

Bowel injuries during gynaecological surgery – Still a challenge

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Abstract

Introduction: Iatrogenic injury to gastrointestinal tract is not uncommon in patients with pre existing risk factors. Good knowledge of basic principles of management is mandatory for patient safety.

Objectives: To determine the frequency of bowel injury during gynaecological surgery.

Patients and methods: Twenty six patients with bowel injury during gynaecological surgery were included in the study. A retrospective descriptive study was carried out from January 2012 to December 2013. Age, parity, previous obstetrical and gynaecological history, primary pathology, site of injury and other variables were analyzed.

Results: Majority of patients (73%) were operated for elective laparotomy for ovarian cancer or hysterectomy for uterine pathology. Small gut injury in 76.92% of patients and large intestine damage in 23.07% was recorded. A significant number (26.92%) was sufferer of unsafe abortion attempts. Primary closure and resection of injured gut was the procedure of choice in small gut and right colon damage in haemodynamically stable patients. In deteriorating patients with small gut injury or left sided large gut injury in unprepared bowel, enterostomy was chosen to save time and minimize operative trauma.

Conclusion: Untoward intestinal injury is sometimes unavoidable in pelvic pathology especially when invasive nature of the disease or adhesiolysis is encountered during surgery. A pelvic surgeon must be aware of and be able to manage bowel complications to minimize the morbidity and mortality.

Keywords: bowel injury during gynaecological surgery, enterostomy, ovarian cancer surgery, hysterectomy

Introduction:

Gastrointestinal injury coincident with gynecological surgery is well documented but extremely hazardous complication. Gynecologists routinely operate on patients with risk factors for bowel injury. Obesity, endometriosis, multiple abdominal procedures, pelvic inflammatory disease, malignancy, and advanced age.¹ Since this dreadful complication is attended by considerable morbidity and mortality, there is dire need for recognition and proper handling the situation for patient safety can't thus be over-emphasized.² Popularity of minimal invasive approach and laparoscopic interventions put bowel injury as a side effect at the top.^{3,4} In our circumstances

ill attempted unsafe abortions perforating the uterus or vagina and causing bowel damage is an important factor which can't be overlooked. Sufficient training and expert supervision is mandatory for averting and remedying the accidental bowel injury. Immense importance, widespread application and scarcity of published data are the main drive for this article. Study is aimed at evaluation of frequency of intestinal injuries, determination of causes and highlighting the basic principles for the management of inadvertent enterotomy during gynaecological procedures.

Patients and methods:

This is a retrospective study of patients who were operated in very busy obstetrics and gynaecolo-

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gy unit 3 of Jinnah Hospital Lahore and a private teaching hospital from January, 2012 to December, 2013. Units provide residency training program for the medical graduates and renders 24 hour services to patients reporting in emergency and out patient department. Gut Injury here was defined as entry into the gut lumen or leakage of air or/and gut contents (operational definition). Patients having lesser degree of damage were excluded. Twenty six patients who suffered from intestinal injury during the surgery according to this criterion were included in the study. Most of the patients were operated on the elective operation days by senior consultants or by the senior residents under supervision. Demographic data regarding age, parity, type of procedure, scar of previous surgery, site of injury, time of diagnosis and management was reviewed. Data was recorded and analyzed by SPSS version 12.

Results:

Amongst twenty six cases of incidental bowel damage included in the study, twenty (76.92%)

patients had small gut injury while six (23.07%) suffered from large gut injury. Age ranged from 30 to 50 years. Table-1 shows the primary pathology in these patients

Major portion of these injuries was inflicted in patients with ovarian malignancy (50%). Next most frequent cause was induced septic abortion with perforation of uterus or vagina and entering small as well as large intestine (26.92%). Total abdominal hysterectomy in patients with prior surgery, endometriosis, huge fibroid and PID accounted for rest of these mishaps.

General surgical help was sought in these patients for proper management. Treatment offered is shown in table 2.

