NCI
Cairo University

Ahmed Mostafa Mahmoud
Professor of
surgical oncology
National cancer institute

Toward standardization of laparoscopic resection for colorectal cancer in developing countries: A step by step module

Abraham NS et al. Meta-analysis of short-term outcomes after laparoscopic resection for colorectal cancer.

- 12 RCT's 2512 patients
- LR took more than **30% longer** to perform
- LR is associated with **30% lower morbidity** rate of at least than that of open approach.
- Haemorrhage / blood transfusion, reoperation, cardiorespiratory complications and anastomotic leaks favoured LR.


GREENLAND
U.S.A.
CANADA
U.S.A.
RUSSIA
KAZAKHSTAN
MONGOLIA
CHINA
IRAN
IRAQ
PAKISTAN
INDIA
TURKEY
MOROCCO
ALGERIA
LYBIA
EGYPT
SAUDI ARABIA
MAURITANIA
MALI
NIGER
CHAD
SUDAN
NIGERIA
ETHIOPIA
SOMALIA
SOUTH SUDAN
KENYA
DEMOCRATIC REPUBLIC OF THE CONGO
ANGOLA
ZAMBIA
NAMIBIA
BOTSWANA
SOUTH AFRICA
MADAGASCAR
MEXICO
VENEZUELA
GUYANA
COLOMBIA
ECUADOR
PERU
BRAZIL
BOLIVIA
PARAGUAY
CHILE
URUGUAY
ARGENTINA
PHILIPPINES
INDONESIA
PAPUA NEW GUINEA
AUSTRALIA
NEW ZEALAND
TASMANIA
JAPAN
NORTH ATLANTIC OCEAN
NORTH PACIFIC OCEAN
INDIAN OCEAN
SOUTH ATLANTIC OCEAN
SOUTH PACIFIC OCEAN

Challenges in low and medium economy countries.

Logistic limitation

The absence of laparoscopic colorectal surgery in the **hierarchy** of medical insurance

The acceptance of the **surgical community** to change their practice to lengthy technically demanding and expensive surgical procedures.

Economic limitations

Clinical limitations

- Absence of clear guidelines,
- Increased time to perform laparoscopic operations
- Unavailability of trained laparoscopic surgeon and mentors.

Trained team

Segmentation of the procedure

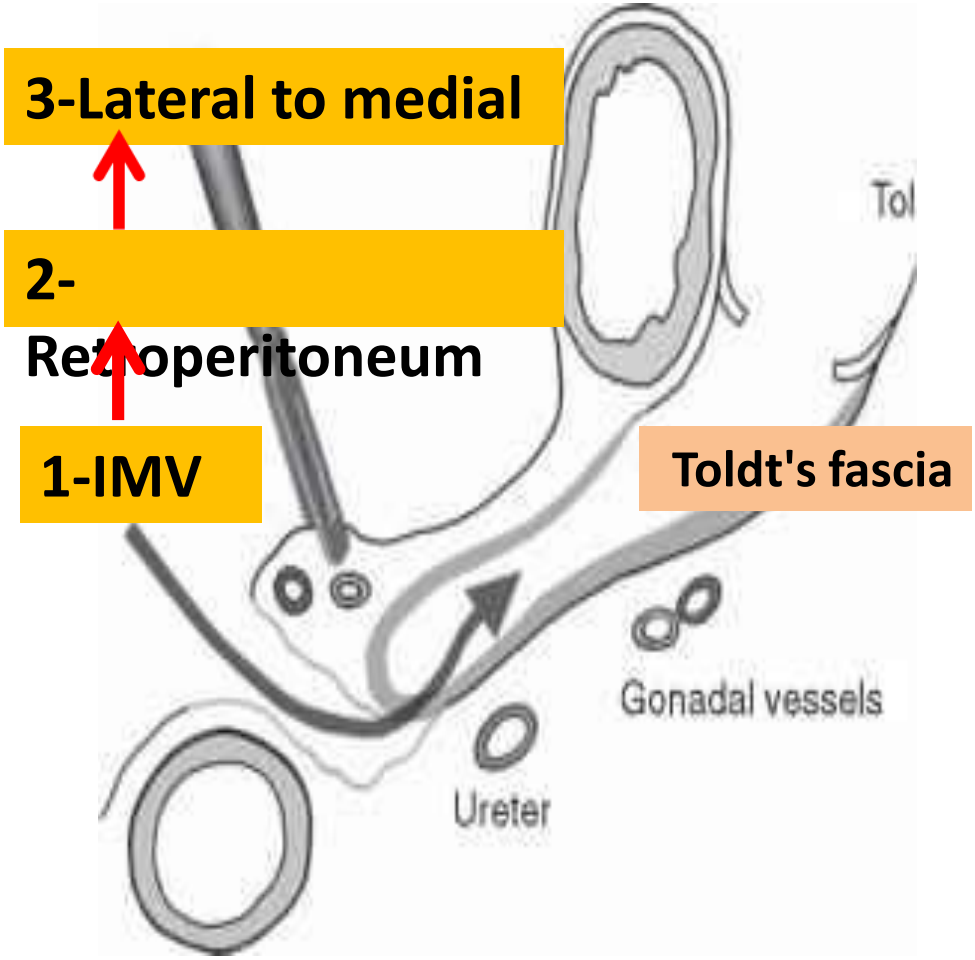
- Segmentation of the procedure into **well organized; adequately detailed and properly structured training model** will fasten the learning curve and master the prcedure.

