

EMERGENCY LAPAROTOMY IN THE POST-OPERATIVE PERIOD

by

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Introduction

Emergency laparotomy on a critically ill postoperative patient is a desperate procedure. Yet, there are occasions when such a desperate step has to be accepted in the best interest of the patient. These patients remain in a state of gross metabolic and electrolytic imbalance and therefore the risk of another laparotomy is very much multiplied. Hence, the decision of relaparotomy particularly in relation to indication, timing and extent of surgery is extremely vital.

Material

The material of the present communication consists of analysis of records of

emergency laparotomy in 38 cases in the immediate postoperative period performed at N.R.S. Medical College and Hospital, Calcutta. In all these cases the authors were involved either with the primary or with subsequent emergency laparotomy. The period over which the cases have been recorded extends from 1st August, 1968 through 30th September, 1977.

Indications of Postoperative Laparotomy

Haemorrhage, unresponsive postoperative peritonitis and intestinal obstruction constituted the major indications for emergency laparotomy in the postoperative period. The other rare indication was ureteric complication (Table I).

TABLE I
Indications of Postoperative Laparotomy

Indications	No. of Cases
A. Haemorrhage	22
(i) Primary 16	
(ii) Secondary 6	
B. Peritonitis	6
C. Intestinal obstruction	8
D. Ureteric Complication	2
(i) Intraperitoneal leakage of urine	:1
(ii) Bilateral ureteric ligation	:1

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Specific Indications of and Management at Postoperative Laparotomy

1. Haemorrhage

Haemorrhage was the major indication for emergency postoperative laparotomy in the present series. It is apparent from Table II that except perhaps 2

TABLE II
Haemorrhage (22 Cases)

Primary operation	Source of bleeding	Management at emergency laparotomy
Caesarean Section (8 cases)	(a) Bleeding from the angle of uterine incision—(1)	Resuture
	(b) Bleeding from retracted lower margin of the uterine incision.—(1)	Repair
	(c) Broad ligament haematoma—(3)	Hysterectomy with ligation of internal iliac
	(d) Hypofibrinogenaemia—(2)	Hysterectomy
	(e) Recurrent secondary P.P.H. from granulation tissue at the angle of uterine wound—(1)	Hysterectomy
Ward-Mayo's vaginal hysterectomy (5 cases)	Broad ligament haematoma and intraperitoneal haemorrhage—(2)	Ligation of internal iliac and ovarian vessels
	Uncontrollable secondary haemorrhage—(3)	
Abdominal hysterectomy (5 cases)	Generalised oozing from vault broad ligament and base of the bladder—(3)	Ligation of internal iliac and ovarian artery—(2) Pack—(1)
	Uncontrollable secondary haemorrhage—(2)	Ligation of internal iliac and ovarian arteries—(2)
Myomectomy for multiple fibroid including submucous fibroid (1 case)	Bleeding from tumour bed	Hysterectomy
Ectopic pregnancy—interstitial rupture, salpingectomy (1 case)	Bleeding from uterine cornu	Resuture
Ovarian cystectomy (1 case)	Inferior epigastric vessel-parietal bleeding following transverse abdominal incision.	Resuture
Partial removal of malignant ovarian tumour (1 case)	Intraperitoneal haemorrhage	Ligation of internal iliac and ovarian vessels

cases of hypofibrinogenaemia, primary haemorrhage in the postoperative period was due to neglect or inability in securing perfect haemostasis at the time of primary operation. Out of 16 cases of primary haemorrhage, in 12 the bleeding was entirely internal, whereas in the remaining 4, it was mainly external. The diagnosis of internal haemorrhage is sometimes difficult. Typical pallor, cold clammy extremities and low pulse volume appeared to be superior diagnostic points than hypotension and tachycardia.

There are 4 methods of controlling bleeding in the emergency postoperative period. These are ligating or suturing the bleeding point, ligation of main vessel, removal of the bleeding organ and lastly putting a tight pack on the raw bleeding surface.

at the time of primary operation is perhaps the major contributory factor for subsequent postoperative peritonitis. Except 2 cases of caesarean section reported in the present series who were possibly infected at the time of primary operation, warning features of mild internal haemorrhage were recorded in the remaining 4 cases on the very first day of the postoperative period. Reasonable resuscitation with usual resuscitative procedures misguided the surgeons with false sense of security and these patients ultimately landed with intractable intraperitoneal or pelvic cellular infection.

In the present series, 5 cases had laparotomy and drainage for unresponsive peritonitis and pelvic cellulitis (Table III). Laparotomy was delayed in 3 out of 5 cases leading to fatal termination.

