surgery upgraded all the standards related to the scope and the quality of the courses, as well to the interest of the participants. So, in comparison with the 2001 course, the above stated one comprised 11 lecturers (formerly 7), 12 participants (formerly 11), 21 candidates wanted to participate, but, being in excess, could not be accepted (formerly 15). The lectures had duration of 420 minutes (formerly 160). The practice lasted 11 hours in total (formerly 4,5). A total of four operations were completed (formerly 2). The operations had duration of four hours (formerly 2). The cost for the participants was higher and amounted to KN 4000 - EURO 540 (formerly KN 1300 - EURO 175) (Table 1)

The participants were satisfied with the professional part, which resulted from an anonymous poll taken at the end of the course. Accordingly, an average grade of all the lectures was 4.7 (SD±0168), of the practice on pigs' livers 4.1 (SD±0.99) and of the assistance in operations on humans 4.1 (SD±0.5) (Table 2). Tests at the end of the course showed a competent knowledge of the participants.

As in the earlier courses, the participants had objections on account on their wish to have more practice, although the duration of practical work was increased for 244% (both practice and operations), whereas the entire duration of the lectures was increased for relatively low 163% (Table 1). Nevertheless, it is clear that the practical work segment will have to be additionally increased.

Finally, the last course was organized in Split from September 18-20 2003 with a covering on eight different subjects: the laparoscopic cholecystectomy, choledocholithotomy, hernioplasty, appendectomy, colon surgery, introducing peritoneal catheters, endoscopic stitching and experimental laparoscopic surgery. The course was defined as the Second School of Endoscopic Surgery and it has become the most comprehensive endoscopic course in Croatia. Lecturers from other medical schools in Croatia and from other European countries took part in all the courses.

It is our plan to organize a similar courses in autumn 2005, and thereupon, a specialized course for laparoscopic colorectal surgery, which will be held within the Croatian Congress of the Association of Colorectal Surgeons.

As a conclusion, it can be said that endoscopic surgery requires a continual and complementary education and that a satisfactory quality level towards this objective may be reached also by practicing in the form of courses of endoscopic surgery. There is a continual

Table 1. Comparison of Laparoscopic Cholecystectomy Course (Cholecystectomy 2001) and Autumn School of Endoscopic Surgery 2002

	CHOLECYSTE-CTOMY 2001.	*AUTUMN SCHOOL OF ENDOSCOPIC SURGERY* 2002.	*Augmentation* (%)
Lecturers	7	11	57
Trainees	11	12	9
Applicants	15	21	40
Duration of lectures (minutes)	160	420	163
Duration of practice (hours)	4,5	11	144
Number of operations	2	4	100
Duration of operations (hours)	3	6	100
Price (kunas)	1300	4000	208

Table 2. Anonymous opinion questionnaire completed by participants at the end of the course.

	Average estimate	SD
Lectures (total)	4,7	0,68
Practice on pigs' livers	4,45	0,69
Operation on pigs	4,1	0,99
Operations on humans - assistance	4,1	0,88
Average estimate of the course as a whole	4,55	0,5

need for such courses in Croatia, and they can be organized annually. Within such courses, the participants achieve a suitable initial knowledge from the theory and learn to master the skills required in the field of endoscopic surgery. At the same time they become aware of the latest developments in the theory and operational techniques of the open surgical interventions. A quality organization of the courses, compliance of the programmes with the wishes and the needs of the participants, introduction and elaboration of new, diversified and interesting subjects will guarantee the interest and engagement in the response of participants.

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Osvrti
Editorial

Acta Chirurg Croat 2005; 1: 44-47

CO-INVENTION - A NEW WAY TO INVENT

Federico Bilotti

The European Co-Invention Team, part of Ethicon Endo-Surgery, believes that a new and effective way to invent is to work together in a small team - one engineer and one surgeon.

The symbol that we have taken to represent this approach is Leonardo's "Vetruvian Man". In this image, one can see how the human being can be shown as fitting into both a square and a circle. The square, to us symbolizes the engineer with a well-defined approach to solving problems. The circle represents the surgeon with his more free and innovative way of thinking.

The ideas that are received by the co-invention team, we subdivide into two types - the patentable and the non-patentable. The non-patentable ideas are those, which for example fall into the category of product improvement - changing color and/or size of already existing devices. All these extremely important feedbacks on existing products and procedures are managed by our marketing organization. These non-patentable ideas are passed on to our marketing representative who filters it through three basic criteria:

1) Does this idea increase the product usage?
2) Does it improve the clinical outcome?
3) Does it speed up the procedure?

If the answer to one of those questions is yes, then the idea can be implemented into the next phase of product improvement.

If the idea on the other hand is patentable, then the inventor can speak to one of two groups:

A) Co-Invention Team:

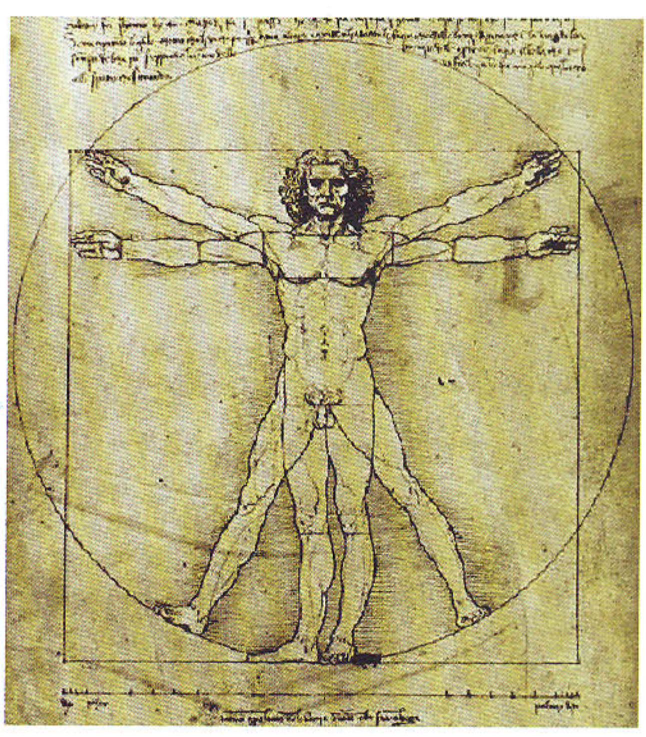
Our group is interested in developing this basic idea and to validating the technical, clinical and business aspects

B) Business development:

They are interested in license & acquisition of already validated concepts, e.g. finished products.

Let's go back to how the FD or BD group decide whether the idea is of interest to the organization. Our three filtering questions are:

1) Does this idea allow earlier cancer diagnose?
2) Does this idea allow for earlier release of patients?
3) Does this idea allow a change in the site of care?