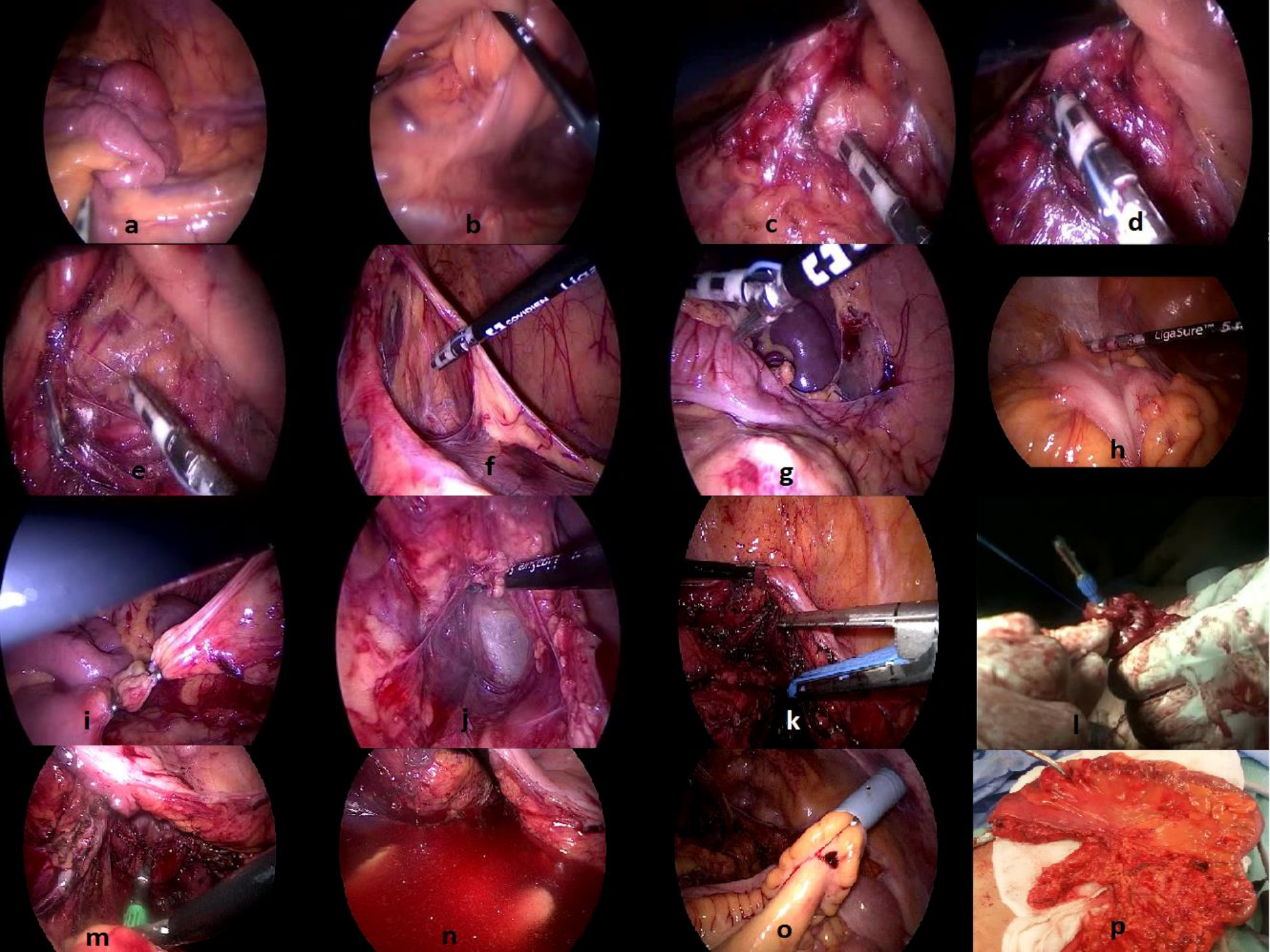
Patients

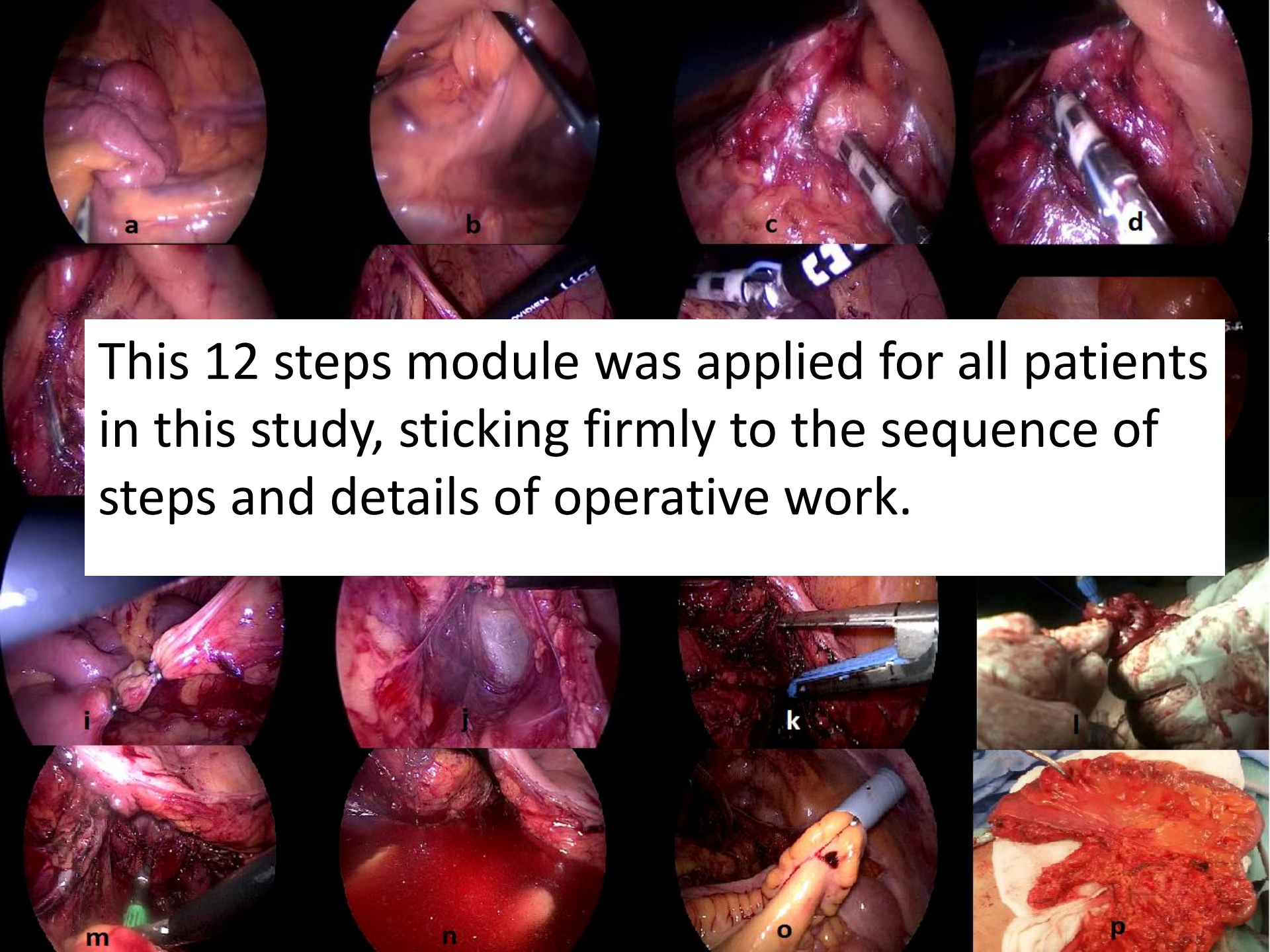
- This study included 50 patients with carcinoma of the left colon and rectum. It was carried out in department of surgical oncology at National Cancer Institute, Cairo University by single surgeon in the period 2012-2016.

Methods

- All laparoscopic procedures were performed according to the principles of total mesocolic excision with central vascular ligation and medial to lateral approach. and total mesorectal excision for all mid and low rectal tumors, while partial mesorectal excision was done for high rectal tumors.

