Optimal surgical management of ovarian cancer

National Cancer Center

Center for Uterine Cancer

Sang Yoon Park

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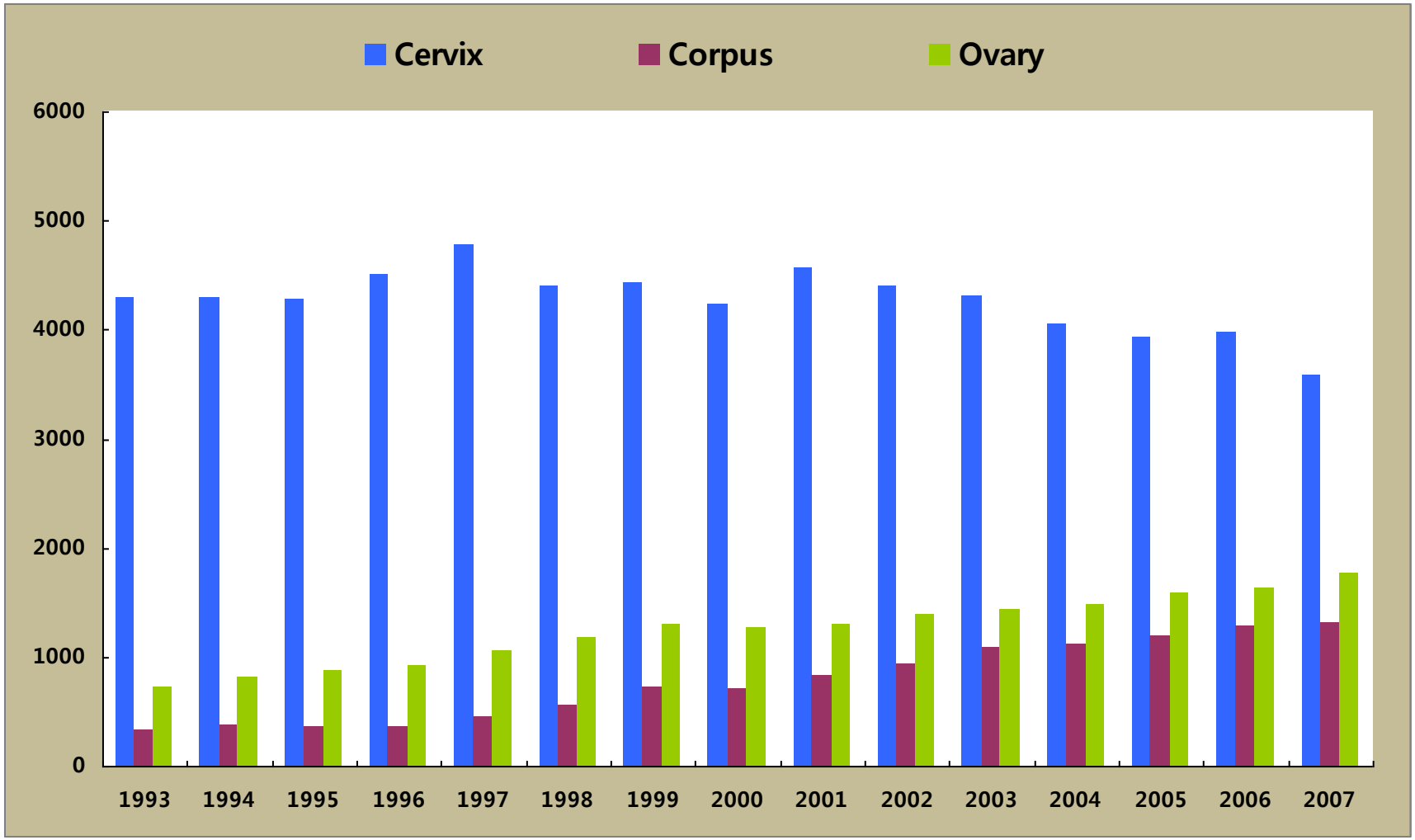
Distribution of female genital cancer in Korea



the Korea Central Cancer Registry, 2010

Why is ovarian cancer is the most important cancer at my office?

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- Rapidly increasing disease
- 1st death cause of gyncologic cancers in developed countries
  - Difficulty in early detection: < 40%
  - Frequent recurrence: > 80%
  - Poor survival disease: 5-YSR < 50%
- Long post-op adjuvant chemotherapy: > 4 months

⇒ Patient pooling: > 70%

Why extensive surgeries are needed in the management of ovarian cancer?

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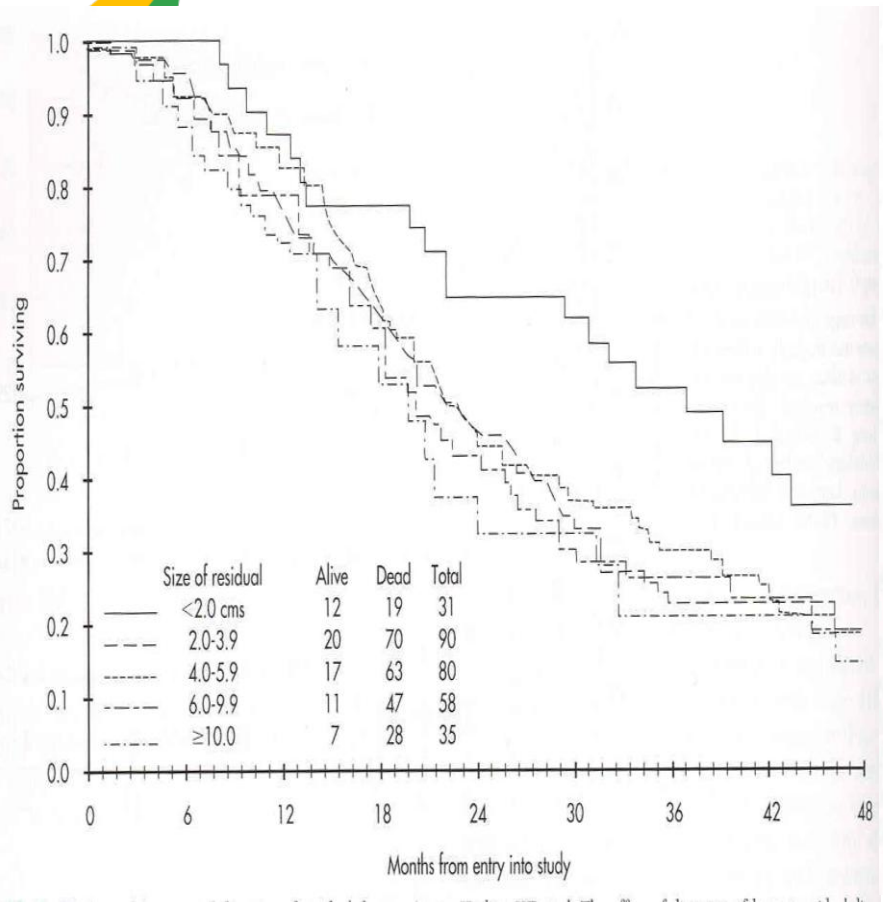

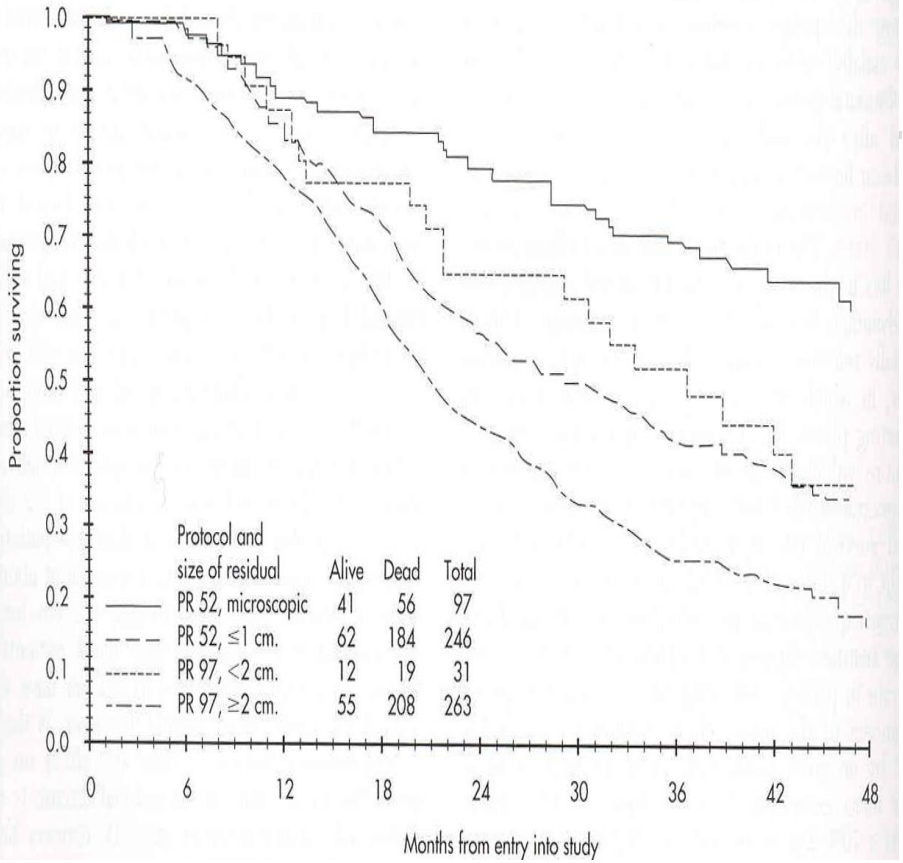

Maximum diameter of residual tumor.
<2.0cm, >2.0cm, >4.0cm, >6.0cm, ≥10.0cm

Maximum diameter of residual tumor microsocpic, ≤1.0cm, <2.0cm, ≥2.0cm

GOG protocols:AJOG 170:170:974, 1994

What kinds of procedure are needed in surgical management of ovarian cancer?

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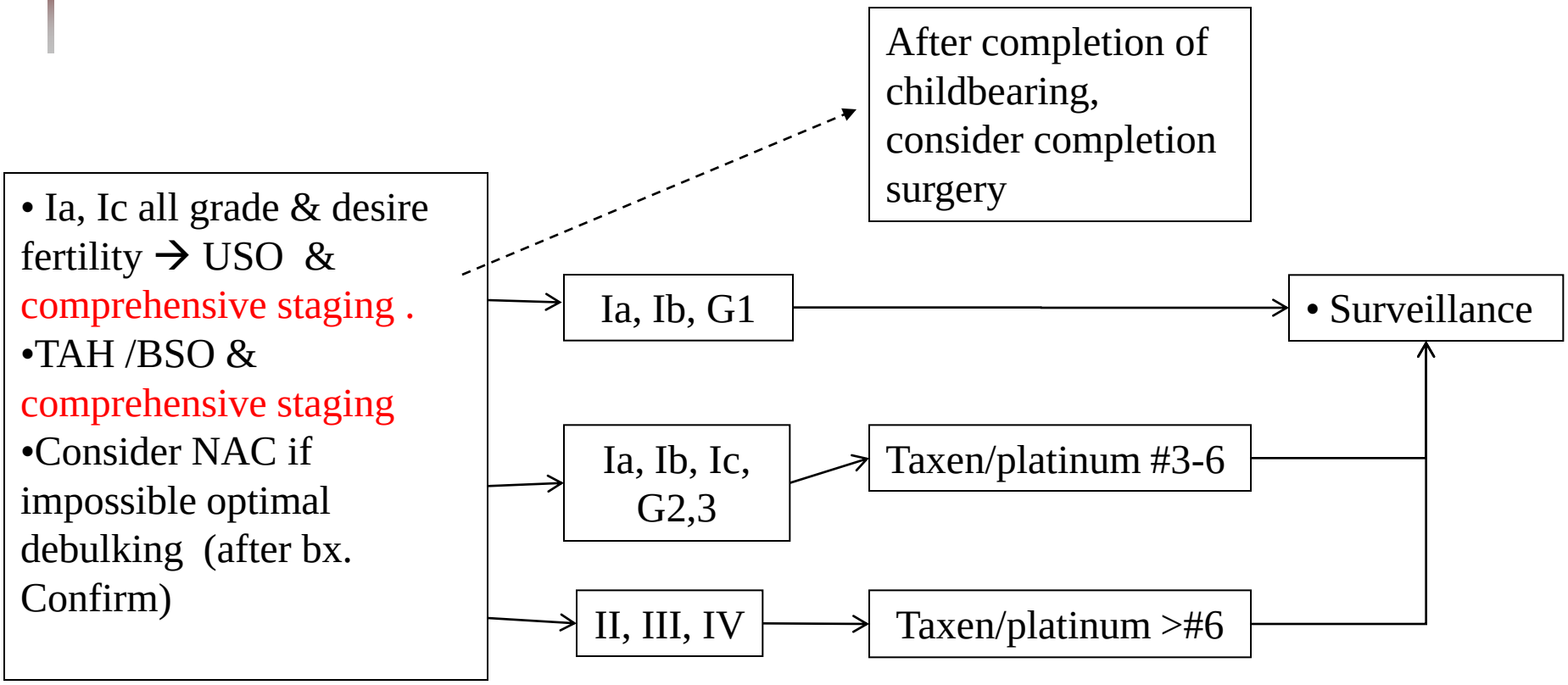
Practice Guideline for Ovarian Cancer at NCCK



What is comprehensive staging?