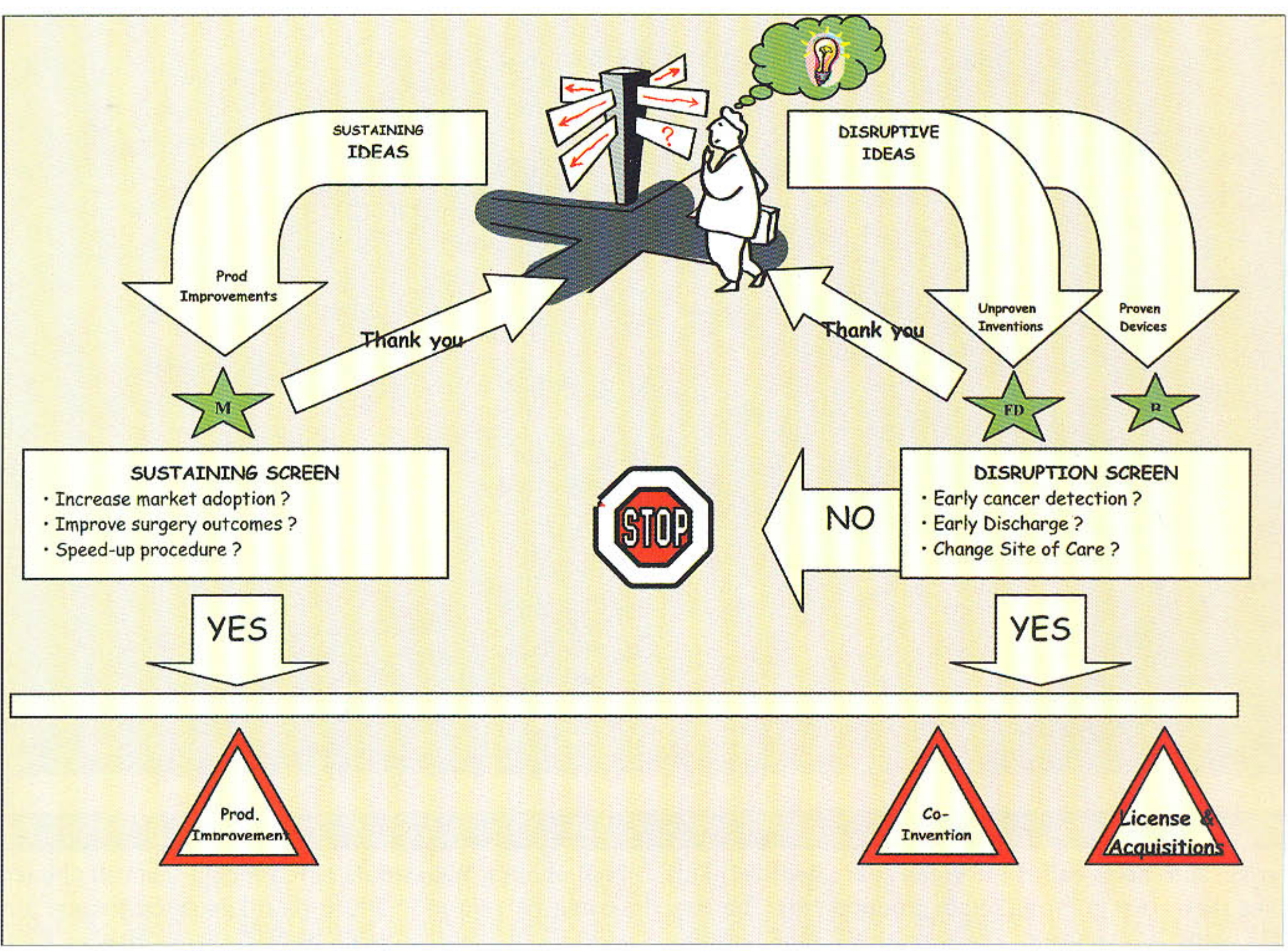
If the answer to one of the three questions is a yes, then the patentable idea, whether it is to be developed or already is developed, will be taken into consideration for a co-invention activity or a license & acquisition activity.

We will focus on the description of a co-invention activity.

Since 1991, in Europe we receive 100 idea submissions per year. Out of these 100, we identify one, which can pass the filters and initiate a co-invention activity for. We have also come to the conclusion that it takes three co-inventions, to create one product in Europe.

To transform the patient care through innovation, the mission of our company, we believe that one engineer + one clinician, is the most effective way to invent. And the inventions are the basis for the innovations of the future. We also believe that procedure and device technique, high unmet clinical needs, are the basis for successful inventions. The start-up, ultimately, of four to five engineers, business and clinical experts, is the most effective group size. The three aspects that this

Federico Bilotti, Director EU Co-Invention Team, Ethicon Endo Surgery



start-up team, also called co-invention team, has to focus on are

1) The clinical efficacy of the idea
2) The technical feasibility
3) The financial value

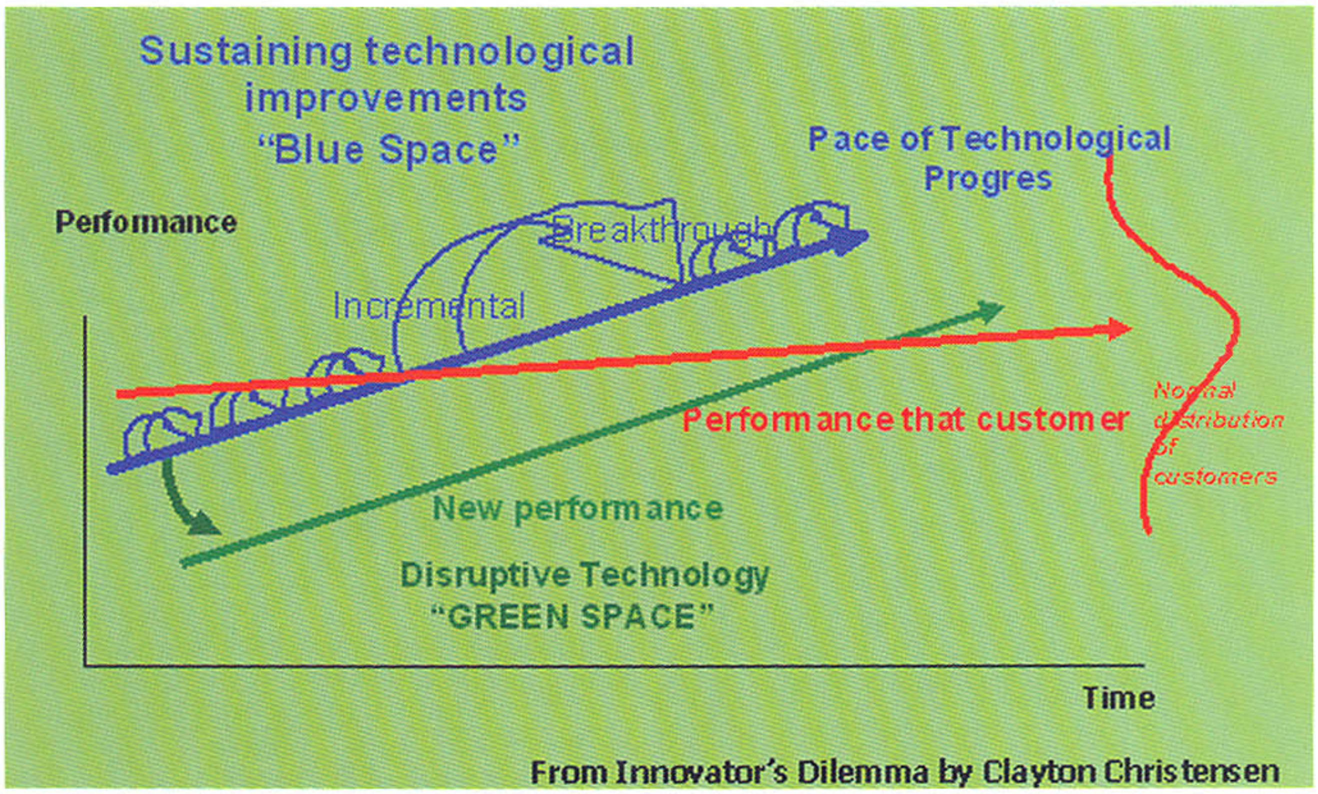
We are also looking at Clayton Christensen's graph, which displays the focus of disruptive innovation in any given industry.