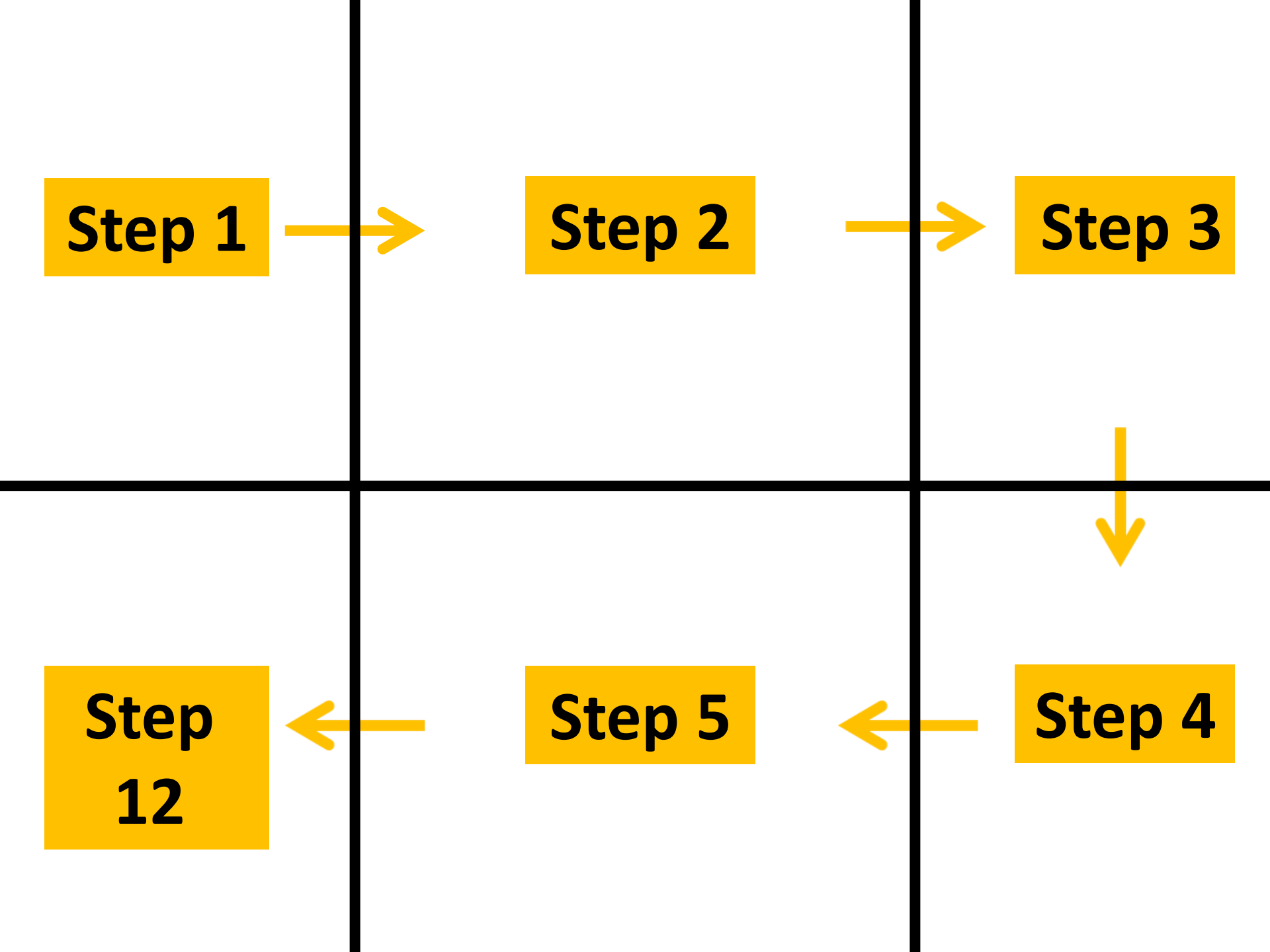


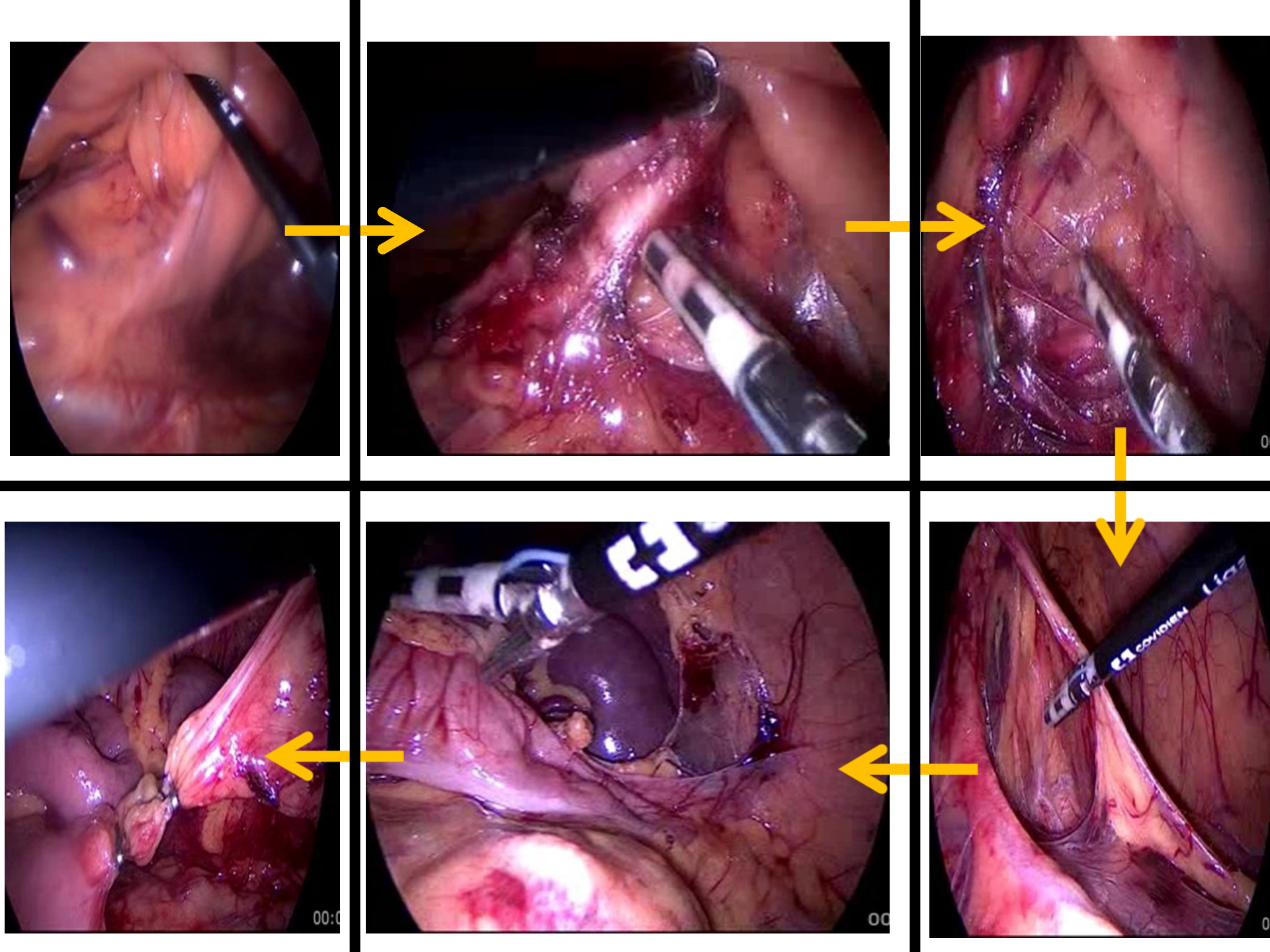

a
b
c
d
e
f
g
h
LigaSure™
i
j
k
l
m
n
o
p

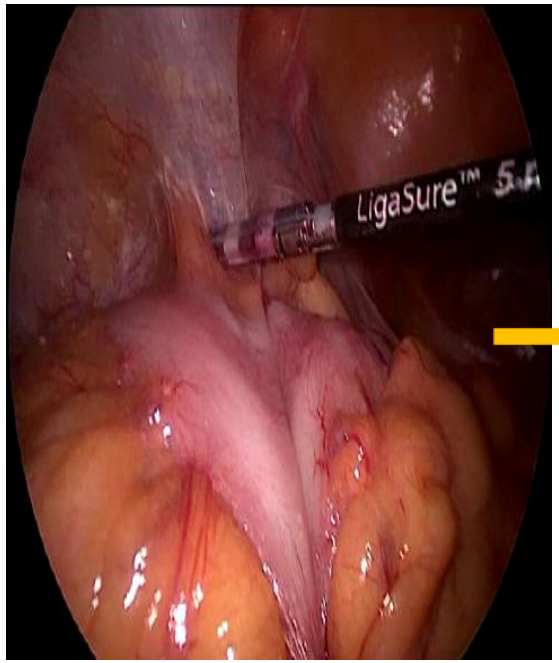


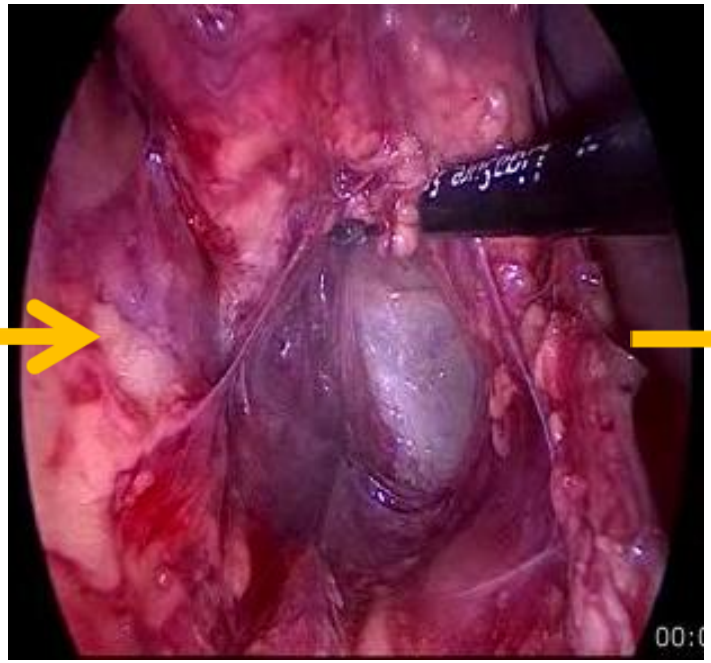
This 12 steps module was applied for all patients in this study, sticking firmly to the sequence of steps and details of operative work.