TABLE III
Peritonitis and Pelvic Cellulitis: (6 Cases)

Pr. Operation	Specific management
Caesarean section (2)	(a) Drainage of pus (b) Hysterectomy and drainage through flanks.
Ward-Mayo's vaginal hysterectomy (1)	Initially drainage through vault of vagina, subsequently drainage by laparotomy.
Abdominal subtotal hysterectomy for septic abortion. (1)	Laparotomy for drainage; Intestinal fistula— spontaneous closure.
Gonadectomy for testicular feminisation. (1)	Initially colpotomy then laparotomy for drainage.
Myomectomy for broad ligament fibroid. (1)	Extraperitoneal drainage for broad ligament cellulitis.

Table II illustrates the different situations in the present series in which these methods were adopted to control the bleeding.

2. Unresponsive Peritonitis and Pelvic Cellulitis

Failure to secure perfect haemostasis

3. Intestinal Obstruction

Mechanical obstruction is due to adhesion of loop of small intestine on a suture line which has been inadequately peritonised or where oozing of blood has not been meticulously controlled. Small raw areas in that respect are worse than

large raw areas. Mechanical intestinal obstruction may also follow during the course of resolution of peritonitis. The case of caesarean section reported in this series had similar type of obstruction (Table IV). The loops of small intestine were glued together in the form of bread and butter adhesion.

separation may lead to intestinal injury which may cause faecal peritonitis.

4. Laparotomy for Ureteric Complications

In 2 cases emergency laparotomy had to be performed for ureteric complications. In 1, there was intraperitoneal leakage of

TABLE IV
Intestinal Obstruction (8 Cases)

Primary Operation	Nature of obstruction	Specific management
Caesarean section (1)	'Bread and butter' adhesion following parital resolution of peritonitis.	Separation of adhesion leaving behind a drain through flanks
Hysterectomy for rupture of uterus (1)	Loops of small intestine adherent to the right corner of the united broad ligament peritoneum.	Ileotransverse anastomosis
Abdominal hysterectomy (4)	(a) Small intestine adherent to right corner of the vault—(1);	Ileotransverse anastomosis
	(b) Omental pedicle adherent to small intestine—(1);	Division of omentum and covering the raw area
	(c) Intussusception—(1);	Resection and anastomosis
	(d) Volvulus—(1);	Untwisting and fixation
Hysterotomy (1)	Small gut adherent to the suture line of the upper uterine segment	Separation of small intestine and hysterectomy
Posterior pelvic exenteration (1)	Retraction of colostomy wound.	Transverse colostomy

Minimum interference should be done at postoperative laparotomy. We have occasionally found it difficult to separate loops of small intestine adherent to the vault of the vagina and under such circumstances a by-pass operation (ileo-transverse anastomosis done in 2 cases in the present series) is much safer as a life saving procedure. Attempt at forcible

urine following ureterovesical implant performed for postoperative ureterovaginal fistula. The other case had complete suppression of urine following bilateral ligation of ureters. The primary operation in this case was total abdominal hysterectomy with bilateral salpingo-oophorectomy for pelvic endometriosis with dense adhesions.

Mortality

Out of 6 deaths, 4 died following laparotomy for peritonitis (Table V). The death in other 2 cases was due to severe respiratory tract infection in one and uncontrollable bleeding due to hypofibrinogenaemia in the other.

also in majority of cases can be treated vaginally. When vaginal procedures fail to control the bleeding, abdominal approach remains the only choice.

It is better to perform hysterectomy for massive internal or uncontrollable external bleeding following caesarean sec-

TABLE V
Mortality (6 Cases)

Primary operation	Indication of emergency laparotomy
Caesarean section (2)	Primary haemorrhage—(1) (Ultimately proved to be due to hypofibrinogenaemia). peritonitis (1)
Mayo-Ward's vaginal hysterectomy (2)	Peritonitis with paralytic ileus—(1) Severe respiratory tract infection following relaparotomy—(1)
Gonadectomy (1)	Unresponsive peritonitis.
Uterovesical implant (1)	Peritonitis following intraperitoneal leakage of urine.

Discussion

Though drastic, yet the calculated risk of relaparotomy has to be accepted when the postoperative complication appears to be incurable without surgical exploration. The attitude of conservatism in some of the near fatal postoperative complications should be re-evaluated on the results obtained by judiciously planned but desperate procedures of emergency laparotomy. In the present series haemorrhage and persistent abdominal distension were the major indications for postoperative laparotomy.