- Confirm the pathologic status in whole abdominal cavity
  - Left upper abdomen
  - Right upper abdomen
  - Central abdomen
  - Pelvis and colon
  - Pelvic & para-aortic LNs

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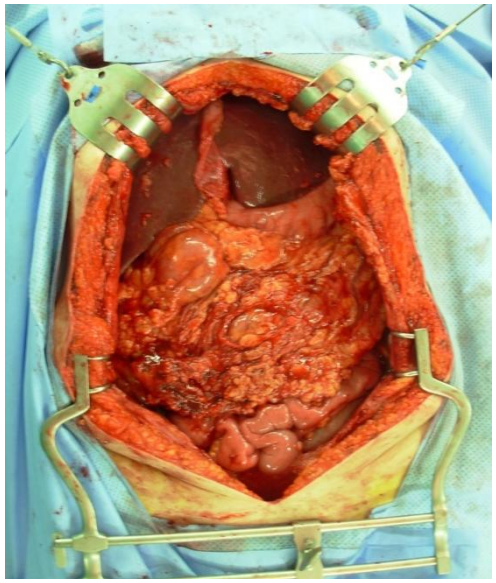
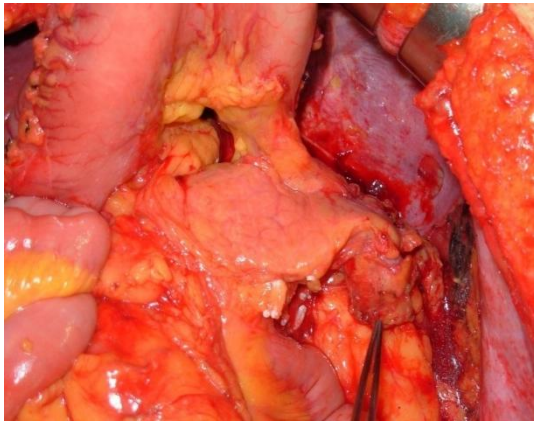
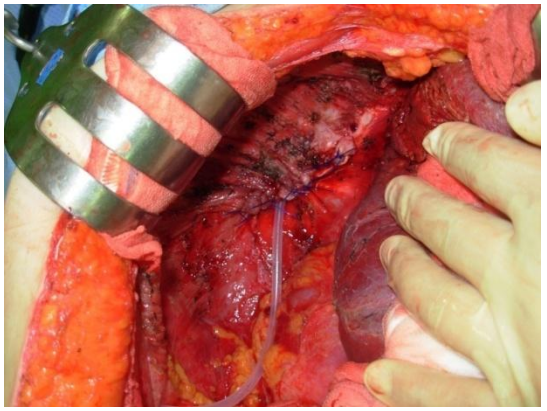
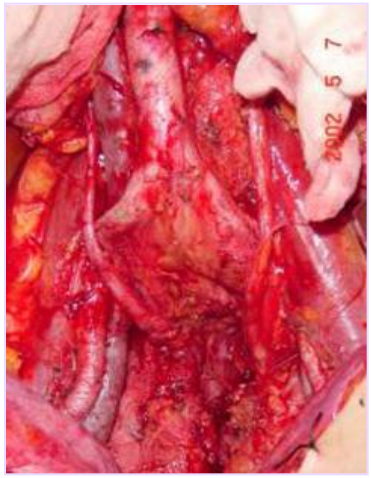
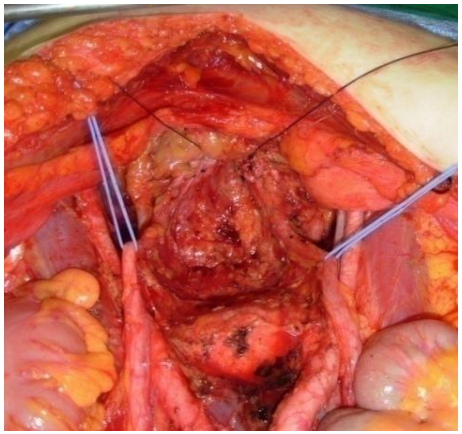
What is comprehensive staging?

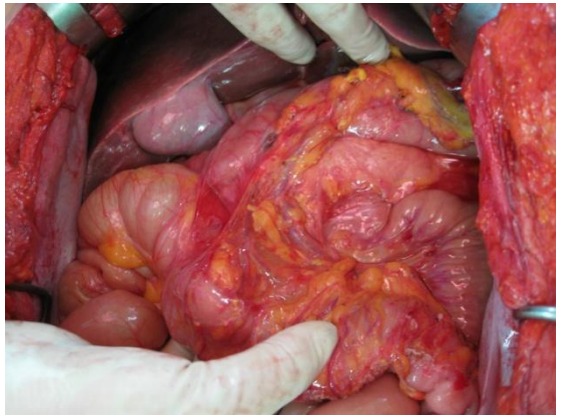












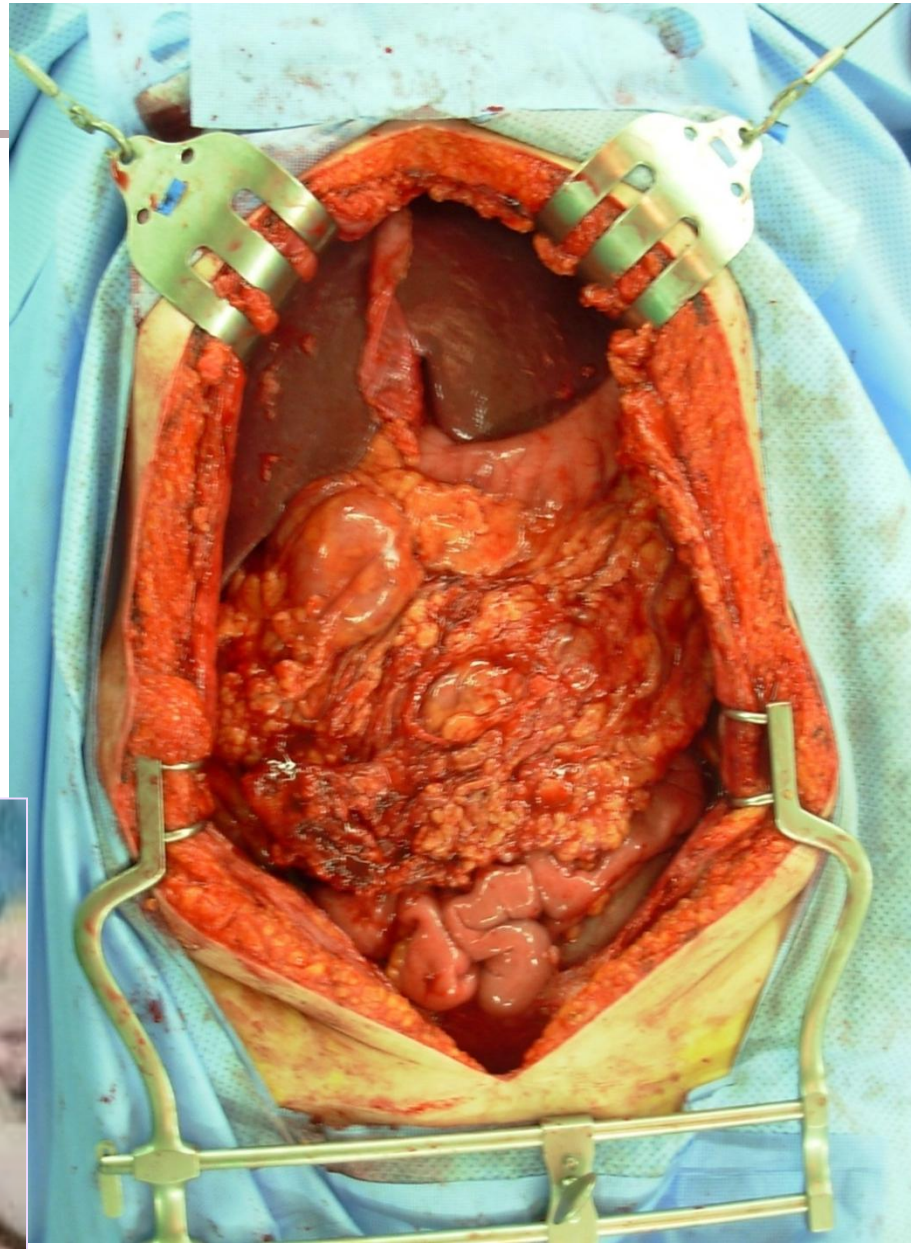
Patient preparation at OR

- **Skin disinfection**
  - **Upper margin of breast to both knee joint**
  - **Down to flank which contact with operation table**