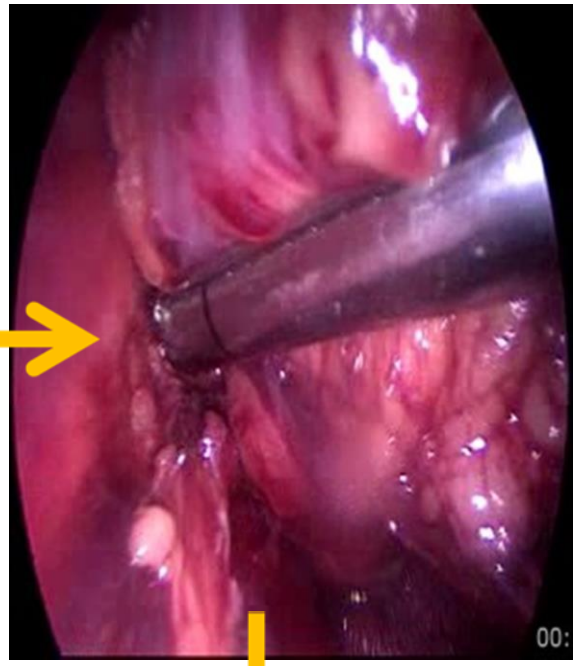
Every door opens the next door

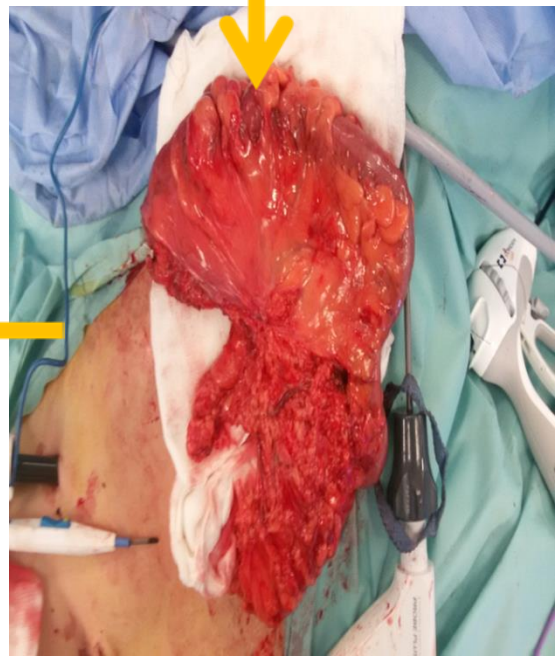

Step 1
Step 2
Step 3
Step 4
Step 5
Step 12

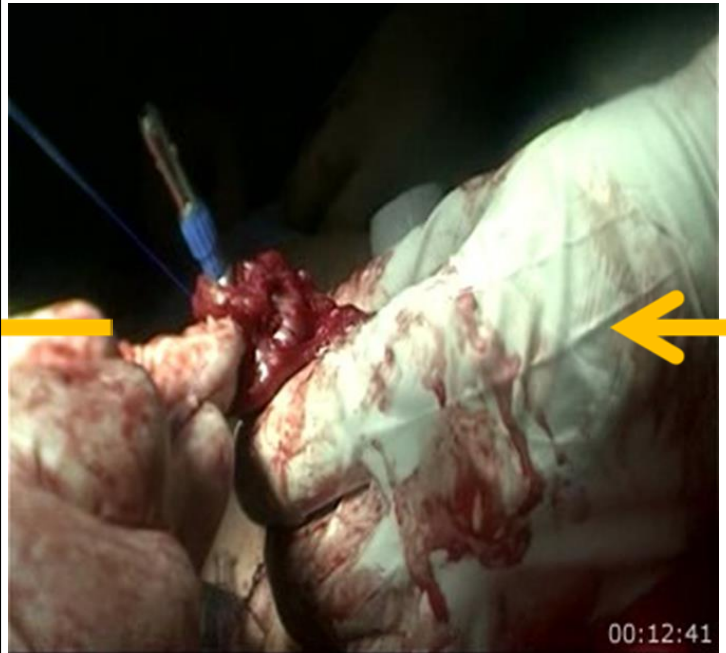



LigaSure™








00:12:41

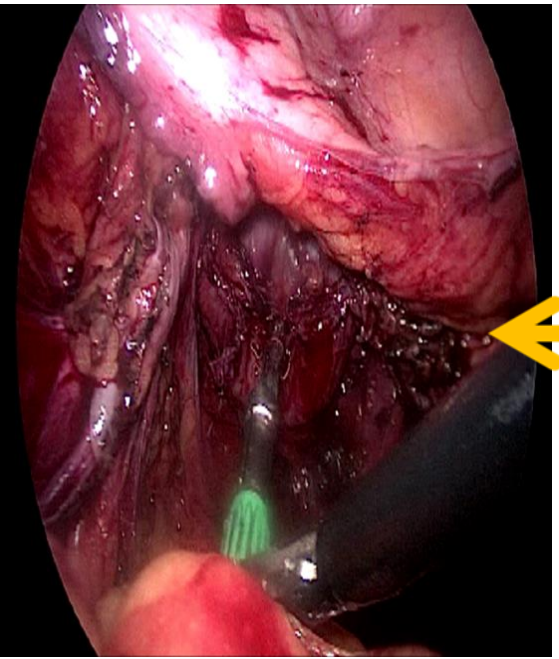
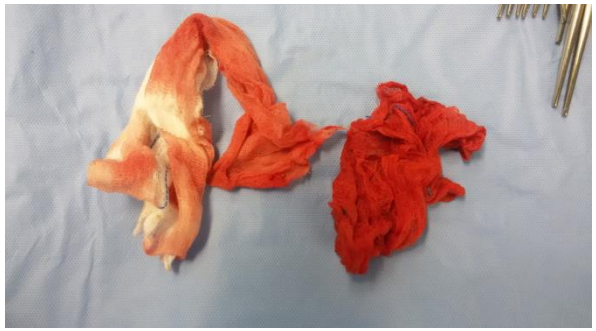


Table (2): Operative characteristics of patients with carcinoma of the left colon and rectum subjected to laparoscopic resection

	Number (%) n=50
Operative procedure	
Laparoscopic left colectomy/sigmoidectomy	18 (36%)
Laparoscopic anterior resection	9 (18%)
Laparoscopic low anterior resection-TME *	15 (30%)
Laparoscopic abdominoperineal resection	8 (16%)
Operative time (minute)	
Median (range)	180 (100-370)
Blood loss (ml)	
Median (range)	350 (60-600)
Conversion rate	6 (12%)
Left ureteric transection	1 (2%)
Failure of progression	3 (6%)
Tumor adherent to urinary bladder	1 (2%)
Tumor adherent to uterus	1 (2%)



* 3 cases had ultralow resection with thorough laparoscopic dissection in the intersphincteric plane.

Tumor Location
Left colon
Sigmoid
Rectum above peritoneal reflection
Rectum below peritoneal reflection
T stage
T1
T2
T3
T4a
T4b
N Stage
N0
N1a
N1b
N2a
N2b
lymph node harvest
Stage
I
IIA
IIC
IIIA
IIIB
IIIC
Safety margin
Proximal margin
Distal margin
Close distal margin (less than 2 cm)
Positive circumferential margin