It is not always essential to perform laparotomy for postoperative gynaecological and obstetrical bleeding. Those appearing externally, specially after abdominal or vaginal hysterectomy, may be tackled by the vaginal route. Postpartum haemorrhage following caesarean section

tion or myomectomy. A single bleeding point is seldom detected and only in 3 cases in the present series, these could be picked up and resutured. There is controversy regarding the role of hysterectomy in postoperative bleeding following caesarean section. The controversy is centred around the decision to be taken in primigravid patient where, as an alternative to hysterectomy, bilateral ligation of internal iliac is believed to be equally effective. But ligation of internal iliac artery, only for the sake of preservation of the uterus does not seem to be as effective as removal of the uterus. Because collateral circulation develops quickly (Burchwell and Olson, 1967) and bleeding may start again from a big vascular organ like uterus following caesarean section where there are plenty of sinuses ready to bleed. In the present

series, ligation of internal iliac artery in addition to hysterectomy was performed in 3 cases of postoperative bleeding following caesarean section because all of them had either retrovesical or broad ligament haematoma.

In intraperitoneal haemorrhage following abdominal or vaginal hysterectomy, it is more difficult to locate the exact source of bleeding. Because the precise bleeding point or points remain obscured either by broad ligament haematoma or continuous welling of blood from the vault of the vagina or the veins of the broad ligament. It is, however, advisable not to waste any time for detection of source of bleeding but to go straight for ligation of main vessels i.e. the internal iliac and ovarian arteries. Ligation of internal iliac artery is an accepted procedure for bleeding emergencies following pelvic surgery (Reich *et al*, 1965; Radman, 1965; Binder and Mitchell, 1960; Chakravarty, 1970). It is often difficult to identify the internal iliac arteries when these vessels remain eclipsed by huge broad ligament haematoma. Inadequate anaesthetic relaxation is another factor which adds difficulties for identification of the vessels. Extra-peritoneal approach under such circumstances seems to be easier and safer.

Abdominal distension in the postoperative period may be due to paralytic ileus, mechanical intestinal obstruction or peritonitis.

Often the 3 conditions may co-exist and it is dangerous to perform postoperative laparotomy until and unless the bowel sounds are audible. It is not that in all cases of mechanical obstruction, laparotomy is indicated. If distension of the proximal gut can be decompressed quickly, small kinks of the adherent loop of

intestine may pass off and laparotomy may be avoided.

Peritonitis in majority of cases is due to collection of pus in the peritoneal cavity. Unless this is drained out, the condition of the patient will not improve. If the pus accumulates in the pelvis, this can be drained out through the pouch of Douglas or through the vault of the vagina if hysterectomy has been done. But in majority of postoperative cases, pus remains loculated or localised in the flanks because of use of antibiotics and recumbent posture of the patient. Under such circumstances, drainage through vaginal route is not effective and laparotomy remains the only solution. In the present series, 2 cases were primarily drained through vaginal route but ultimately laparotomy had to be performed because of inadequate vaginal drainage.

The result of laparotomy for postoperative peritonitis in the present series has been disastrous. It appears that early intervention could have saved at least some of the patients. Further, it appears from the analysis of cases of postoperative peritonitis reported in this series, that in majority, perhaps this fatal complication could have been prevented by meticulous and judicious respect of the basic surgical principles at the time of primary operation.

Summary and Conclusion

The records of 38 cases of emergency laparotomy in the immediate postoperative period have been reported. Haemorrhage, peritonitis and intestinal obstruction constituted the major indications for postoperative emergency laparotomy. The result of surgical exploration in postoperative haemorrhage was encouraging but the outcome of laparotomy in postoperative peritonitis has been hope-

lessly disappointing. It is true that most of the postoperative complications are not desirable and in fact avoidable, yet occasionally a surgeon has to face such embarrassing situation and under such circumstances, without bias he has to accept the risk of emergency laparotomy in the best interest of the patient.

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In view of the extreme importance of the tube, both from the point of view of fertility and more particularly its importance in the contraceptive practice, it was considered worthwhile to carry out the present study with the following aims and objects:

1. To study the histological picture of the tube during the different phases of the menstrual cycle.
2. To study the histological changes during the different phases of the menstrual cycle.
3. To correlate these changes with vaginal cytology and endometrial changes where ever possible.
4. To correlate the information obtained with possible changes responsible for fertility.

Material and Methods

The present study was carried out in the Department of Obstetrics and Gynaecology and Department of Pathology and Bacteriology, S.N. Medical College, Agartala. The cases were selected from those admitted to the Gynaecology wards for interval tubal ligation.

Attention has been focused on the ovulation in the last few years with the heightened need for population control. Although organogenetically the fallopian tube is of the same Mullerian origin as the uterus and the upper vagina, it has received considerably less attention than the rest of the reproductive tract. For a long time it continued to be considered as a passive tube conveying sperm and eggs to the opposite fallopian and uterine cavity. In addition it provides certain essential conditions for sperm transport, oviposition and fertilisation. The fallopian tube epithelium provides the essential nutritional interrelationship between the cleaving morula and the surrounding tubal lumen. It is obvious that the studies of the structure and embryological origin of the endometrium of the fallopian tube carries important implications for both the prevention and the fertilisation of the conception.

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