In this graph, the y-axis represents the performance and the x-axis identifies time, one sees a red line moving slightly upwards in time as performance increases. This means that in time, customers are used to utilize and pay for higher performance. There is a rate of growth of this line, which is acceptable for the customer. A tolerance level is visible and depicted in parallel lines. The high tolerance line, depicts that high-demanding customers are willing to pay more for higher performing products and the lower parallel line shows that less demanding customers are willing to pay less for lesser-performing products. This means that not all customers are willing to pay for all the performances of a given device.

A new line can be shown in blue, which shows how the pace of technology progress could be higher than what the customer can absorb and the rate of increase of this line is given by the incremental break-throughs. If this improvement growth surpasses the more-demanding customers ability to absorb, we say that this device with the incremental break-throughs, is exiting from the customers sphere of product purchase capability. This product can no longer be bought or absorbed by the average customer. So for example, if we allow copy machines to get bigger and bigger, and provide features which are more and more expensive, there will come a time, when technological progress of copying machines will fall out of the range of the customers and customers will stop buying those machines, unable to afford them.

Telephones! For example, features added on cell phones: camera, calendar management, mp3 players, and navigators. Telephones become more and more expensive with these added features and if they surpass a certain absorption limit, for example € 1000 per cell phone, these cell phones will no longer be a device of choice.

Other examples can be seen in various products, which increase their cost by providing useful technological progress, useful performance but fall out of the economical range of the customer.



A last line, which is shown on this graph, is in color green and this is called the green space depicter. This line shows that in time, certain products enter the market with less features (performance) than existing devices, meaning that they barely provide the features required by the less-demanding customer. But in time, their performance improves. Slowly the green line crosses the red line, meaning that the average customer will start buying it.

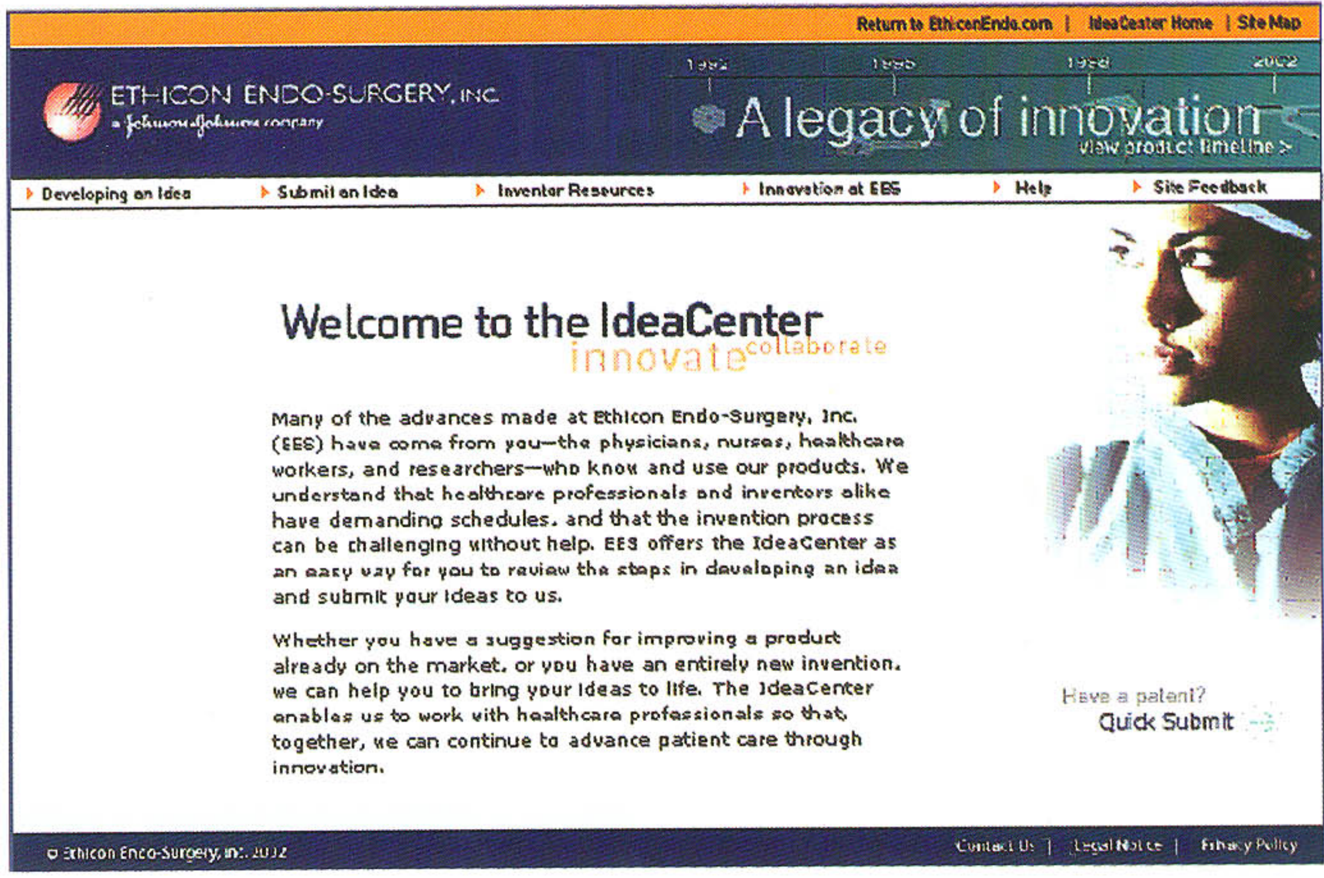
For example, if in the past copy machines were believed to be the only product to be purchased because they had that required number of performances, all of a sudden, table-top copy machines appeared, very simple ones making only one copy at a time. Certainly they had less performance than the big and expensive copy machines, but in time desktop copy machines provided the necessary features that the customer demanded and changed or disrupted the way in which a customer considered the device. Customers in time stopped purchasing the high-performing expensive copy machine.