- Operation table that perineal approach accessable
- Warm blanket

❖ Peritoneal exposure

- **Upper part**
  - Kent retractor
- **Lower part**
  - Balfour retractor

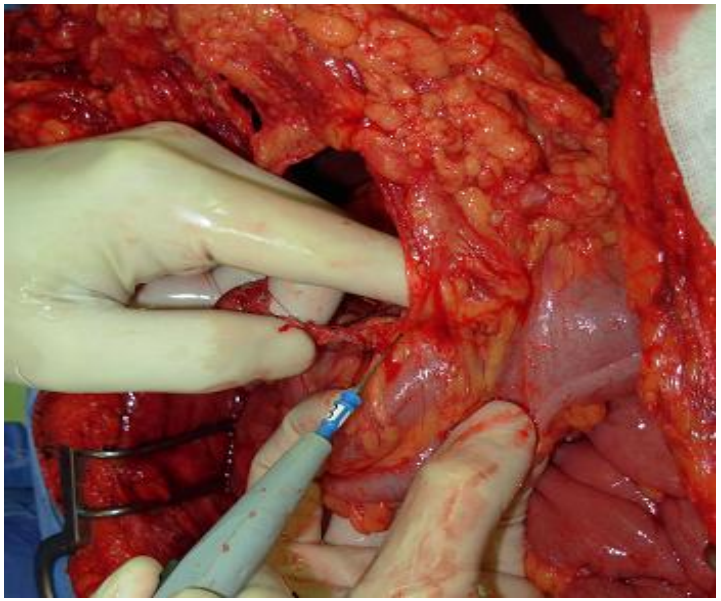


❖Good light source

Illuminator

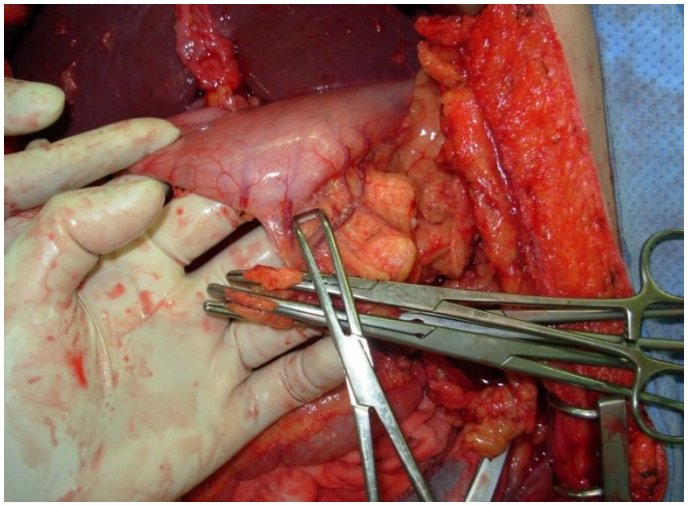
Omentectomy

1. Division from transverse colon to exposure of lesser sac

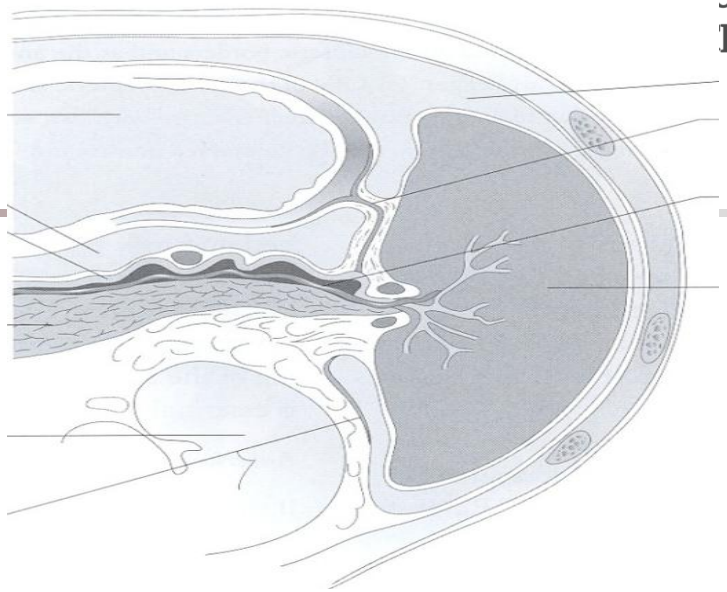


2. Division from greater curvature of stomach

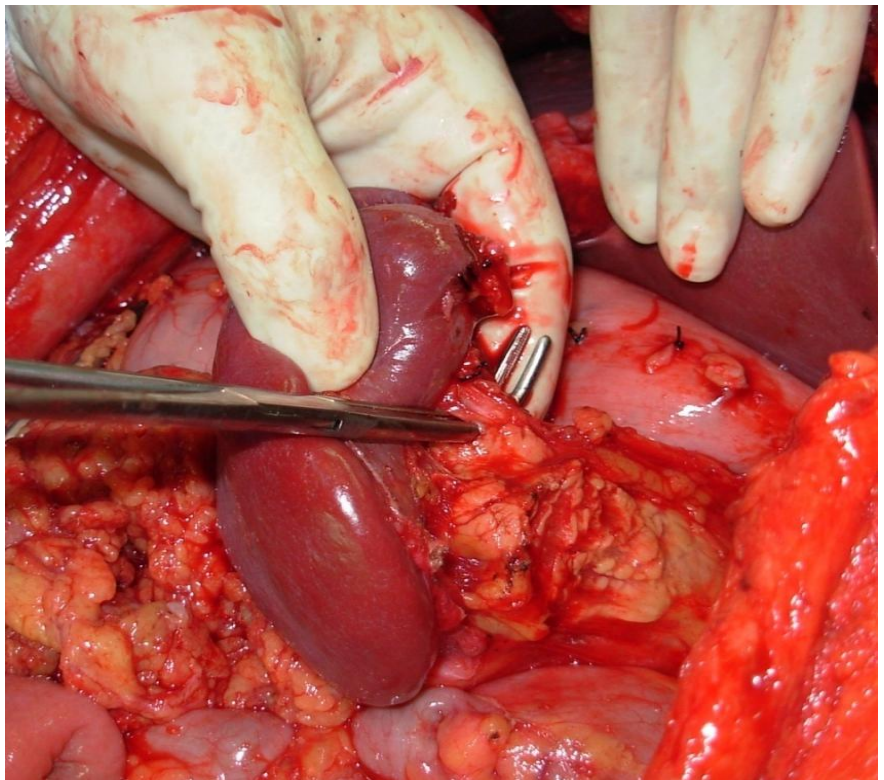
- **L-tube insertion**



Splenectomy



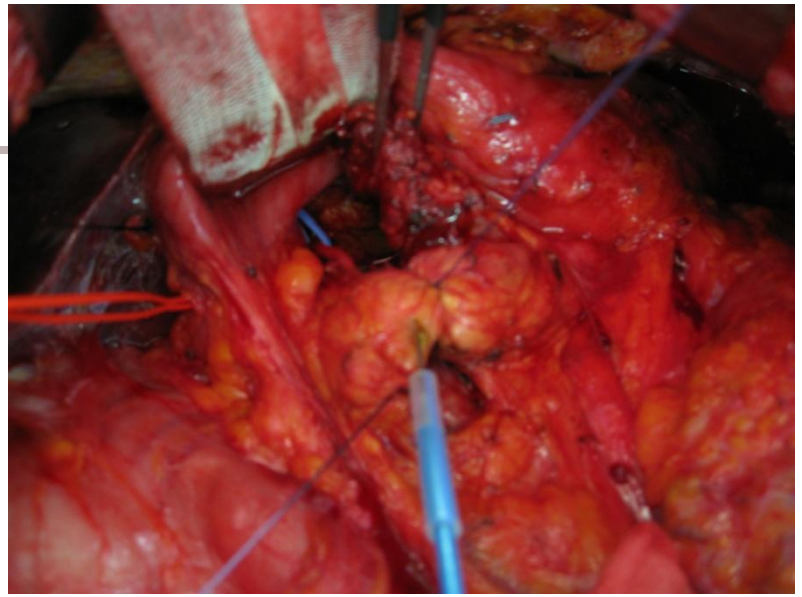
1. Division of ligaments
2. Identification and division of splenic artery and vein
3. Detachment from pancreas tail

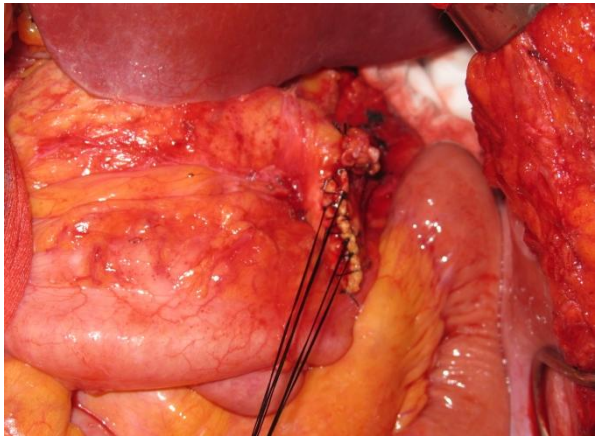


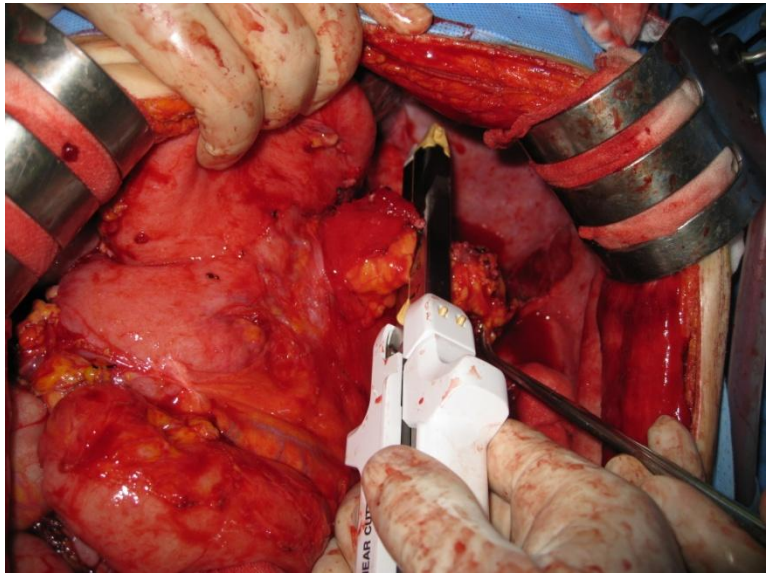
Distal pancreatectomy

- Electrocautery along a surgical line
  - Occlusion of pancreatic duct of wirsung
- Apply gold TLC

- Interrupted suture
  - Apply fibrin glue
  - Drain in situ



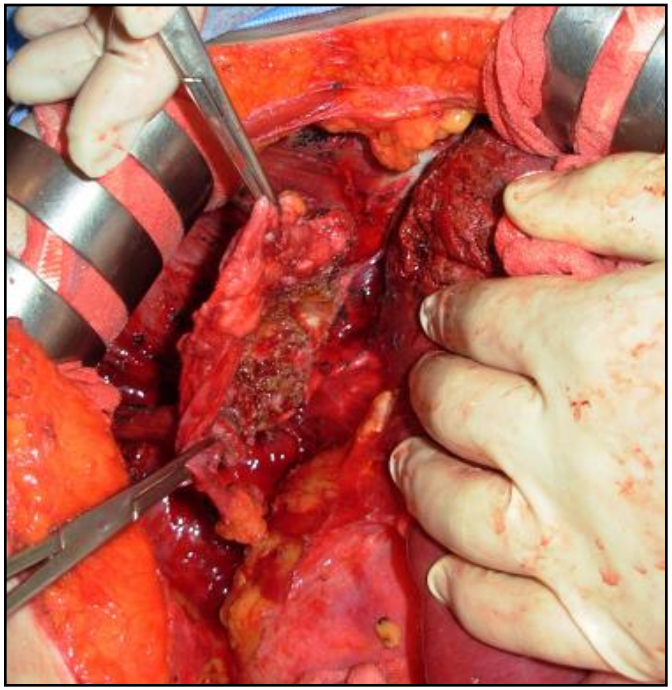




Diaphragmatic peritonectomy

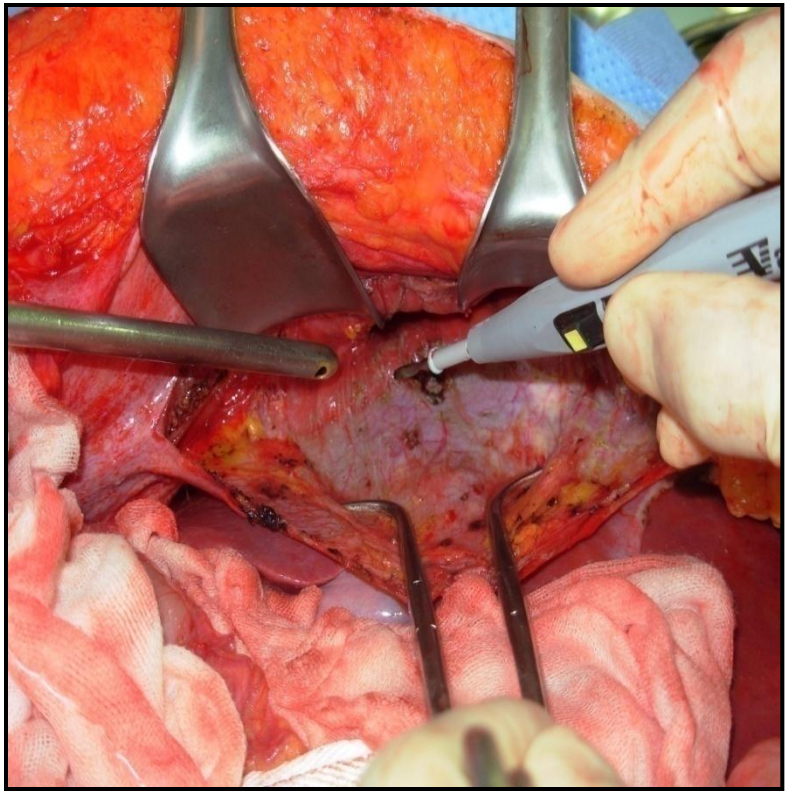
- Maximal elevation of costal margin with self-retaining retractor
  - Kent retractor

- Full mobilization of liver
  - division of coronary and triangular ligament
- Exposure of bare area
  - Preservation of hepatic vein

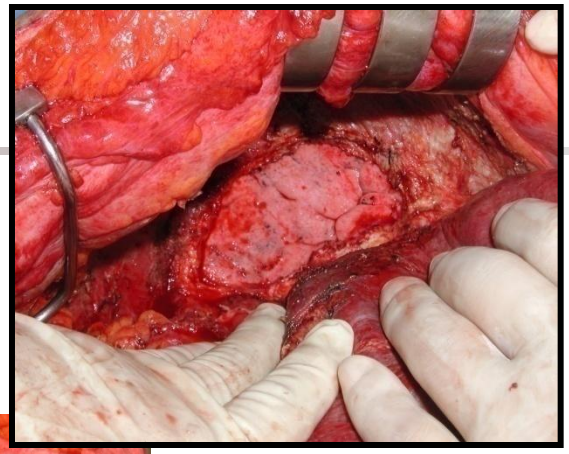


Diaphragmatic peritonectomy

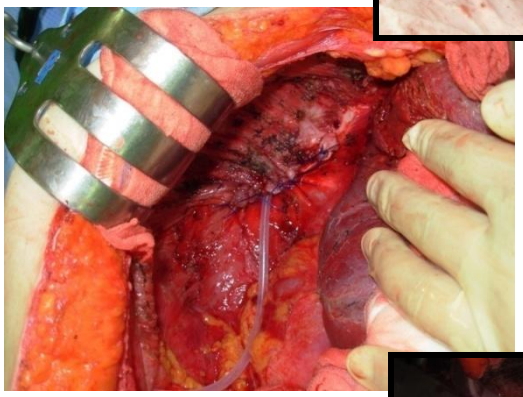
- Initiating the dissection in free of gross disease
  - Electrocautery device
  - Metzenbaum scissors
  - Sponge stick….
- Counter traction of free peritoneal edge
  - Right angle clamp



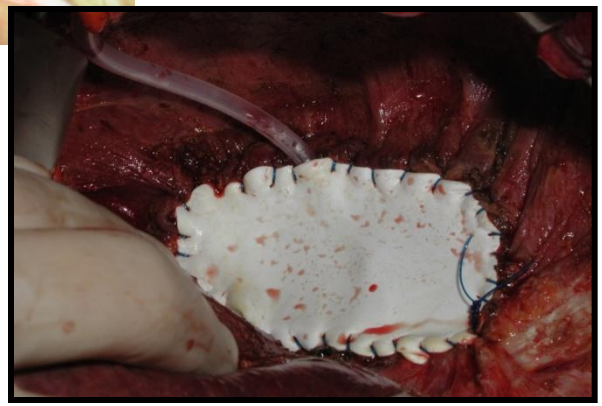
Diaphragmatic resection



- Invasion of diaphragmatic muscle and/or central tendon



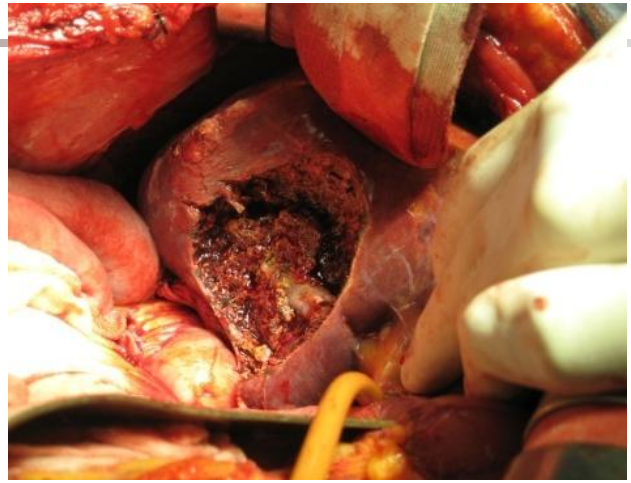
- Usual defect
  - primary suture
  - Ex) 1-0 Prolene ®
- Very large defect
  - Prosthetic material
  - Ex) Gore Tex mash®