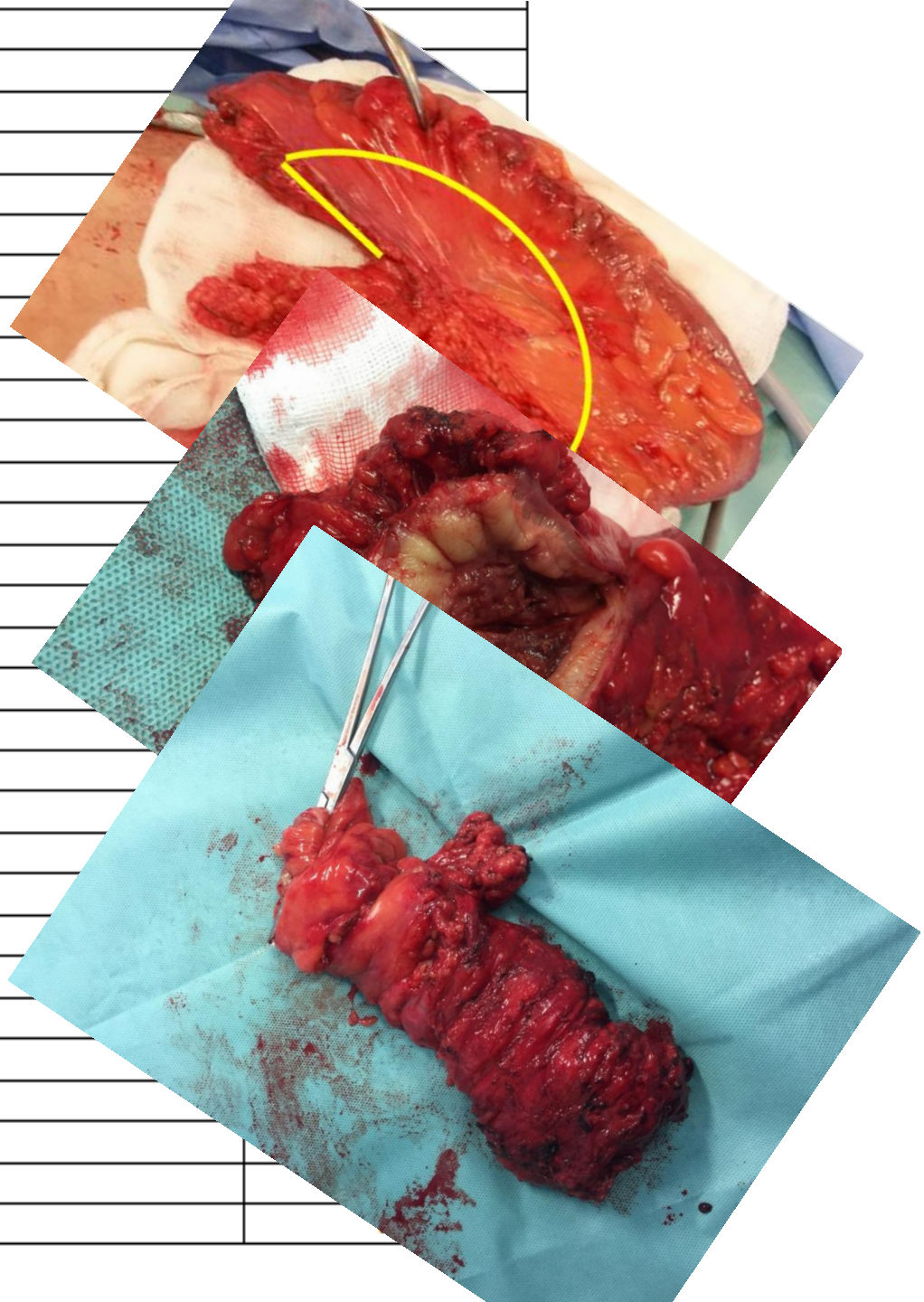
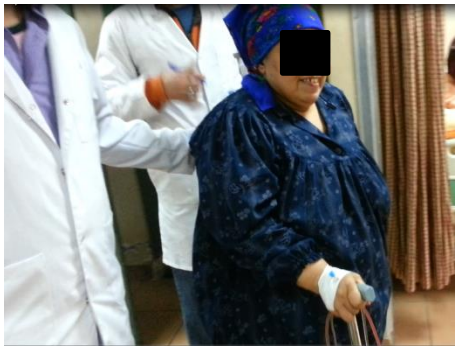


Table (4): Postoperative course characteristics and recurrence incidents of patients with carcinoma of the left colon and rectum subjected to laparoscopic resection

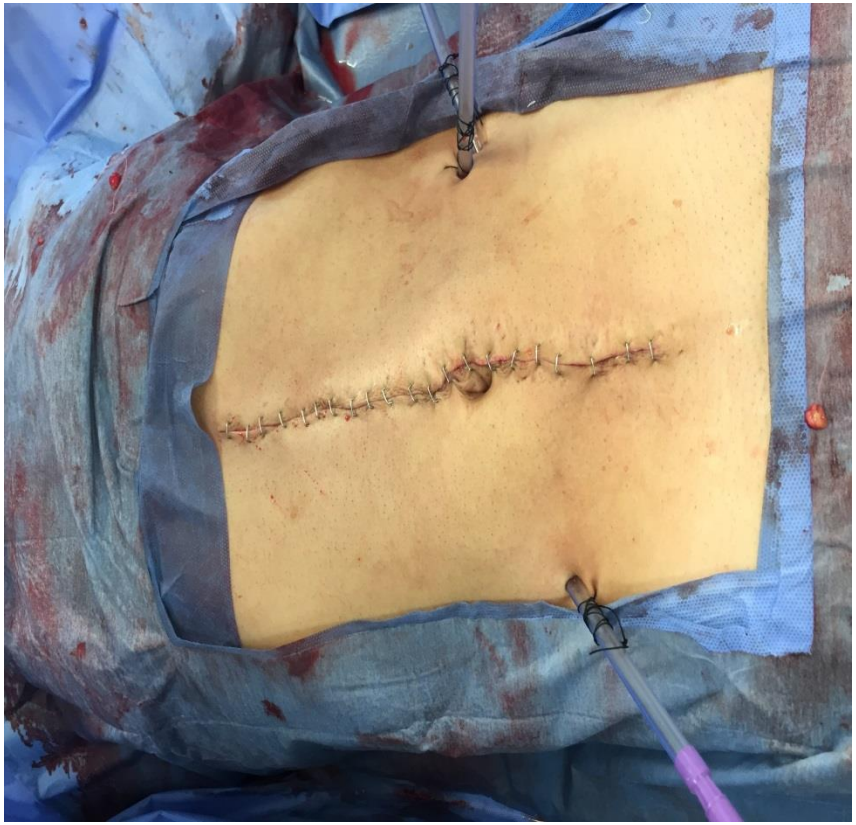
	Number (%) n=50
Time to flatus (days)	
Mean ± Standard deviation	2.1±0.9
Range	1-4
Time to passing stool (day)	
Mean ± Standard deviation	3.3±1.0
Range	2-5
Hospital stay (day)	
Median (Range)	4 (3-12)
Postoperative morbidity	5 (10%)
Coloanal dehiscence	1 (2%)
Retrograde ejaculation	1 (2%)
Minor leak	1 (2%)
Trocar site infection	2 (4%)
Postoperative mortality	0 (0%)
30 days readmission rate	1 (2%)
Recurrence incidents	5 (10%)
Liver	2 (4%)
Peritoneal	2 (4%)
anastomotic	1 (2%)

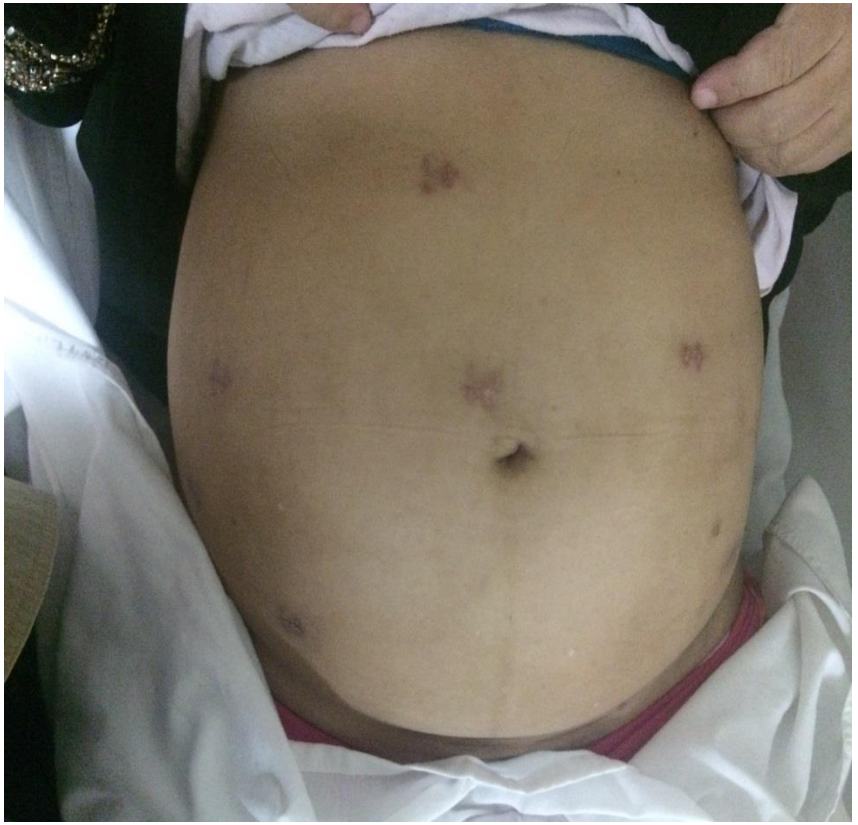


Why minimal access surgery ?