The same thing happened for the lap-top computers. Who ever thought of lap-tops being the product of choice, when ten years ago, lap-tops could only manage word processing and allow us to write letters. Computers were seen as large equipment the sixe of todays servers, capable of managing data in a much more effective way than lap-tops could ever do. But in time, these lap-tops added performance and now they have disrupted the computer market, now more people are buying lap-tops than ever before. Another example is cell phones. Who would have thought that cell phones could be sold at _ 500 a piece? Now customers are willing to pay this price because performances have been such that they have become competitive to the earlier stationary telephones. Stationary telephones have become the dinosaurs, technology progress have caused them to become surpassed. Cell phones could also have the same development and the lesson that Clayton Christensen is teaching us is to continuously disrupt, continuously revolutionize our own devices because if we don't, someone else will.

My intent with this presentation is to solicit surgeons with innovative ideas to come and approach the Ethicon Endo-Surgery Co-invention team. We are interested in co-inventing surgeons who have a passion to improve clinical outcomes, to participate in teamwork, who are capable of meeting unmet needs and solutions. Successful professionals who are interested in finding time to co-invent with us, and surgeons who are non-traditional.

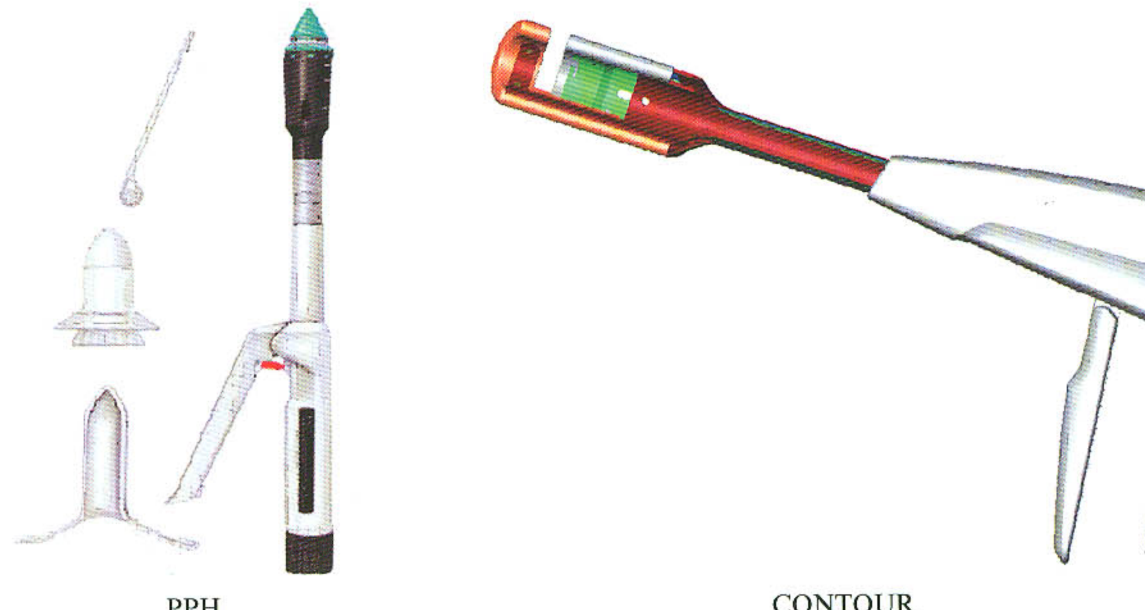
One way of submitting ideas to our organization is to go to the Internet site www.eesideacenter.com, accessing the window under submitting ideas and choose manual submission. This allows the inventor to print out the forms, which give him the opportunity to submit his idea to our European team.

The successes that we can count and which prove the co-invention approach successful are many, among



these the European team can be proud of a device for the use of mammotome with x-ray diagnostic systems, a device for the treatment of hemorrhoids, called PPH, a device for the diagnose of defecation obstruction syndrome, called Tulip and a device for LAR called CCS.

The conclusion is co-invention team works the way Leonardo da Vinci thought of it, looking at the environment, soliciting idea submissions, developing solutions for high clinical unmet needs and a start-up approach. All these are key elements in a successful innovation approach.



PPH CONTOUR

Prikaz slučaja
Case report

Acta Chirurg Croat 2005; 1: 48-50

BOERHAAVE SINDROM - PRIKAZ SLUČAJA I PREGLED LITERATURE
BOERHAAVE SINDROME - CASE REPORT AND REVIEW

Horžić M, Kopljar M, Ćupurdija K

SAŽETAK

Boerhaave sindrom je rijedak, ali životno ugrožavajuća ozljeda sa ukupnom stopom mortaliteta od 20% do 75% što ovisi o vremenu započinjanja liječenja Dugo vremena je poznato da je brzo prepoznavanje i započinjanje liječenja rupture jednjaka ključno za uspješan ishod. Međutim, usprkos dramatičnoj kliničkoj slici dijagnoza se kasno postavlja u preko 50% slučajeva. Prema tome, potrebno je stalno imati na umu postojanje ovakve ozbiljne kirurške bolesti. Ovdje prikazujemo slučaj spontane rupture jednjaka liječenog subtotalnom ezofagektomijom, uz pregled literature.

SUMMARY

Boerhaave syndrome is a rare but a life-threatening injury associated with an overall mortality rate ranging from 20% to 75% depending on the onset of treatment. Prompt recognition and initiation of treatment of esophageal perforations has long been recognized as being essential for a favorable outcome. However, in spite of dramatic clinical presentation, diagnosis is delayed in over 50% of patients. Therefore, constant awareness about this serious surgical condition is mandatory. We present a case of spontaneous rupture of the esophagus treated by subtotal esophagectomy and a review of the current literature.

UVOD

Spontanu rupturu jednjaka prvi je opisao Herman Boerhaave 1724. godine. To je rijetka, ali životno ugrožavajuća ozljeda povezana sa ukupnom stopom mortaliteta koja varira od 20% do 75%, što ovisi o vremenu započinjanja liječenja (1,2). Glavna komplikacija je medijastinitis koji je posljedica zagađenja medijastinuma i pleuralne šupljine mikroorganizmima, želučanom kiselinom i probavnim enzimima. Međutim, usprkos dramatičnoj kliničkoj slici, dijagnoza se kasno postavlja u preko 50% slučajeva, što povećava rizik morbiditeta i mortaliteta. Stoga je neophodno stalno imati na umu postojanje ovakvog kliničkog entiteta .