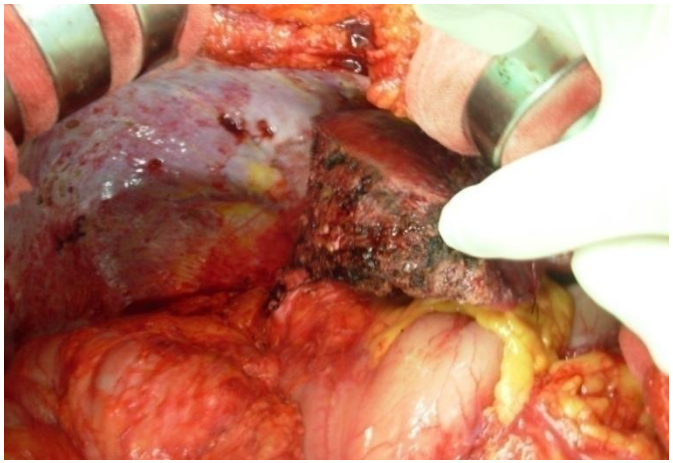
- Suction with catheter with large volume ventilation by anesthesiologist
- Drain may be remained

Hepatic resection

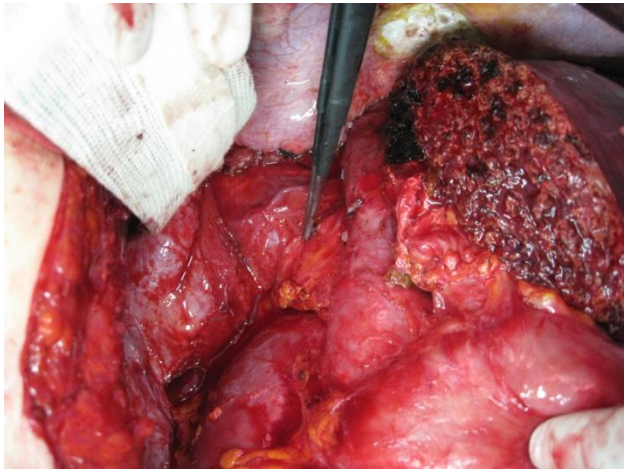
Wedge resection



Right inferior segmentectomy

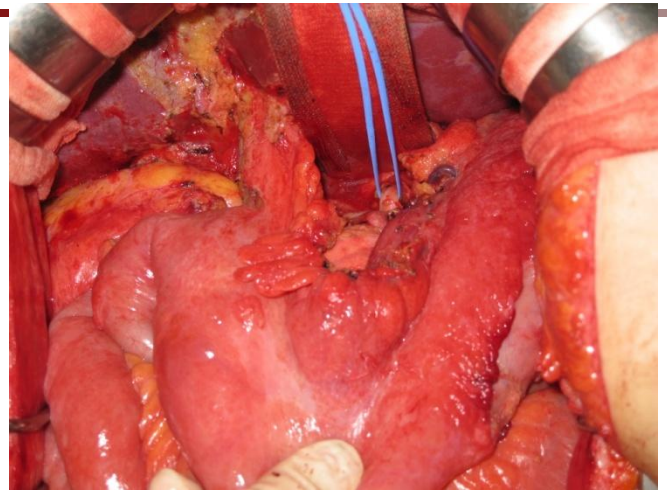


Right posterior sectionectomy

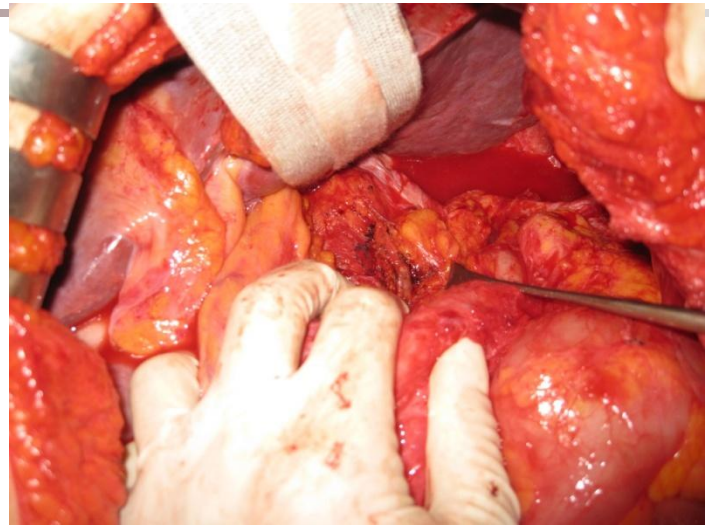


Right hepatectomy

Lesser sectomy



2010.5.26



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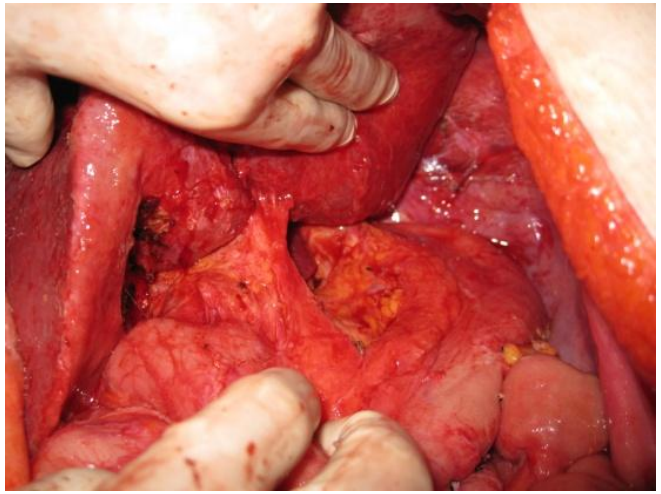
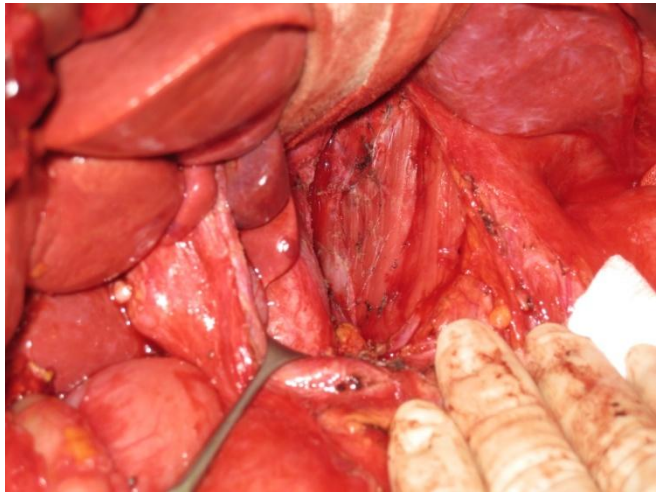
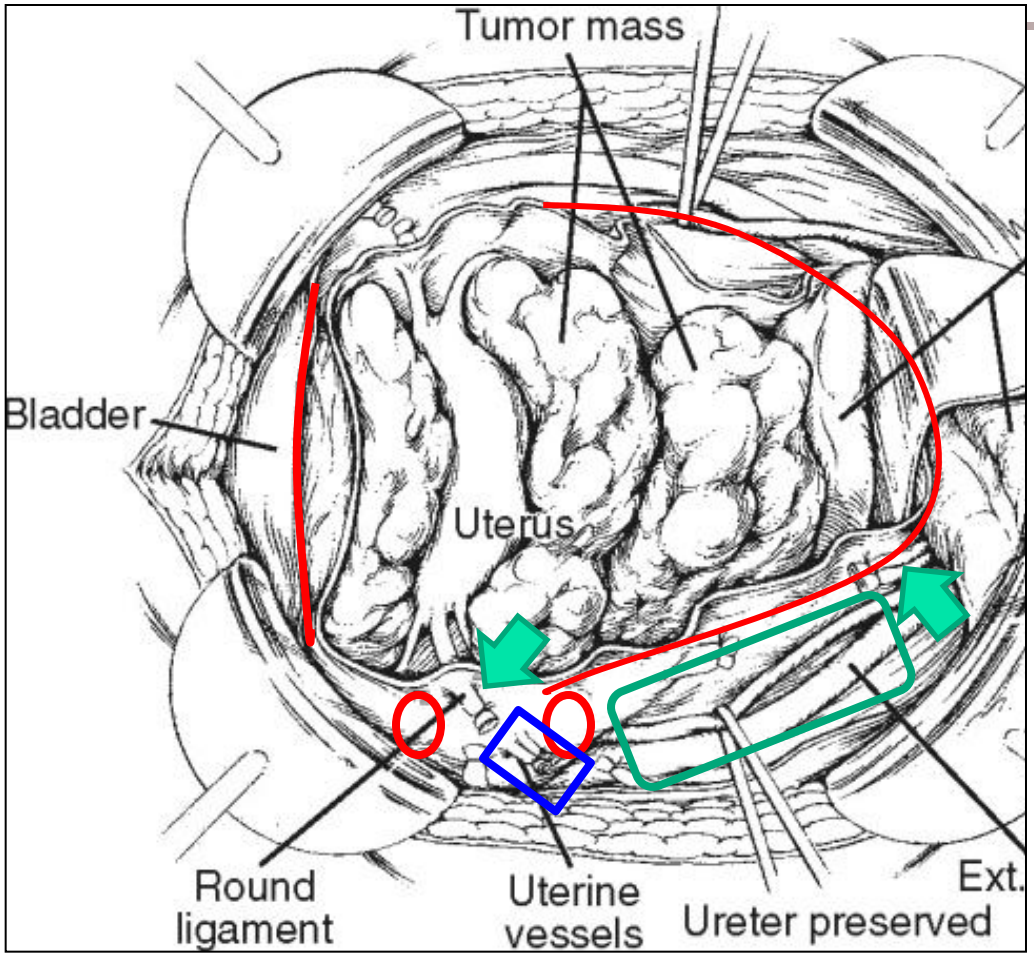


2010.6.30



2010.4.6

Surgical technique of Modified posterior exenteration



A circumscribing peritoneal incision
Paracolic gutters, cecum, terminal ileum, sigmoid colon

Exploration of Retzius space

Exploration of pararectal/paravesical space

Division of the round ligament and IP ligament

Ureter mobilization

Ligation of the uterine vessels

Bristow RE, et al. J Am Coll Surg 197:565–574, 2003

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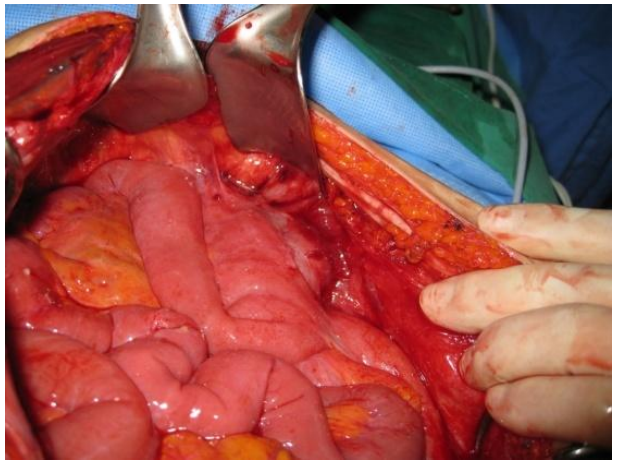
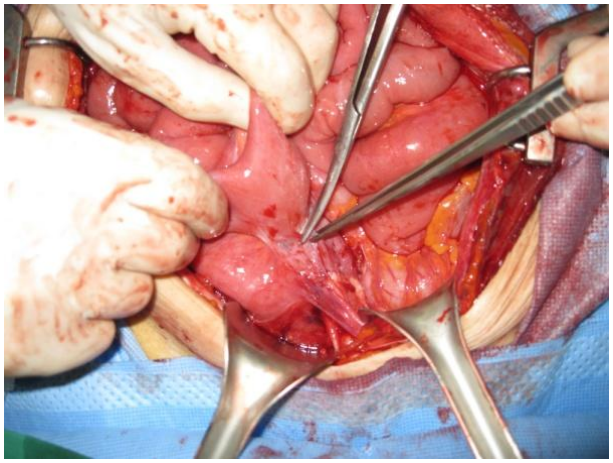
Case presentation

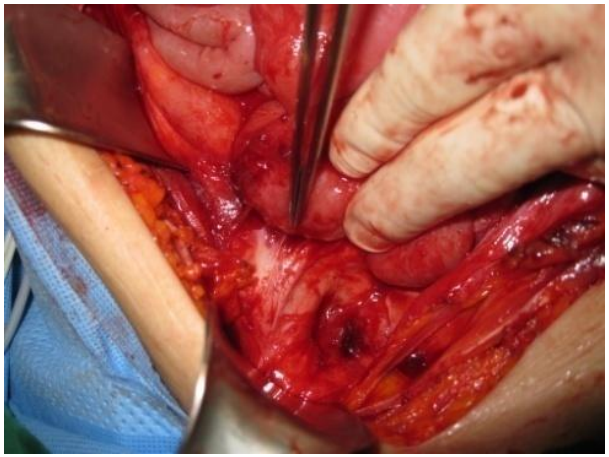
- 65 years old female
  - Chief complain: RLQ discomfort
  - Medical history:
    - 2009. 12. 2: open and biopsy at a university hospital
    - Pathology: SCC moderate differentiated
  - Transfer to NCC: 2010. 1. 4
  - Op. date: 2010. 1. 13