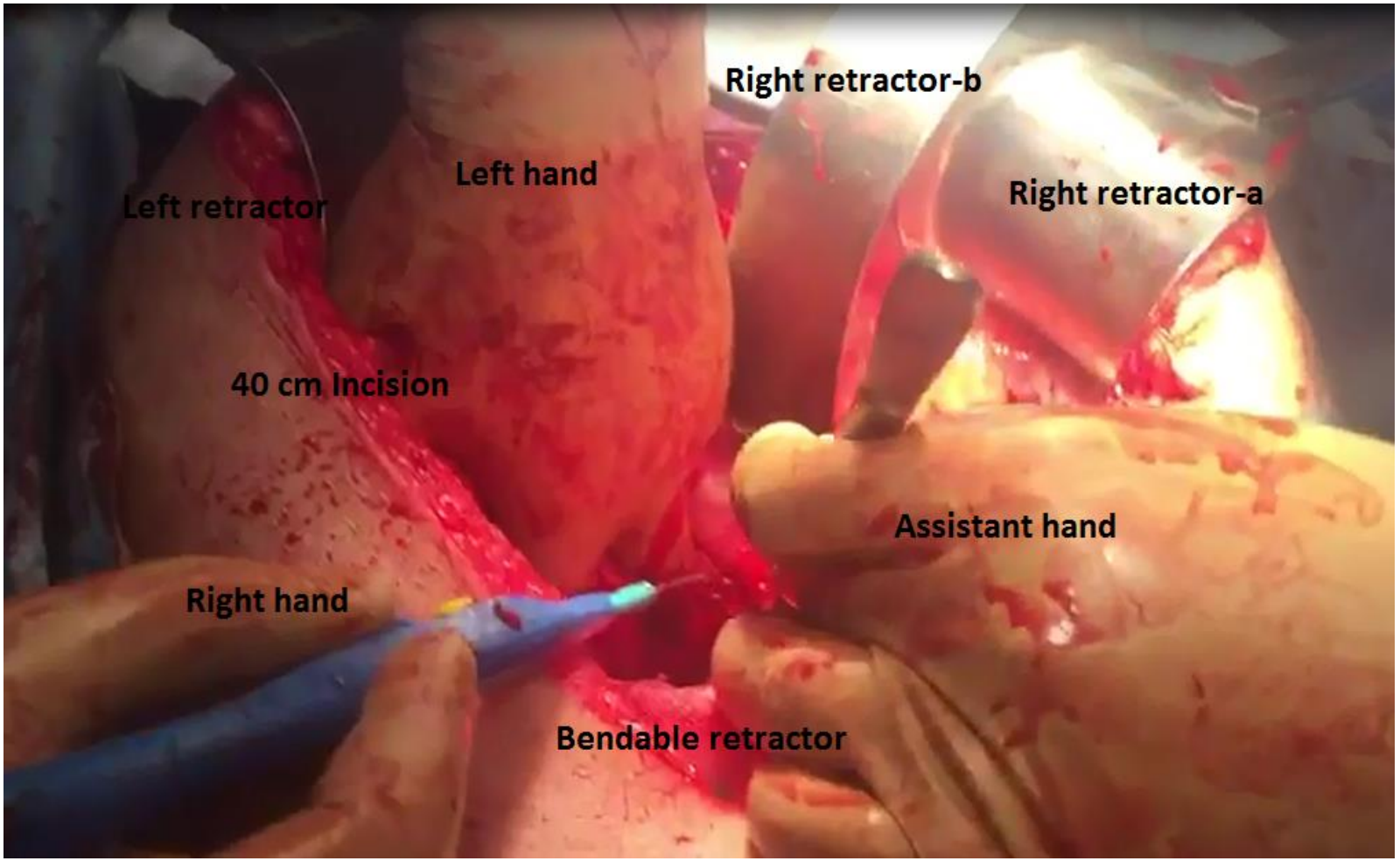
Patient satisfaction

Incisionless surgery

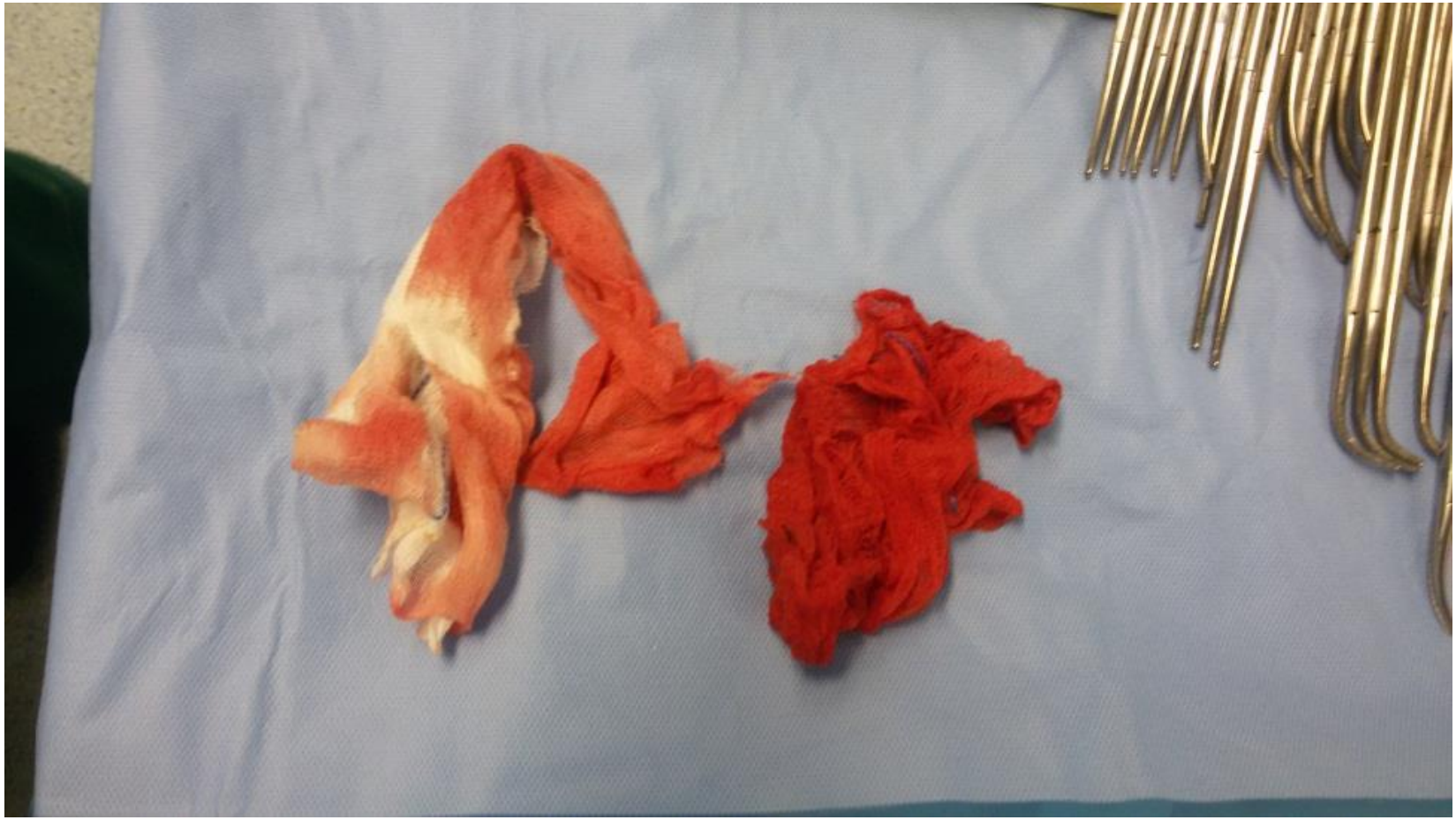




Stress-less surgery

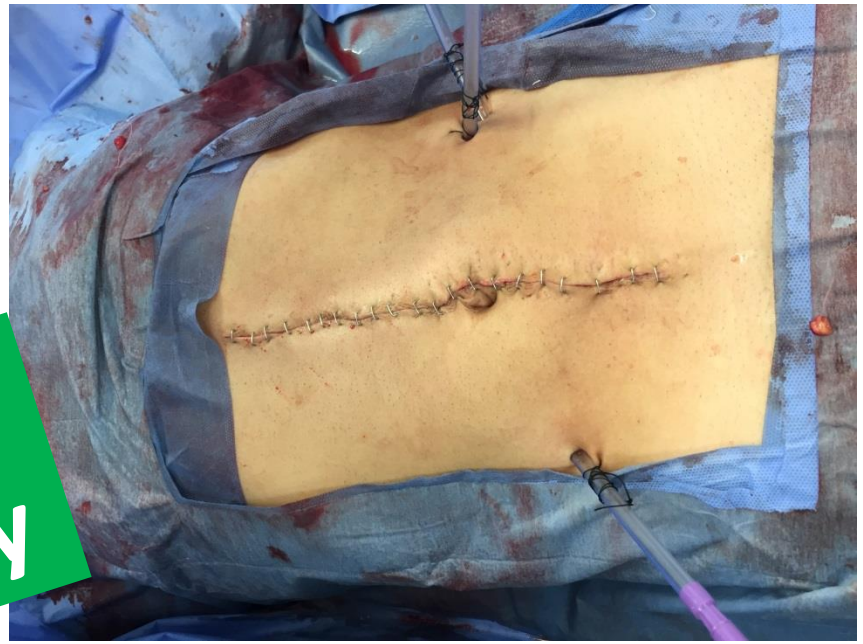


Bloodless surgery



The core of minimal access surgery

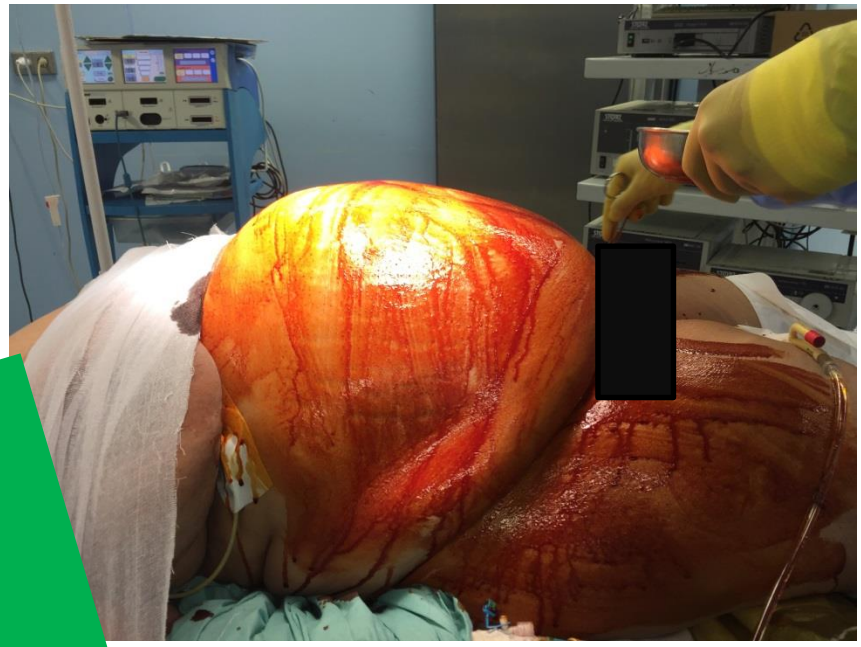
- Minimal access surgery must not be done only for the sake of avoiding laparotomy scar.