PRIKAZ SLUČAJA

Četrdesettri godišnji muškarac primljen je na odjel hitne pomoći zbog jakih bolova u gornjem abdomenu koji su se javili tijekom povraćanja. Kod prijema, pacijent nije imao kliničke ili laboratorijske znakove koji bi ukazivali na akutni abdomen, krvni tlak je bio 120/80 mmHg, radiografske snimke grudnih organa i abdomena nisu pokazivale značajne promjene. Postavljena je nazogastrična sonda kojom je odstranjeno 800 ml normalnog želučanog sadržaja. Hitna gastroskopija pokazala je blagu insuficijenciju kardije i malu hijatalnu herniju s umjerenim upalnim promjenama distalnog segmenta. Pacijent je pušten kući s dijagnozom gastroezofagealne refluksne bolesti drugog stupnja (GERD II). Slijedećeg dana bolesnik ponovo dolazi na pregled s jačim bolovima u trbuhu i povraćanjem. Kod prijema, pacijent je bio dispnoičan, krvni tlak bio je 120/80, abdomen je bio difuzno napete stijenke. RTG snimka grudnih organa pokazao je bilateralni subkutani emfizem vrata kao i mekih tkiva u desnom gornjem kvadrantu te pneumomedijastinum i lijevostrani pleuralni izljev (Slika 1.). Nativna RTG snimka abdomena nije pokazala znakove pneumoperitoneuma niti ileusa. Ultrazvučni pregled abdomena pokazao je distendirane vijuge tankog crijeva i inhomogenu formaciju uz slezenu. Kako bi se razjasnio ovaj nalaz, učinjena je kompjuterizirana tomografija (CT) toraksa i gornjeg abdomena. Nađen je značajan obostrani subkutani emfizem te pneumomedijastinum i bilateralni pleuralni izljev. (Slika 2.) Uočena je oštro ograničena struktura odmah ispod lijevog hilusa pluća koja je sadržavala mjehuriće zraka, što je upućivalo da se radi o lijevoj fleksuri kolona. Nalaz je rastumačen kao perforacija lijeve hemidijafragme s prodorom debelog crijeva u prsnu šupljinu.

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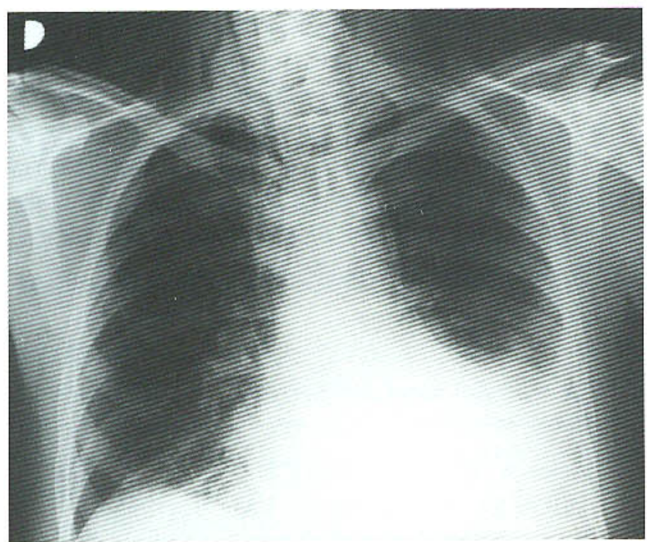
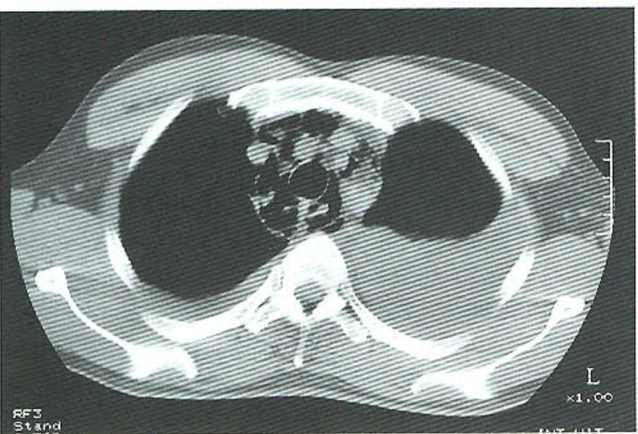


Slika 1. RTG snimka srca i pluća kod prijema koja pokazuje subkutani emfizem, pneumomedijastinum i lijevostrani pleuralni izljev.



Slika 2. CT snimka toraksa koja pokazuje značajan pneumomedijastinum i ljevostrani pleuralni izljev.

Učinjena je hitna gornja medijana laparotomija. Intaoperativno je nađen hematom u lijevom subfreničnom prostoru kao i intramuralni hematom kardije želuca. Nakon što je otvorena frenoezofagealna membrana, u medijastinumu je pronađen želučani sadržaj. Pregledom jednjaka otkrivena je potpuna disrupcija njegove stijenke na lijevoj strani epifreničnе ampule. Učinjena je resekcija distalnog jednjaka i proksimalnog dijela želuca. Formirana je hranidbena jejunostoma te su postavljeni drenovi u medijastinum i lijevi subfrenični prostor.

Osamnaestog poslijeoperacijskog dana uočeni su klinički i radiološki znaci curenja iz bataljka jednjaka te je učinjena reoperacija (subtotalna ezofagektomija, cervikalna ezofagostomija i drenaža medijastinuma).

Poslijeoperacijski tijek nakon druge operacije bio je uredan.

RASPRAVA

Spontana ruptura jednjaka, nazvana prema Hermanu Boerhaaveu, rijetko je, ali za život opasno stanje koje može imitirati velik broj drugih patoloških stanja. Ruptura jednjaka povezana je s visokim morbiditetom i mortalitetom jer se zbog anatomskog položaja jednjaka lako razvijaju ozbiljne komplikacije, kao što su medijastinitis i višestruko zatajenje organa (4). Spontana ruptura jednjaka je obilježena klasičnim trijasom simptoma: grudna bol koja se javlja tijekom ili nakon povraćanja, opetovano povraćanje te subkutani emfizem. Međutim, klasična klinička slika prisutna je u samo 50% slučajeva pacijenata s Boerhaaveovim sindromom, što rezultira stopom inicijalne dijagnostičke pogreške od 50% i više. Dobro je poznato da je rano otkrivanje rupture jednjaka i započinjanje odgovarajuće terapije ključno za uspješan ishod. Prema tome, neophodno je imati na umu postojanje ovog ozbiljnog kirurškog stanja.

U određivanju prognoze ključno je vrijeme između rupture i postavljanja dijagnoze. Mortalitet i morbiditet niži su ukoliko se liječenje započne unutar prva 24 sata. Odgađanje liječenja iza 24 sata nakon nastupa simptoma povezano je većom incidencijom komplikacija i smrtnog ishoda. Nakon perioda od 24 sata morbiditet i mortalitet dramatično se povećavaju, obično kao posljedica medijastinitisa. Suprotno od toga, započinjanje liječenja unutar 24 sata od nastupa simptoma rezultira većom vjerojatnošću za potpun oporavak pacijenata s Boerhaaveovim sindromom.