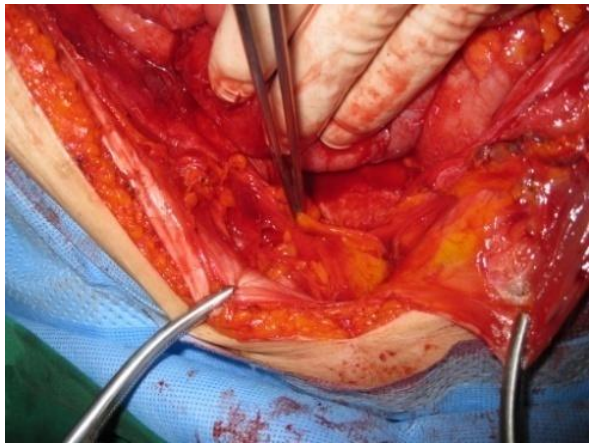
small bowel adhesion to pelvis



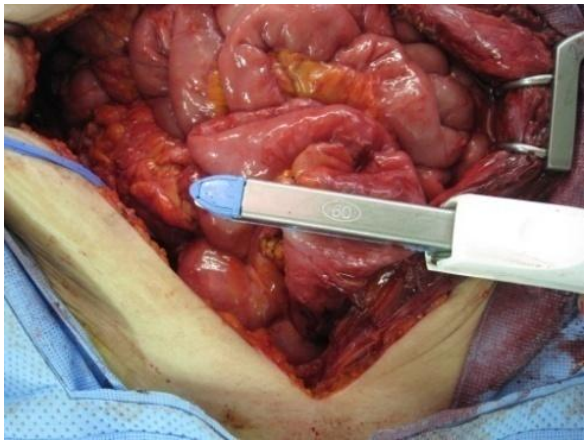
adhesiolysis



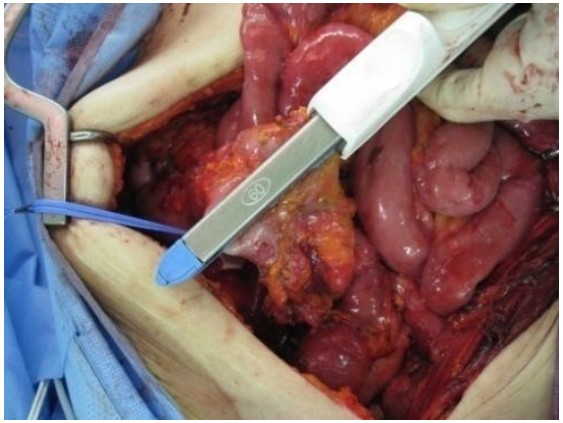
mass adhesion to side wall



development of Letzius space



division of distal ileum



division of ascending colon

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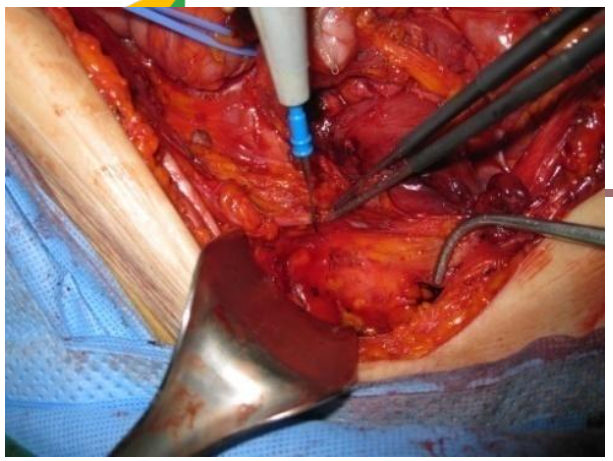
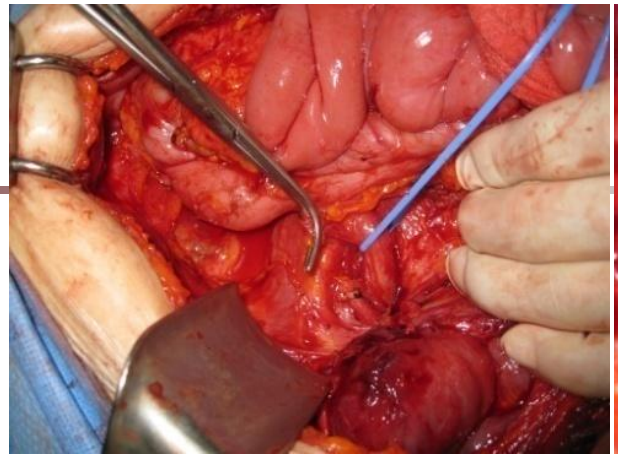
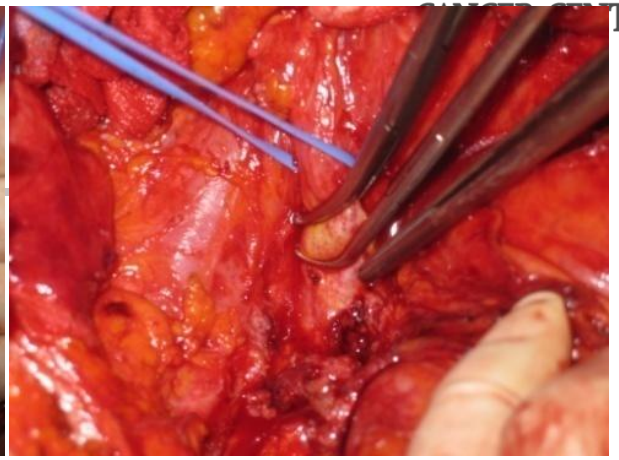


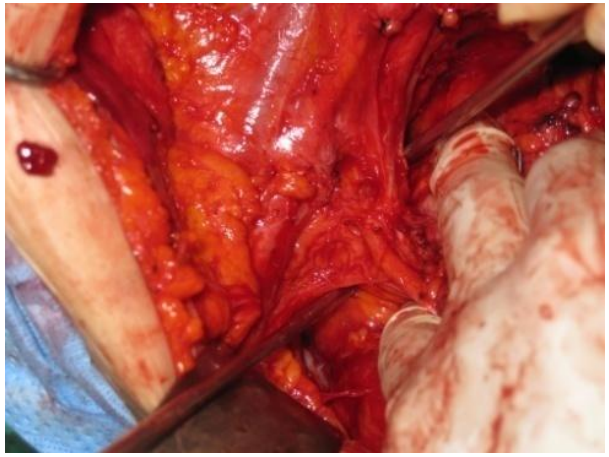
division of round lig.



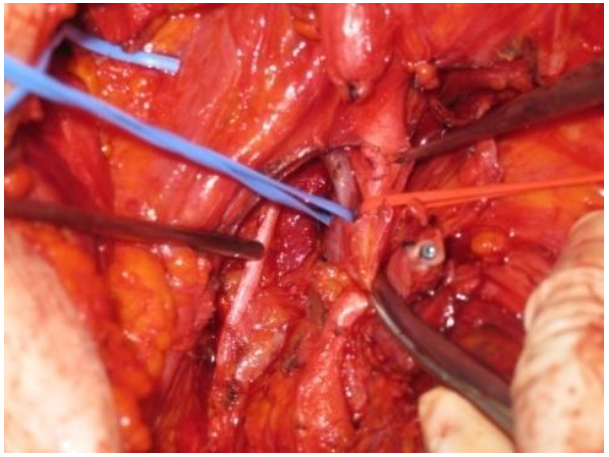
ligation of IP lig.



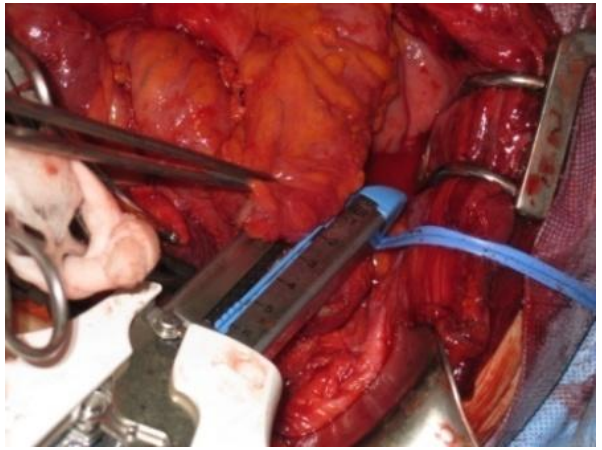
division of ureter



exploration of para-
rectal & vesical space

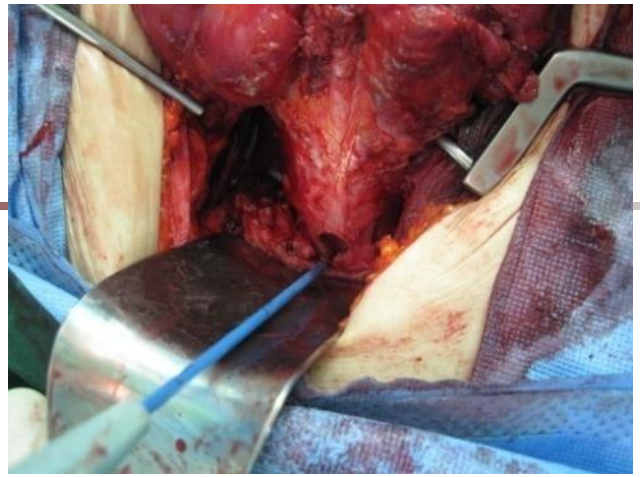


cutting of hypogastric a. & v.

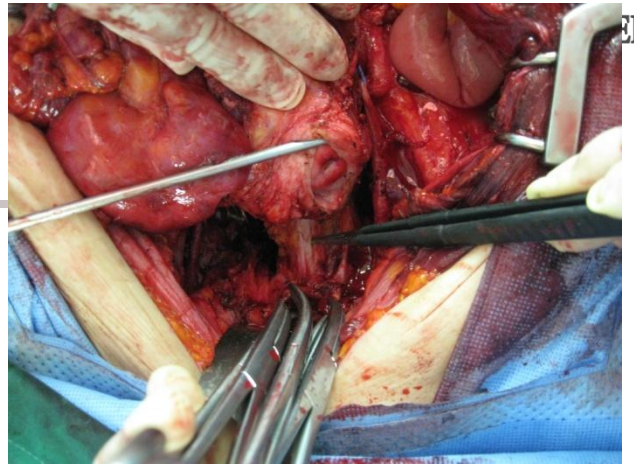


division of sigmoid colon

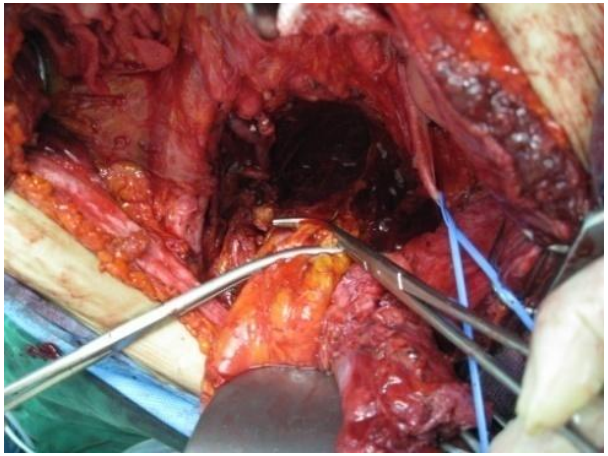
ligation of left uterine a.



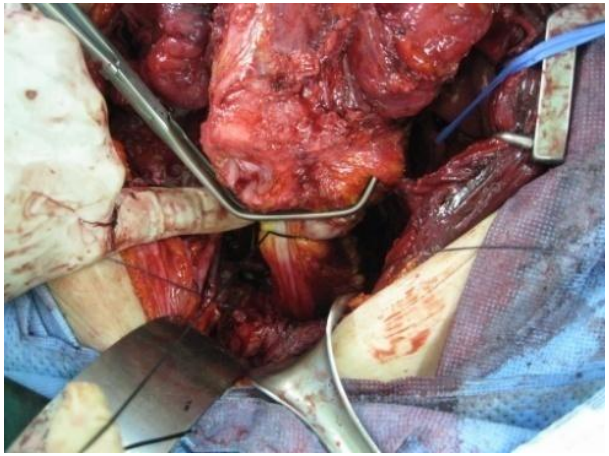
opening ant. vaginal wall



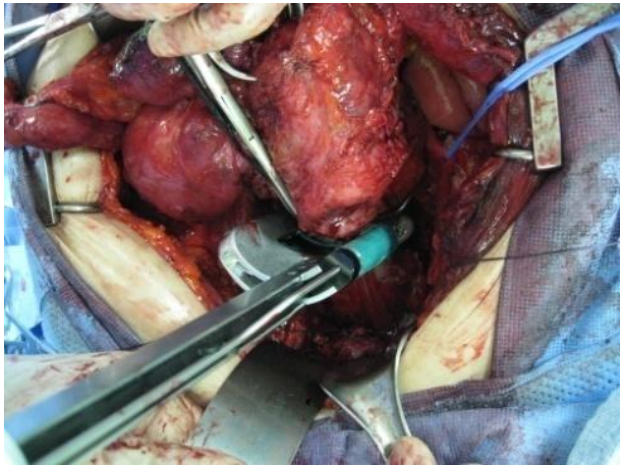
exposure of rectal serosa



ligation of inf. hemorrhoidal a.