Not only incisionless surgery

The core of minimal access surgery

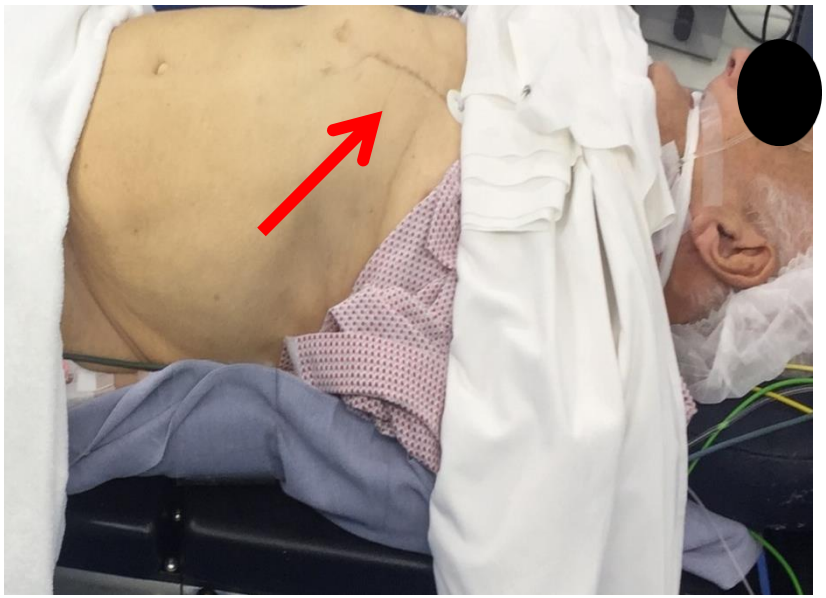
- It is to provide the patients with **better quality of surgery**, **with functional sparing of autonomic nerves and sphincters.**



better quality of surgery

The core of minimal access surgery

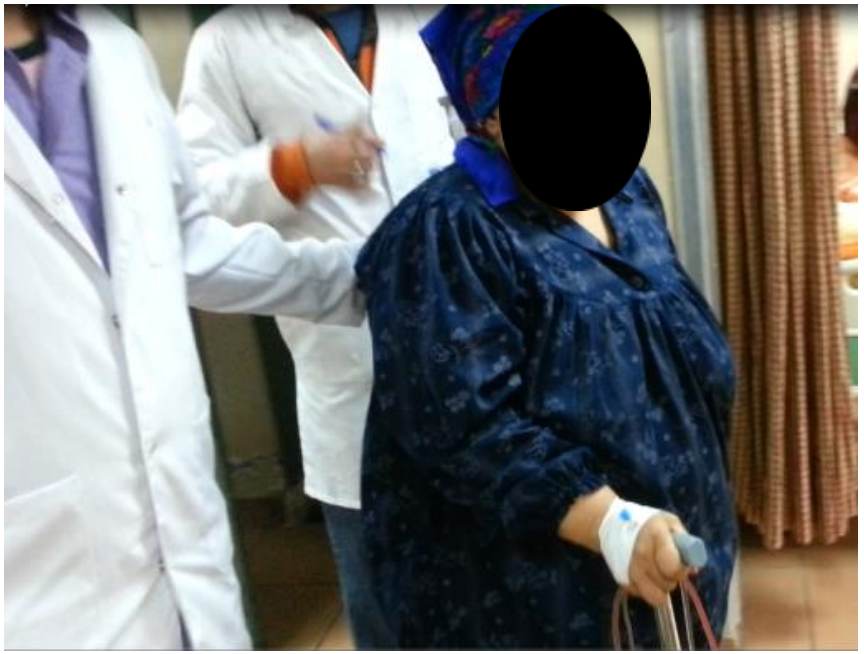
- To **decrease stress response and tissue truma** .