Usprkos brojnim izvještajima, koji opisuju širok raspon potencijalnih načina kirurškog liječenja rupture jednjaka, još uvijek se raspravlja o najučinkovitijoj terapiji. Mogućnosti kirurškog liječenja Boerhaaveovog sindroma uključuju primarno zatvaranje jednjaka, ezofagektomiju s primarnom ili odgođenom rekonstrukcijom, drenažu samu za sebe ili isključenje jednjaka iz probavne cijevi i diverziju.

Osnovni cilj svakog oblika liječenja liječenja rupture jednjaka u bolesnika s Boerhaaveovim sindromom mora biti sprječavanje medijastinitisa koji je rezultat rupture, uklanjanje posljedične infekcije, uspostava integriteta probavnog trakta te održavanje zadovoljavajuće prehrane pacijenta. Isključivo konzervativno liječenje, samo drenažom, čini se da je uspješno samo u pojedinim slučajevima, i to većinom u slučajevima jatrogene perforacije. Ovi pacijenti moraju se brižljivo opservirati te svako pogoršanje njihovog kliničkog stanja ukazuje na potrebu kirurškog liječenja. Ukoliko se dijagnoza postavi unutar 24 sata od nastupa rupture, neposredno primarno zatvaranje te široka drenaža medijastinuma predstavlja uspješnu opciju liječenja. Pri-

marno šivanje mjesta rupture iza kojeg slijedi pokrivanje režnjem tkiva (pleura, mišić, dijafragma ili Thal patch) tehnika je koja sprječava daljnje komplikacije te moguće čak i smrtni ishod.

Međutim, stopa mortaliteta povezana uz ovaj način liječenja dramatično se povećava s odgađanjem započinjanja liječenja. U slučajevima jakog oštećenja ili nekroze stijenke jednjaka, jakog medijastinitisa, hipodinamskog šoka, većina se autora slaže da je tretman izbora resekcija ili isključivanje jednjaka iz probavne cijevi . Ukoliko je operacija odgođena više od 24 sata ili se reruptura nakon primarnog zatvaranja ne može uspješno sanirati drenažom, u obzir dolaze ekskluzija jednjaka te prešivanje mjesta rupture, široka drenaža toraksa, formiranje "loop" ili cervikalne esofagostome, gastrostome i hranidbene jejunostome.

LITERATURA

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Prikaz slučaja
Case report

Acta Chirurg Croat 2005; 1: 51-52

AKUTNI KOLECISTITS KOD DJETETA: PRIKAZ SLUČAJA
ACUTE CHOLECYSTITIS IN A CHILD: CASE REPORT

Mohamed Kamal,[1] Kanito Bilan,[1] Zdravko Perko

SAŽETAK

Kolelitijaza je u dječjoj dobi rijetka bolest i najčešće se javlja kao komplikacija neke druge hematološke ili metaboličke bolesti. Ovo je prikaz slučaja sedmogodišnje djevojčice sa akutnim bolovima u desnom hemiabdomenu, povišenom tjelesnom temperaturom, povišenim vrijednostima AST, ALT i leukocitozom. Djevojčica je operirana te je odstranjena akutno upaljena žučna vrećica s kamencima.

Ključne riječi: *kolelitijaza, djeca*

SUMMARY

Cholelithiasis is a reare disease among children. Usually it is a complication of other haemathologic or metabolic disease. We present a case report of a 7-year old girl who presented with acute pain in right side of abdomen, raised temperature, elevated values of AST, ALT and leukocytosis. The girl was operated and cholecystectomy was performed, due to acute cholecystitis.

Key words: *Cholelithiasis, child*

UVOD

Kolelitijaza je u dječjoj dobi rijetka bolest sa prevalencijom od 0,15% do 0,22% i najčešće se javlja kao komplikacija neke druge hematološke ili metaboličke bolesti (1,2). Kod odraslih osoba prevalencija kolelitijaze iznosi od 4% do 11% (3). Svaka kolelitijaza može naposlijetku rezultirati kolecistitisom, a koji može zahtijevati hitan kirurški zahvat.

Ovo je prikaz slučaja djevojčice u dobi od sedam godina s akutnim kalkuloznim kolecistitisom, koja je imala pozitivnu obiteljsku anamnezu kolelitijaze.

PRIKAZ SLUČAJA

Djevojčica u dobi od 7 godina je zaprimljena na Hitni kirurški prijem OB Vukovar zbog bolova u trbuhu koji su trajali već četvrti dan. Bolovi su bili lokalizirani u desnom hemiabdomenu i postupno su se pojačavali. Posljednja dva dana je imala povišenu temperaturu do 38°C, uz mučninu, povraćanje i gubitak apetita. Zbog tih tegoba se obratila svom pedijatru, koji je započeo liječenje pod dijagnozom upale mokraćnih putova.

Pri dolasku djevojčica je bila pri svijesti, febrilna (38,2°C), blijede kože i sluznica, anikterična, umjerno dehidrirana. Palpacijom trbuha nađena je adipozna stijenka s bolnom osjetljivošću u desnom hipohondriju, koja se spuštala duž cijelog desnog hemiabdomena. Digitorektalni nalaz je bio bez osobitosti.

Od laboratorijskih nalaza nađena je leukocitoza (17,4) sa skretanjem ulijevo (neutrofili 71%), sedimentacija eritrocita je bila ubrzana (40/h), AST 58, ALT 74, bilirubin 20, kolesterol 3,9, HDL 1,10. Nalaz RTG nativnog abdomena, srca i pluća je bio bez osobitosti.

Nakon kraće opservacije kliničko stanje bolesnice se nije poboljšavalo te se odučilo na operacijski zahvat pod radnom dijagnozom akutno upaljenog crvuljka.

U općoj endotrahealnoj anesteziji se pristupilo laparotomiji po MacBurney-u te je pronađen crvuljak bez znakova upale. Pregledom tankog crijeva nije pronađen Meckelov divertikul, a desni adneksi su bili uredni. Nakon proširivanja reza prema kranijalno nađen je upalno izmijenjeni konglomerat velikog omentuma koji je pokrivao distendiran žučnjak. Žučnjak je punktiran te se dobio zamućeni bijeli sadržaj. Napravljena je tipična retrogradna kolecistektomija, a u žučnjaku su nađena četiri konkrementa od kojih je jedan u potpunosti zatvorio izvodni kanal žučnjaka (Slika 1.).