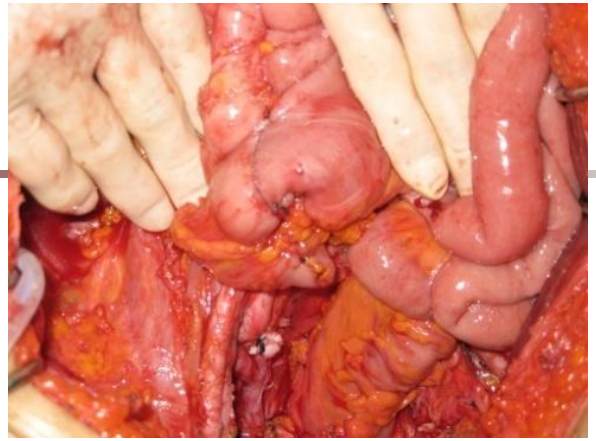


clamping with Satinsky clamp

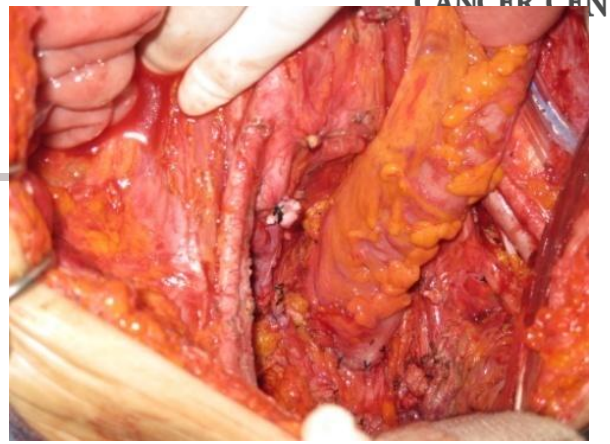


application of CONTOUR™

trans-ureteroureterostomy



ileocecal anatomosis

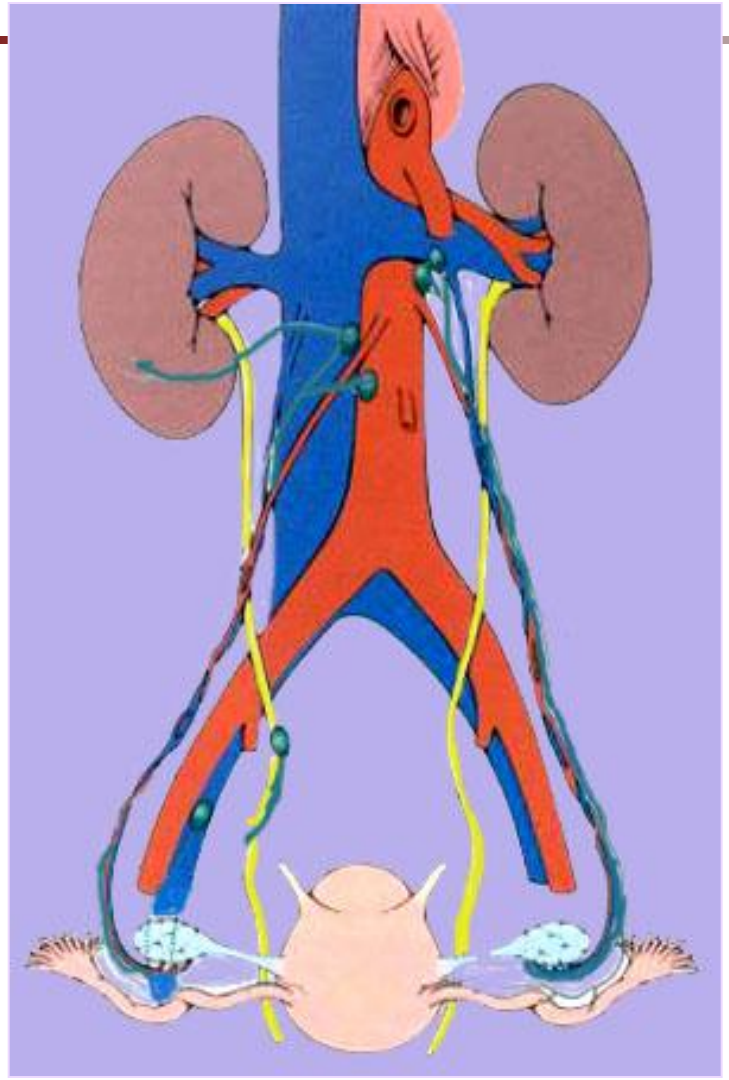


descending colo-rectal anatomosis

air leakage test

Op. name: Pelvic peritonectomy, modified posterior exenteration, ileocecetomy, LAR and reanatomosis, ureteroureterostomy, TOM
Duration of op.: 10 hrs
Transfusion: 2 pt

Pelvic & para-aortic LN dissection



(Greer BE, et al. Atlas of Clinical Gynecolgy 1999)

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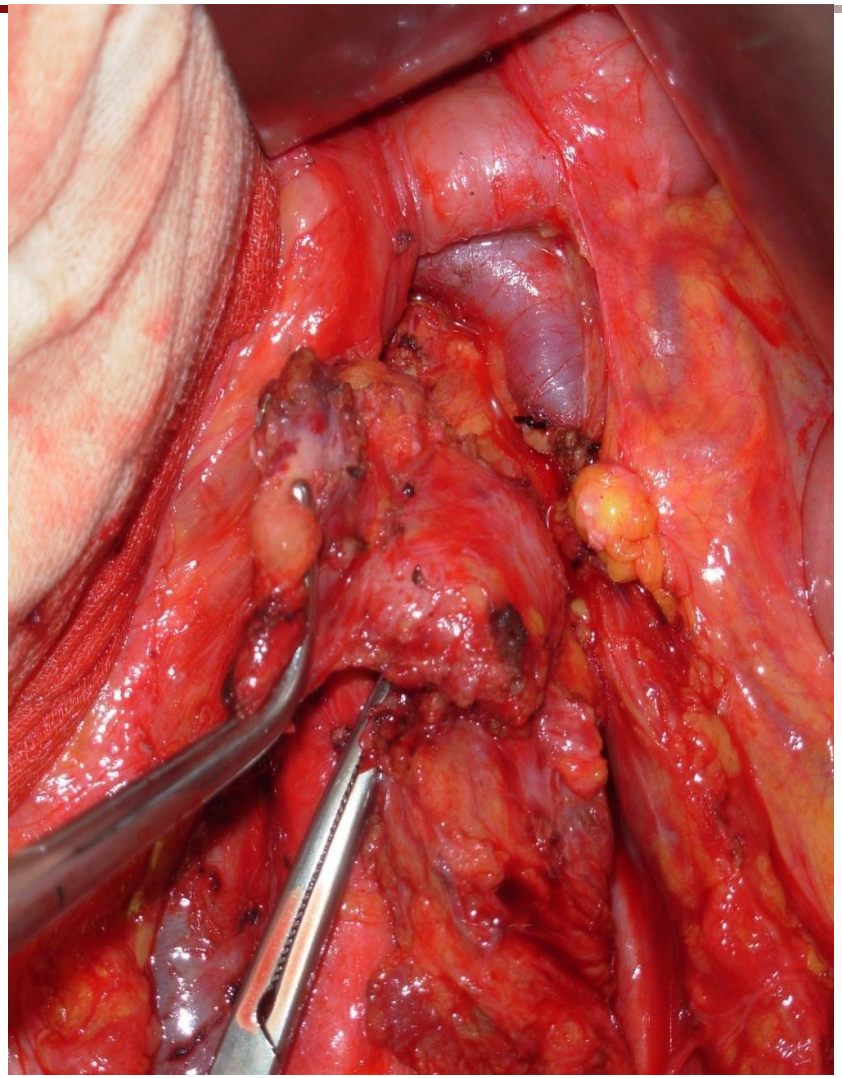
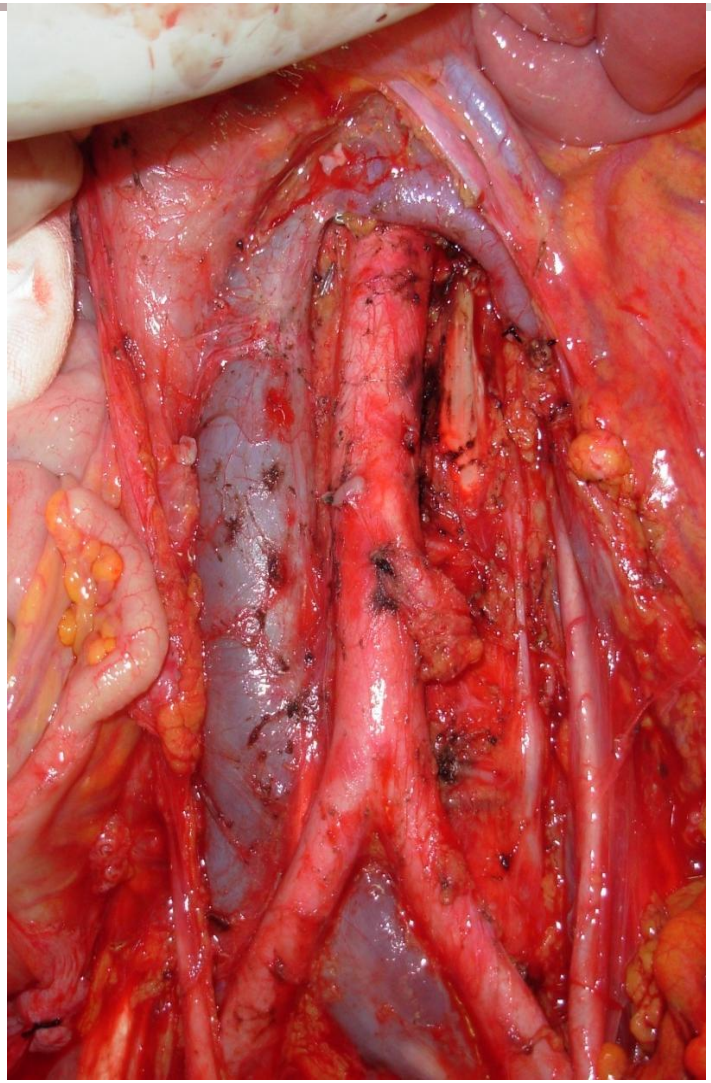
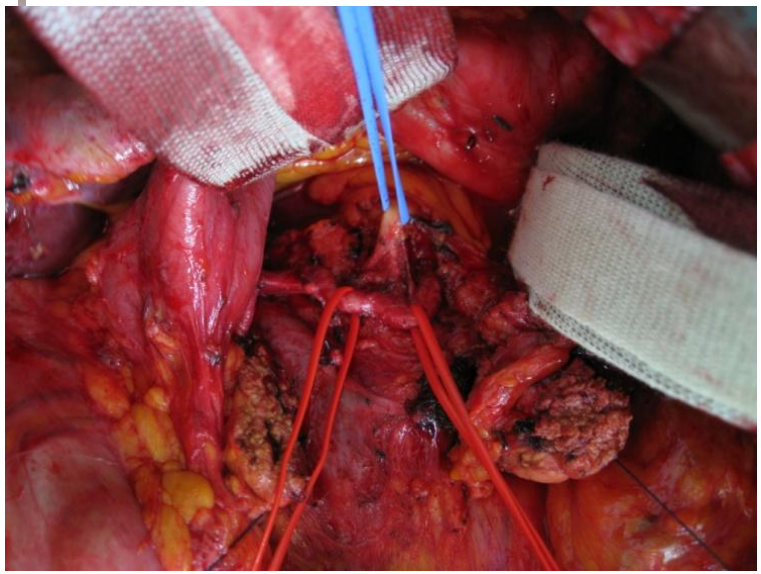
Pre-op

Post-op





Supra-renal LND



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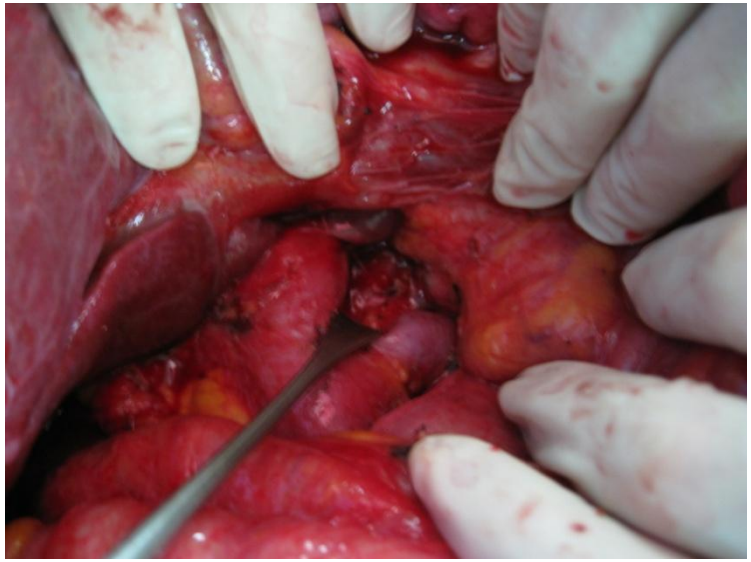

10.03.03

Peritonectomy

- Parietal peritonectomy
  - Diaphragmatic peritonectomy
  - Pelvic peritonectomy
  - Both paracolic gutter peritonectomy
- Visceral peritonectomy
  - Colonic mesentery
  - Small bowel mesentery
  - Subhepatic peritonectomy