Stress less surgery

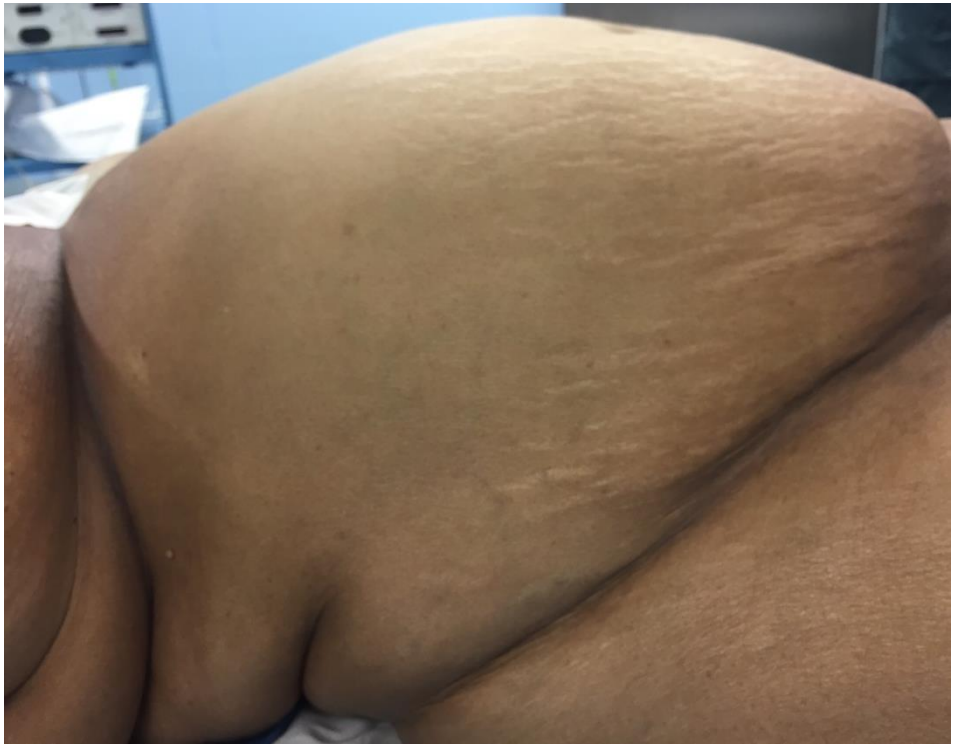
The core of minimal access surgery

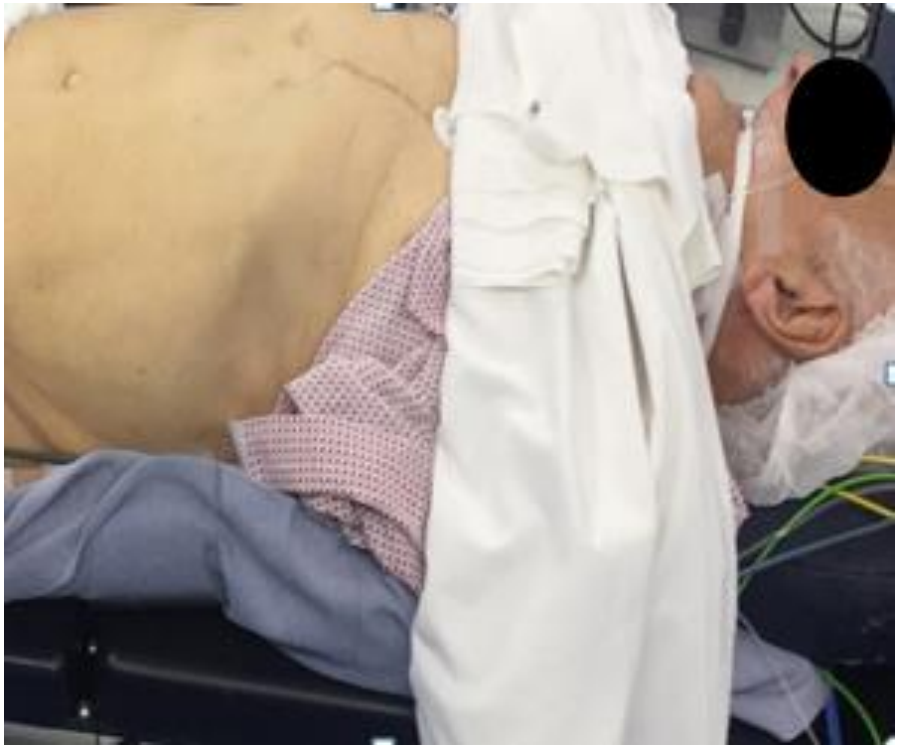
- It must demonstrates real benefits in the context of **enhanced recovery**



ERS program

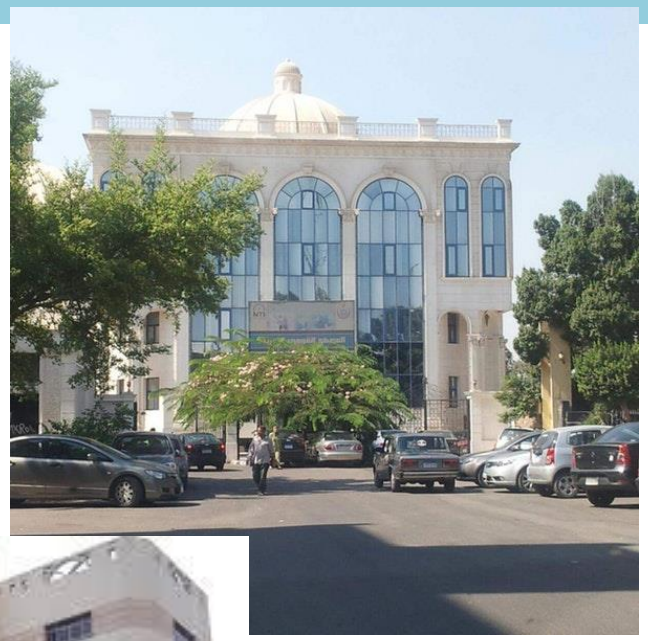
When it is a Necessity ?





Adaptive strategies in developing countries

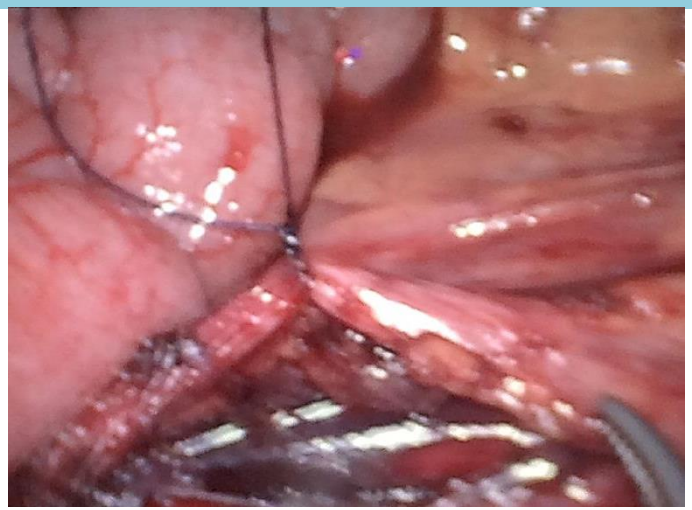
- Establishments of national training programs for basic and advanced laparoscopic surgery.

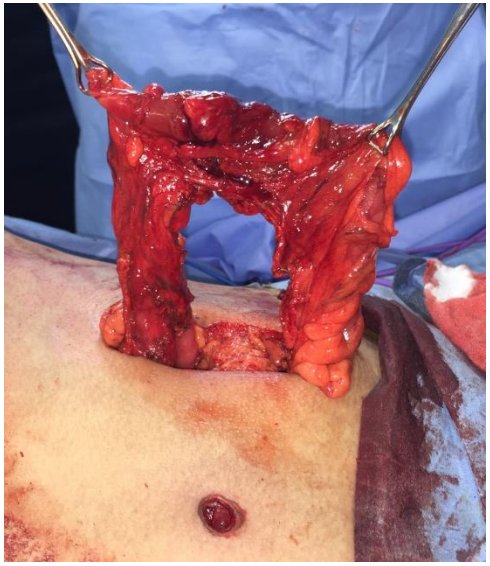


Adaptive strategies in developing countries

Low cost expenses

- **Ligation** and **endo clips** instead of vascular staplers
- **Bipolar and monopolar energy** instead of expensive energy devices
- **Extracorporeal manual** anastomosis instead of intracorporeal anastomosis when feasible.
- **Reuse and re-sterilizing** of disposable instruments.






Thank you