Patohistološka dijagnostika žučnjaka je pokazala akutnu egzacerbaciju kroničnog kolecistitisa s nekrotičnom sluznicom žučnjaka, a spektralna analiza žučnog ka-

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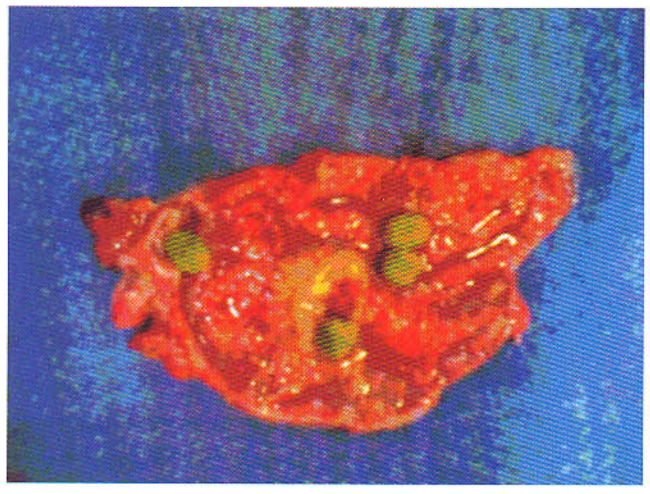

Slika 1. Odstranjen akutno upaljen žučnjak s kamencima.

menca pokazala je da se radi o kolesterolskom kamencu čija je učestalost u dječjoj dobi oko 10% (4).
U poslijeoperacijskom tijeku dijete je liječeno parenteralnom rehidracijom i antibioticima. Nakon operacije nije bilo komplikacija i bolesnica je otpuštena iz bolnice petog poslijeoperacijskog dana.

ZAKLJUČAK

Akutni kolecistitis je rijedak uzrok akutnog abdomena u djece, no njegova učestalost je sve veća posebno kod pretile djece s pozitivnom obiteljskom anamnezom. U tim slučajevima je indicirana hitna kolecistektomija, kao i kod odraslih.
Kod ovog slučaja nije rađen prijeoperacijski ultrazvučni pregled trbuha, koji je indiciran, osobito kod nejasnih slučajeva. Ipak, ultrazvučna dijagnostička obrada vjerojatno nije ni dostupna u svim bolnicama u svako vrijeme.
U ovom slučaju dijete je operirano otvorenim načinom. Laparoskopski način liječenja može imati prednosti zbog mogućnosti bolje eksploracije trbuha i jednake mogućnosti liječenja, uz sve druge prednosti minimalno invazivne kirurgije.

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IN MEMORIAM Mr. sc. dr. Miroslavu Kukoču

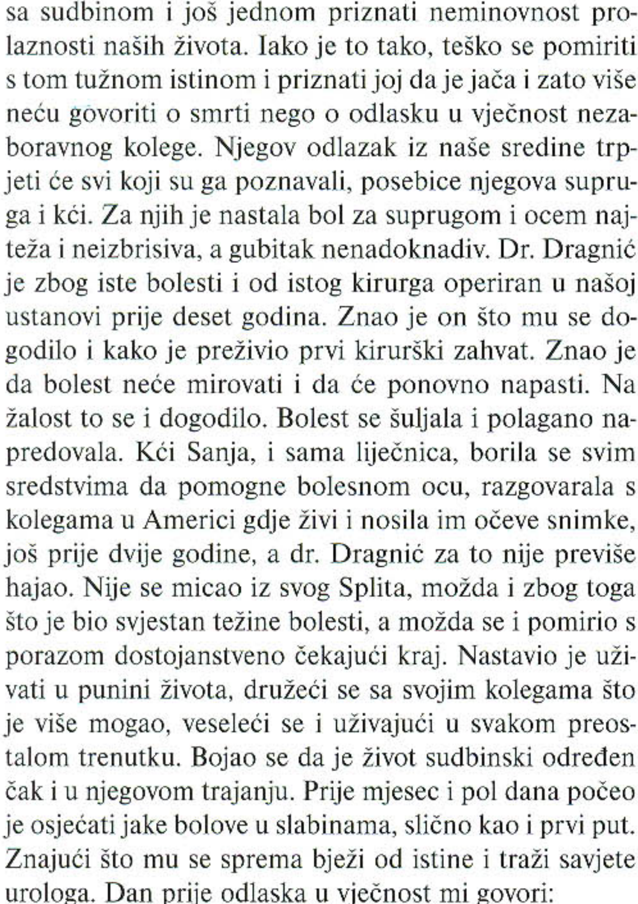
Nakon duge i teške bolesti neumoljiva smrt uzela nam je 31. kolovoza 2004. bliskog, dragog kolegu i prijatelja dr. Miroslava Kukoča. Bolni gubitak trpe svi koji su ga poznavali, a za njegove najmilije, užu i širu obitelj, bol je neizbrisiva, a gubitak je nenadoknadiv. Dr. Kukoč je rođen u Sarajevu 11. travnja 1952. godine od roditelja poznatih liječnika - oca pok. Dr. Frane Kukoča i majke pok. Dr. Radmile Kukoč. Nakon završene gimnazije »Vladimir Nazor« u Splitu kreće stopama svojih roditelja i upisuje Medicinski fakultet u Sarajevu. Poslije završenog studija 1978. godine stažira u Domu zdravlja »dr. Petar Vitezica« u Splitu, a stručni ispit polaže 07. srpnja 1980. godine. Kao liječnik se zapošljava na hitnoj medicinskoj pomoći u Splitu te istovremeno predaje u Srednjoj medicinskoj školi. Specijalizaciju iz kirurgije započinje 1982. god. u tadašnjoj Vojnoj bolnici, da bi nakon nekoliko mjeseci istu nastavio u KBC »Firule«. Specijalistički ispit iz kirurgije položio je 1986. god. u Sarajevu. Tamo je godinu poslije završio i poslijediplomski studij i stekao zvanje magistra. Pored uobičajenog kirurškog posla i čestih dežurstava bavio se i znanstvenim radom, objavljivao članke u zemlji i inozemstvu te sudjelovao na brojnim kirurškim skupovima u zemlji i inozemstvu. Pisao je lako, brzo i kirurški jasno. Objavio je do 1990. god. preko 60 radova u stranim i domaćim časopisima. Sjećam se da nam je na jutarnjem kirurškom sastanku daleke 1989. god. poslije jednog svjetskog kongresa u Indiji gdje je sudjelovao kao aktivni sudionik govorio o endoskopskim zahvatima u hitnoj kirurgiji - apendektomijama i kolecistektomijama. Za nas su to bile novosti koje smo primili s nevjericom, jer treba znati da su prve endoskopske operacije izvedene svega tri godine ranije, a u Hrvatskoj tek tri godine poslije. Iz objektivnih razloga nije mogao uvesti endoskopiju u svom gradu pa smo metodu prihvatili nekoliko godina kasnije. Njegovo stručno usavršavanje prekinula su ratna zbivanja, tako da ni doktorsku dizertaciju predanu na Medicinskom fakultetu formalno nikada nije obranio. Kao svaki Splićanin i čovjek mediteranskog duha volio je sport s kojim se i sam aktivno bavio, a po završetku karijere bio je i instruktor karaktera. U početku Domovinskog rata dr. Kukoč nije dvojio na kojoj je strani. Mobiliziran je u Krizni stožer Ministarstva zdravstva Republike Hrvatske u kolovozu 1991. god., gdje je nesebično radio u odsjeku za zbrinjavanje ranjenika za što je i dobio posebna priznanja te je i odlikovan Spomenicim Domovinskog rata. Bio je u Vrlici na čelu mobilne kirurške ekipe za vrijeme napada JNA. Poslije Vrlike je išao svugdje gdje bi se ukazala potreba za kirurzima. U srednjoj Bosni, u Rami boravio je i radio nekoliko godina. Može se slobodno reći da je dr. Kukoč od početka Domovinskog rata bio pravi mobilni ratni kirurg. U hladni kirurški pogon na Firulama više se nikad nije vratio. U veljači 1996. god. sporazumno prekida radni odnos s KB Split, te nastavlja privatnu kiruršku praksu u vlastitoj ordinaciji u Splitu. U proljeće 2000. god. ponovno se želi vratiti na kiruršku kliniku gdje ga rado primamo. Nažalost prije povratka na Kliniku počinju njegovi ozbiljni zdravstveni problemi koji kulminiraju u lipnju 2001. god. od kada se liječi u Centru za hemodijalizu. Teško bolestan u srpnju 2002. god. ostvaruje prava na invalidsku mirovinu.