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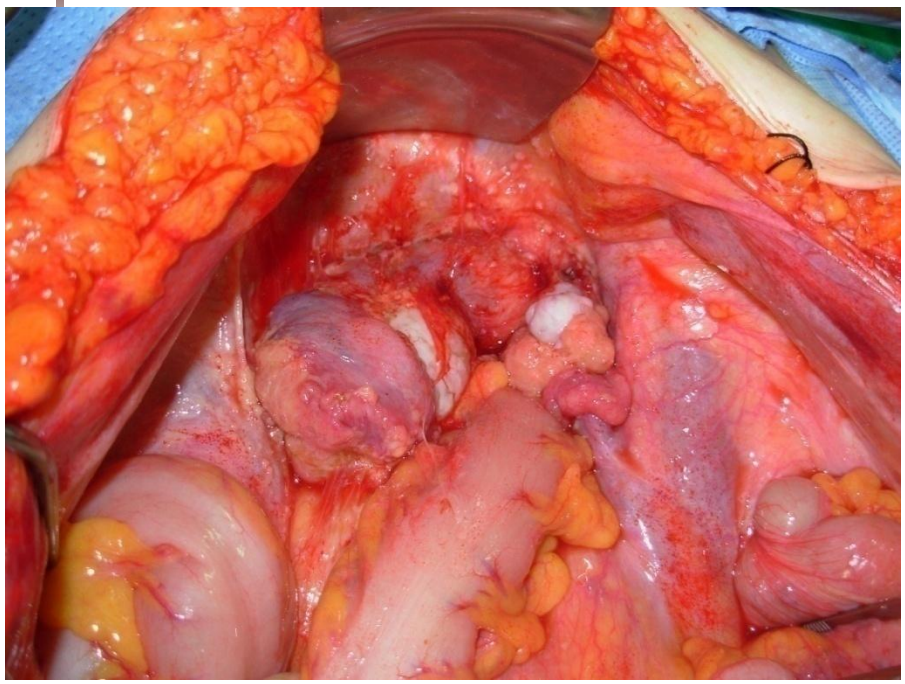
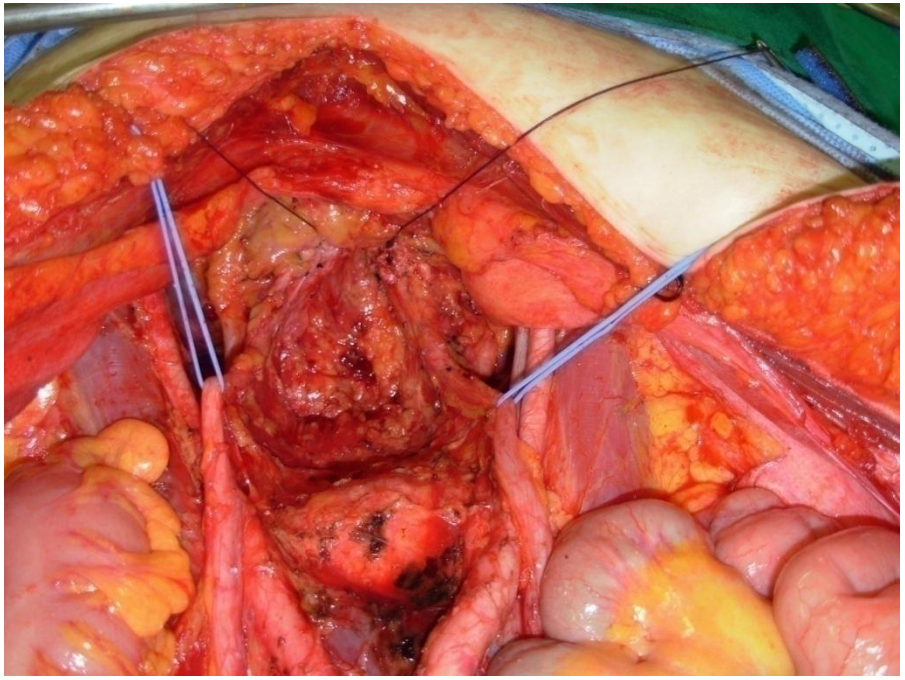
#Preop. Finding



#Postop. Finding



Modified posterior exenteration
Pelvic peritonectomy
PLND & PALND

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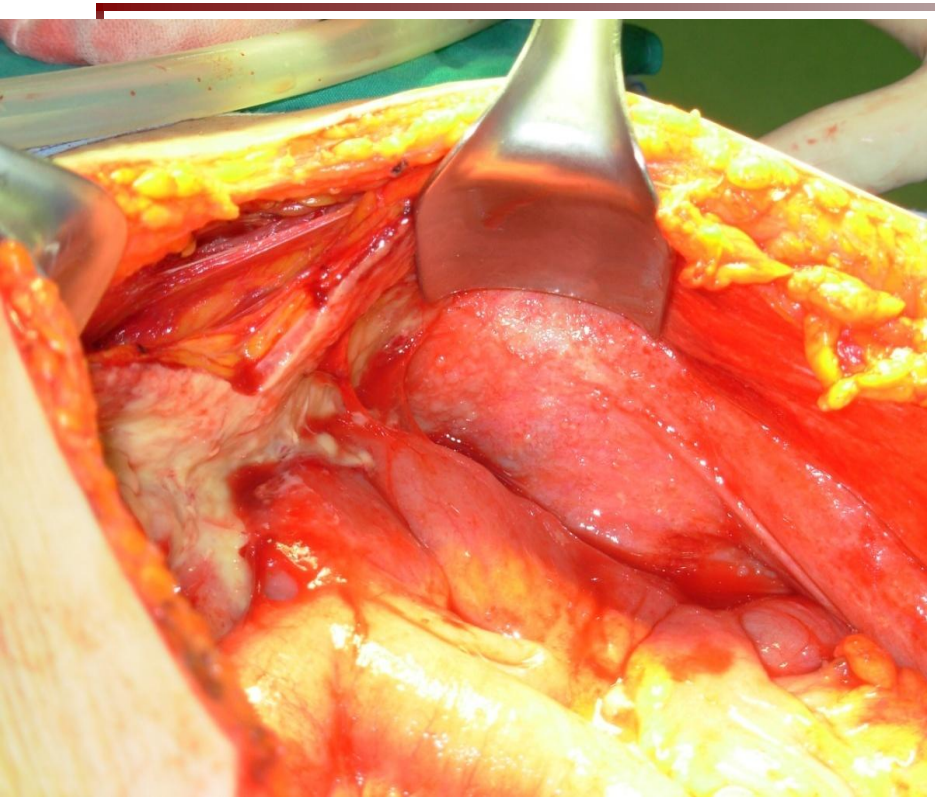
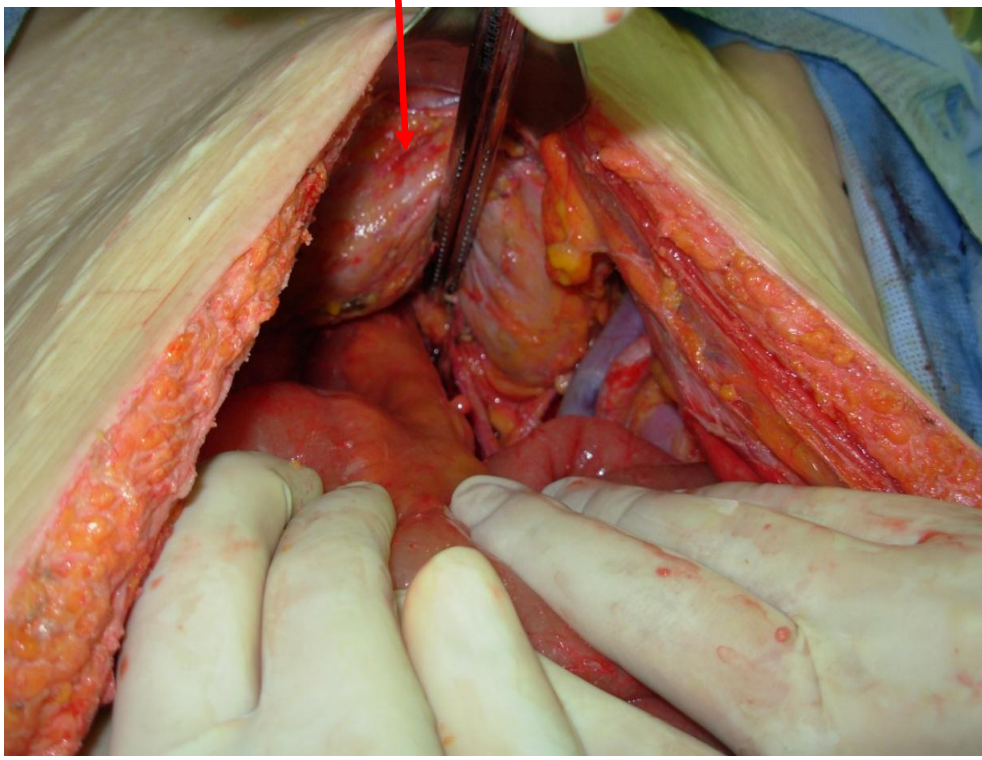
#Preop. Finding



#Postop. Finding

Bladder muslce



Modified posterior exenteration
Pelvic peritonectomy
PLND & PALND
Ileocolic anastomosis

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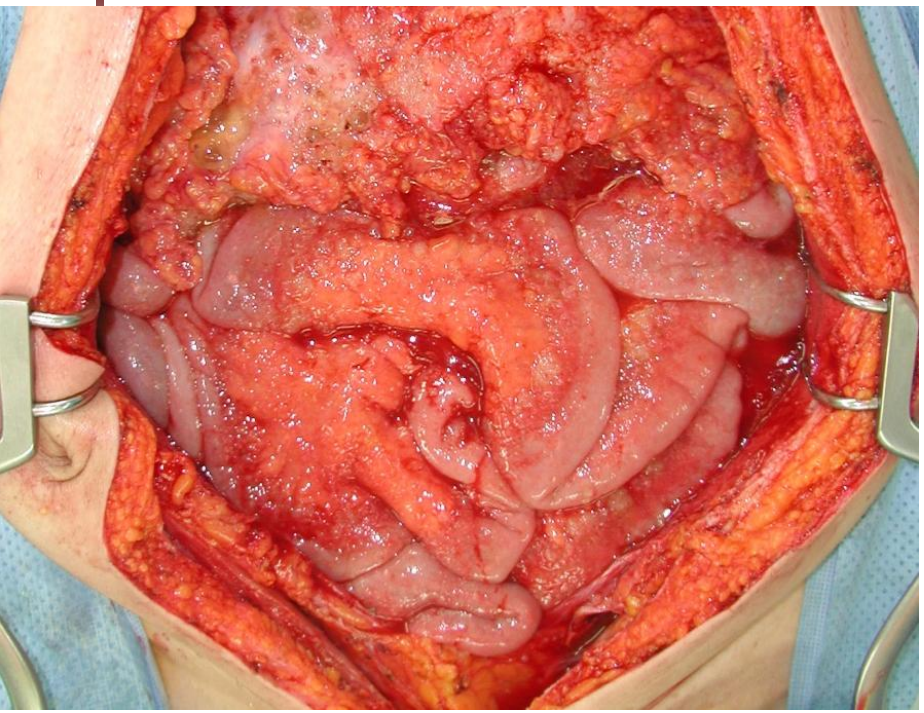
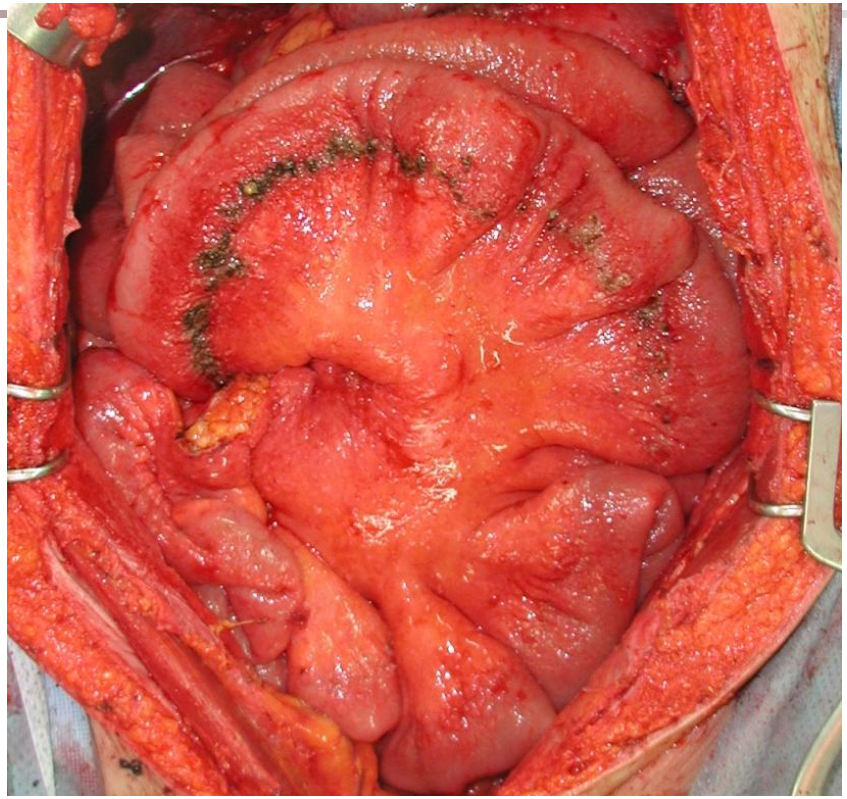
Preop. Finding

Postop. Finding



Tumor implant on mesentery



Visceral peritonectomy and fulguration

Does it need comprehensive surgery in apparently early stage?

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- **Yes.**
- Why?
  - 30% whose tumor appears apparently early stage have occult metastatic disease in the upper abdomen or retroperitoneal LNs
    - *Practical Gynecol Oncol, 3rd ed.: Berek JS et al. 457p*
- After a comprehensive staging, early stage ovarian cancer could be managed adjusted to each stage and grade.

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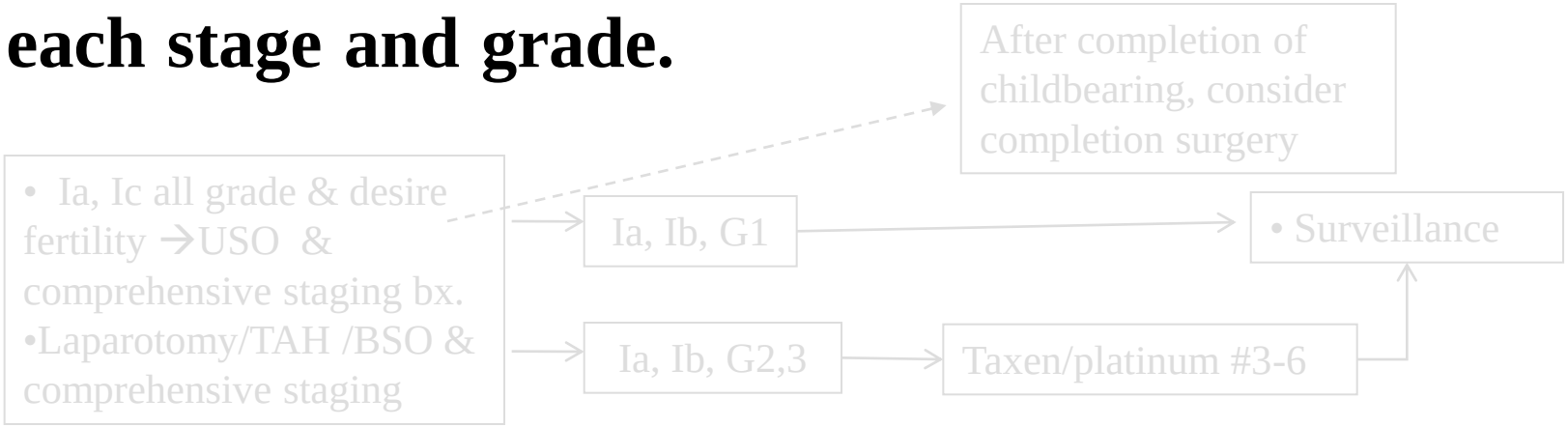

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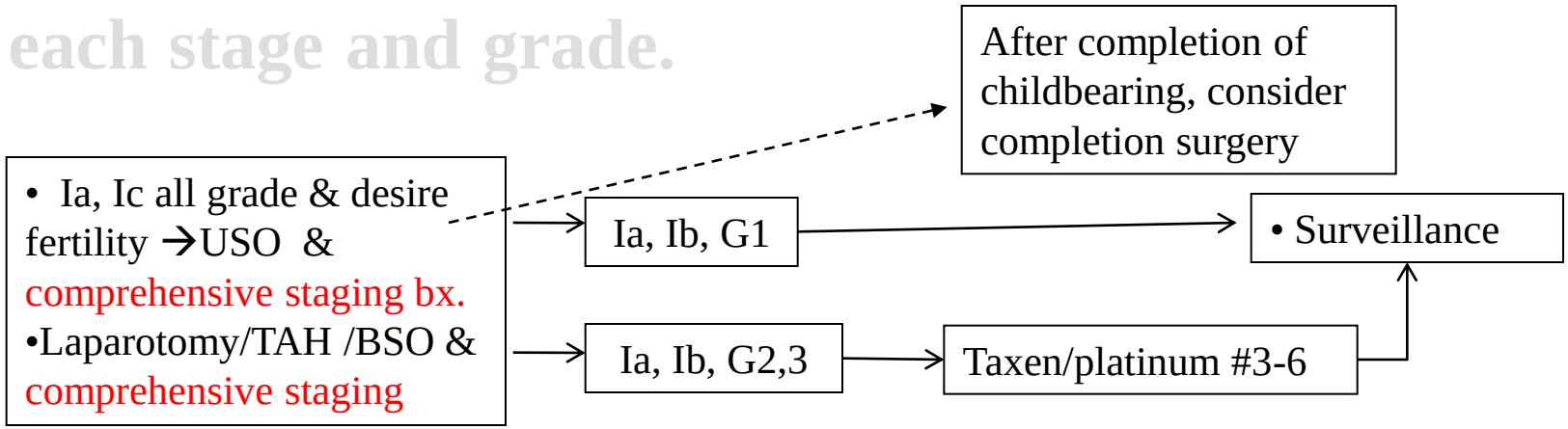

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Experiences in early ovarian cancer

- Duration: 2001. 1 – 2007. 7
- Including criteria: stage I, II
- No. of patients: 52
- Retrospective analysis:
  - Kaplan-Meier, Log rank test, SPSS 11.0

Table 1. Patients charateristics (n=52)

Characteristics	
Age (year)	
Median (range)	46 (22-70)
Type of disease, n (%)	
Ovarian cancer	50 (96.2)
Tubal cancer	1 (1.9)
Primary peritoneal cancer	1 (1.9)
Stage (FIGO, 1989), n (%)	
Ia	16 (30.8)
Ib	2 (3.8)
Ic	19 (36.5)
IIa	3 (5.8)
IIb	7 (13.5)
IIc	5 (9.6)
Histology, n (%)	
Serous	12 (23.1)
Mucinous	9 (17.3)
Endometrioid	11 (21.2)
Clear cell	14 (26.9)
Transitional cell	2 (3.8)
Mixed	4 (7.7)
Grade, n (%)	
I	12 (23.1)
II	18 (34.6)
III	13 (25.0)
Unknown	9 (17.3)
CA-125 (U/mL)*	
Median (range)	43 (8-4389)
>35, n (%)	27 (54)
Co-existence of Endometriosis, n (%)	
Yes	15 (28.8)
Adnexa	6 (11.5)
Rectum	4 (7.7)
Adnexa + Recum	1 (1.9)
Adnexa + PCDS	1 (1.9)
Peritoneum	3 (5.8)
No	37 (71.2)

FIGO, International Federation of Gynecology and Obstetrics; PCDS, posterior cul de sac
*CA125 was evaluated in 50 patients

Table 2. Operative procedures (n=52)

Characteristics	No (%)
Hysterectomy	45 (87)
Salpingo-oophorectomy*	52 (100)
Pelvic LN dissection	45 (87)
Paraaortic LN dissection	46 (88)
Omentectomy	52 (100)
Appendectomy	39 (75)
Low anterior resection	15 (29)
Total splenectomy	2 (4)
Cholecystectomy	2 (4)
Small bowel resection and anastomosis	2 (4)
Diaphragmatic peritonectomy	1 (2)
Ileostomy	1 (2)
Vascular repair	1 (2)
Ureteroneocystostomy	1 (2)
Uretoeroureterostomy	1 (2)

*Included two cases of unilateral adnexetomy for preserving fertility

Table 3. Surgical outcomes (n=52)

Characteristics	
Operating times (min), median (range)	328 (130-535)
Estimated blood loss (L), median (range)	0.4 (0.1-2.5)
Transfusion (unit)	
Required, n (%)	11 (21)
Pint, median (range)	2 (2-7)
Postoperative morbidities	
Mild ileus	5 (10)
Febrile morbidity	4 (8)
Wound dehiscence	3 (6)
Atelectasis	3 (6)
Pancreatic leakage	1 (2)
Arrythmia	1 (2)
Lymphedema	1 (2)
Flatus passage (day), median (range)	3 (1-7)
Tolerable diet (day), median (range)	5 (2-21)
Adivant chemotherapy	
Required, n (%)	42 (84)
Postoperative day, median (range)	13 (7-61)
Postoperative hospital stay (day), median (range)	12 (3-64)

Table 4. Pathological outcomes of low anterior resection (n=15)

Characteristics	No (%)
Cancer invasion	11 (22)
Up to serosa or subserosa	8 (16)
Up to muscle or mucosa	3 (6)
Endometriosis	4 (8)

Figure 1-a

Figure 2-b

Survival

Median F/U: 50 m (8–98)
No death until now

3 recurrences:

No	histology	stage	DFI	Recur site	Op	Chemo	Ds state
1	Serous	Ib	80	PALN	Metastatectomy	TC#4 중	CR
2	Endometrioid	IIb	26	Lung	-	TC#6 중	PR
3	Endometrioid	IIb	48	Liver	Metastatectomy	4th line chemo	AWD

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Survival comparison

Survival after comprehensive staging in early stage ovarian cancer

Survival reported by FIGO at 2003

5-yr overall survival: 100%

Survival by FIGO stage for patient with ovarian cancer 1996-98 FIGO statistics

FIGO stage	Number of patients	Overall survival, percent		
		1 year	2 years	5 years
IA	467	98.5	97.8	89.3
IB	58	94.7	85.8	64.8
IC	560	96.2	89.9	78.2
IIA	73	93.1	88.9	79.2
IIB	105	91.4	82.7	64.3
IIC	206	92.1	83.9	68.2
IIIA	120	86.6	76.1	49.2
IIIB	251	86.1	65.5	40.8
IIIC	1653	81.5	61.1	28.9
IV	511	64.7	39.3	13.4

Experiences in advanced ovarian cancer

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- Duration: 2000. 10 – 2007. 10
- Including criteria: stage IIIc, IV
- No. of patients: 141
- Retrospective analysis:
  - Kaplan-Meier, Log rank test, SPSS 11.0

Aggressive Surgical Procedures in Ovarian Cancer (stage IIIC, IV)

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총 141례 (2001.1-2007.8)

Name of Operation	No.
Total omentectomy	139
Pelvic LN dissection	124
Para-aortic LN dissection	125
Low anterior resection	90
Splenectomy	72
Diaphragmatic stripping/resection	55
Partial hepatectomy	17
Large bowel resection	23

Name of Operation	No.
Small bowel resection	13
Cholecystectomy	8
Distal pancreatectomy	5
Partial gastrectomy	4
Urinary tract resection	4
Appendectomy	102
Hysterectomy	122
Salpingo-oophorectomy	128

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Survival comparison

Survival after comprehensive staging in stage IIIc-IV ovarian cancer

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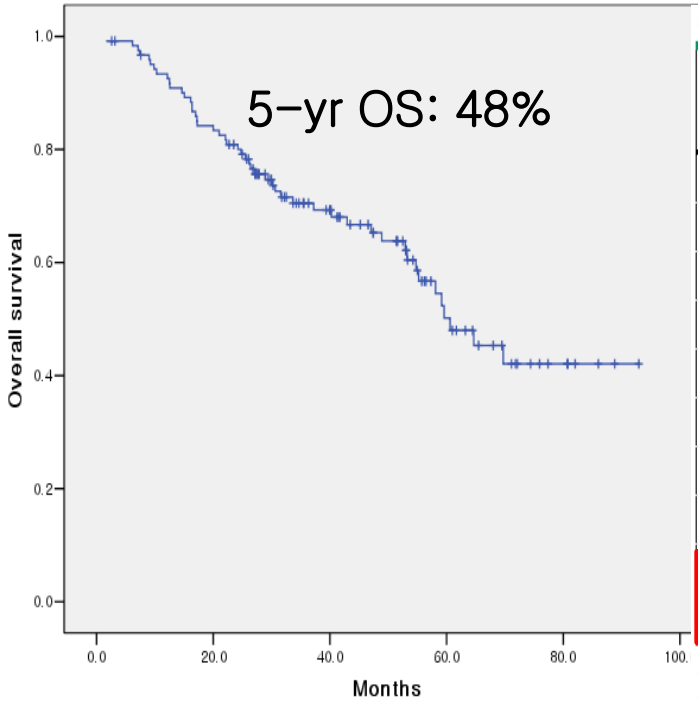

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Summary

- Does comprehensive surgical staging is needed in case of early ovarian cancer with naked eye?
  - Of course, it is.
- What is comprehensive surgical staging?
  - Pathologic confirmation of intraperitoneal organs and retroperitoneal LNS
- But, postop. complications inturrupting chemotherapy should be avoided.

- **In order to perform these jobs**
  - **Knowledgement of anatomy**
  - **Acquirement of surgical skill for intraperitoneal oragans**
  - **Application of up-to-date surgical apparatus**
  - **Experienses for postop. management**
    - ❖Rapport with patients and her relatives

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❖ Muti-disciplinary approach

- **Intramural**
  - **Fellows, residents, interns**
- **Extramural**
  - **GS (colorectal, hepatic, gastric)**
  - **CS, OS**
  - **Anesthesia**
  - **Nursing staff**

❖ Courage

❖ Endurance

❖ unfailing faith~

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Acknowledgement

Center for Uterine Cancer




Gynecologic Oncology Staff



Gynecologic Oncology Fellow

Head

Radiation Oncology

Diagnostic Radiology

Pathology

Anesthesiology


Research Nurse

Acknowledgement

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Center for Colorectal Cancer



Urologic Oncology Clinic



Center for Liver Cancer



Center for Gastric Cancer




Center for Lung Cancer

Orthopedic Oncology Clinic

Thank you for your attention.