Bolest je prema njemu i dalje nemilosrdna, a on se s njom nije znao ni mogao nositi. Kraj je poznat.

Prof. dr. sc. Ante Petričević

IN MEMORIAM Prim. mr. sc. Anti Dragniću

U večernjim satima 17. studenog 2004. g. Zauvijek je stalo veliko i plemenito srce našega kolege i prijatelja, vrsnog liječnika, domoljuba i humanista mr. sc. dr. Ante Dragnića. Nisu se uslišile naše želje i nade, nije bio dovoljan trud dragih kolega iz Zagreba na čelu s prof. dr. Tomislavom Šošom. Operacijski zahvat dug gotovo sedam sati nije dao željeni rezultat. Blijeda i izmorena lica kirurške ekipe, ustima zalivenim šutnjom govorila su sve. Smrt je bila jača i još jedna naša bitka je izgubljena. Morali smo se pomiriti sa sudbinom i još jednom priznati neminovnost prolaznosti naših života. Iako je to tako, teško se pomiriti s tom tužnom istinom i priznati joj da je jača i zato više neću govoriti o smrti nego o odlasku u vječnost nezaboravnog kolege. Njegov odlazak iz naše sredine trpjeti će svi koji su ga poznavali, posebice njegova supruga i kći. Za njih je nastala bol za suprugom i ocem najteža i neizbrisiva, a gubitak nenadoknadiv. Dr. Dragnić je zbog iste bolesti i od istog kirurga operiran u našoj ustanovi prije deset godina. Znao je on što mu se dogodilo i kako je preživio prvi kirurški zahvat. Znao je da bolest neće mirovati i da će ponovno napasti. Na žalost to se i dogodilo. Bolest se šuljala i polagano napredovala. Kći Sanja, i sama liječnica, borila se svim sredstvima da pomogne bolesnom ocu, razgovarala s kolegama u Americi gdje živi i nosila im očeve snimke, još prije dvije godine, a dr. Dragnić za to nije previše hajao. Nije se micao iz svog Splita, možda i zbog toga što je bio svjestan težine bolesti, a možda se i pomirio s porazom dostojanstveno čekajući kraj. Nastavio je uživati u punini života, družeći se sa svojim kolegama što je više mogao, veseleći se i uživajući u svakom preostalom trenutku. Bojao se da je život sudbinski određen čak i u njegovom trajanju. Prije mjesec i pol dana počeo je osjećati jake bolove u slabinama, slično kao i prvi put. Znajući što mu se sprema bježi od istine i traži savjete urologa. Dan prije odlaska u vječnost mi govori:



»Ni danas ja ne bih bio ovdje da sam dalje mogao trpjeti bolove«. Pokušavali smo ga uputiti u ustanovu gdje bi mu se moglo pomoći više nego ovdje. Nije pristajao na odlazak iz Splita, ali je prihvatio dolazak kirurške ekipe iz Zagreba koja mu je već jednom prije pomogla operiravši ga.

Dr. Dragnić nije više prisutan među nama, ali sve nas i dalje okružuje plemenitost njegova bića, sjećanje na dobrotu čovjeka kojemu nikada i ništa nije bilo teško učiniti za struku, obitelj ili prijatelja. Za nas će uvijek ostati nasmijani »Magistar«, spreman za pomoć bilo koje vrste. Takvog ćemo ga pamtiti ili bolje reći, takav ćeš i dalje živjeti među nama. Nećemo zaboraviti njegov dugi korak, pognuta leđa i uvijek nasmijano lice.

Dr. Ante Dragnić je rođen 24. veljače 1933. godine u Nerežišću na otoku Braču. Završio je Klasičnu gimnaziju u Splitu 1953. godine, a Medicinski fakultet u Zagrebu 1959. godine. Pripravnički staž je odradio u Općoj bolnici Zadar, a stručni ispit je položio u Zagrebu 1962. godine. Specijalizaciju iz opće kirurgije započinje u Rijeci 1965. godine kod prof. Longhina, a završava u Zagrebu kod prof. Juzbašića krajem 1968. godine. Od 1959. do 1962. godine radi u Domu narodnog zdravlja u Zadru. Po završenoj specijalizaciji radi u Gospiću od 1968. do 1974. kada prelazi u KB Split gdje radi sve do odlaska u mirovinu 30. 12. 1998. godine.

Još za vrijeme specijalizacije pokazuje naglašen interes za traumatologiju. Za magistarski rad odabrao je temu iz tog područja s naslovom »Komparativni rezultati operacijskog i konzervativnog liječenja prijeloma potkoljenice«. Magisterij je obranio u Rijeci kod prof. Longhina. U dva navrata bio je na edukaciji iz traumatologije u KBC Rijeka i u Kliničkoj bolnici »Sestre milosrdnice« u Zagrebu. Uz uobičajeni kirurški posao i dežurstva bavio se i znanstvenim radom, objavljivao u zemlji i inozemstvu, te sudjelovao na brojnim kirurškim skupovima u zemlji i svijetu. Objavio je preko 60 radova u stranim i domaćim časopisima. Tijekom 24 godine rada u KB Split obavljao je dužnost voditelja Kliničkog odjela za traumatologiju, a jedno vrijme je bio i predstojnik Klinike za kirurgiju.

Od samog početka Domovinskog rata dr. Dragnić nije dvojio na kojoj je strani. Odmah se uključuje kao dragovoljac u Domovinski rat i prvi put odlazi na teren 05. 10. 1991. godine na Korčulu, gdje boravi u tri navrata. U deset navrata radio je u ratnoj bolnici Metković. Rad u ratnim bolnicama završava 05. 03. 1994. Odlikovan je Spomenicom Domovinskog rata. Imao je tri ljubavi: suprugu, kćer i kirurgiju.

Zbogom dragi MAGISTRE, zbogom kolega i prijatelju, zbogom veliki čovječe nadasve. Počivaj u miru Božjem u Tebi dragoj zemlji Hrvatskoj, u Tvojem Braču kojemu si se zauvijek vratio.

Neka je vječna hvala i slava vrsnom stručnjaku, velikom humanisti i iskrenom domoljubu Prim. mr. sc. dr. Anti Dragniću.

Prof. dr. sc. Ante Petričević