Discussion:

Bowel injury though not very common, is a feared concern of the surgeon handling patients with pre existing risk factors. Exact incidence is not known because of lack of published data in this part of the world. In our series small intestine was the most commonly injured site and predominant pathology in these patients was ovarian malignancy. Most pelvic tumors have the ability to invade and compromise surrounding tissues. With the close proximity of the pelvic organs to those of the abdomen, many pelvic tumors tend to involve a number of adjacent organ systems including the gastrointestinal tract, the urinary tract, nerves, and blood vessels. The distortion caused by tumor invasion and growth renders normal anatomy difficult to recognize. In such circumstances even the most experienced surgeon in the field finds iatrogenic injury unavoidable.⁵ A high index of suspicion, careful examination of the gut during surgery and even per operative sigmoidoscopy has been recommended by some authors for early detection and better management of the problem ⁶.

During repeat abdominal surgery incidence of enterotomy was 0.6% to 9.1% in one analysis in gynae patients second only to repeat procedures on lower intestinal tract itself ⁷. In other studies figures of enterotomy up to 10.5% and 19% have been reported in patients with history of pre-

Table 1: Disease distribution in gastrointestinal injuries

Procedure and Primary pathology	Number of patients		Total	%
	Small gut damage	Large gut damage		
Elective Laparotomy for				
Malignant ovarian tumour	10	3	13	50%
Total Abdominal hysterectomy in patients having h/o				
Previous 3-4 cesarean sections	2	-	2	7.69%
Endometriosis	2	-	2	7.69%
Pelvic inflammatory disease (PID)	1	-	1	3.84%
Huge fibroid filling whole abdomen	1	-	1	3.84%
Emergency Laparotomy for				
Induced septic abortion	4	3	7	26.92%
Total	20 (76.92%)	6 (23.07%)	26	100%

Table 2: Treatment of gastrointestinal injuries

Small gut perforations	(20)
Resection anastomosis	10
Simple closure	6
Iliostomy	4
Large gut perforations	(6)
Colostomy	4
Primary closure and transverse colostomy	1
Resection anastomosis and transverse colostomy	1

vious laparotomies.^{8,2} Combined adhesiolysis and enterotomy not only increase the morbidity causing increased chances of wound infection, longer hospital stay, increased cost etc. but a mortality as high as 8% has been reported by Ten Broek RP et al.⁸

Dilatation and curettage, a frequently performed procedure, does have a risk of gut damage⁴ and most common site of injury here is small gut.⁹ In a good number 26.92% of our patients with unsafe attempts at abortion through D&C, small intestine was seat of injury in the majority and large gut was also perforated in three cases^{Table 1}. All these patients presented with features of generalized peritonitis, leakage of gut contents and prolapsed intestinal loops per vagina.^{1, 10} Urgent intervention here averted the threat to life and there was no mortality.

Once recognized the injury should be dealt with care as better results are conditioned primarily with good decision making. General surgical help is usually sought which at times may not be available.

Injuries to gut range from simple serosal denuding to multiple perforations. Isolated small lacerations of serosa i.e. <1 cm need not be repaired as the sutures applied will promote future adhesion formation¹. If the muscularis is also torn and mucosa is exposed but intact, only seromuscular repair with 3/0 or 4/0 interrupted silk sutures is required. All such injuries were excluded as per inclusion criteria of this study. Small gut injury in this study was 76.92% whereas in other published studies it was 75%¹¹ and 36%.⁹ This discrepancy could be due to type of surgery and primary pathology of the included patients.

Perforated small gut was primarily repaired in one or two layers depending upon the preference of surgeon but suture line always perpendicular to the long axis of gut. Resection and anastomosis was strongly considered if the perforation involved more than 50% of the circumference of the bowel wall, if multiple perforations were found in a short segment of bowel, or if vascular compromise to a segment was sus-

pected in haemodynamically stable patient¹. In unstable patients the damaged loop of gut was exteriorized to minimize operating time and create enterostomy.¹²

In large gut injuries treatment depends primarily on the site of injury. A right sided injury recognized earlier, in the absence of gross sepsis is ideally managed by right hemicolectomy and ilioocolic anastomosis and a simple one or two layer closure if perforation is small. However, a diverting ileostomy in adverse circumstances may be necessary to safeguard the repair. On the left side and especially in unprepared colon as the situation was in our patients of induced septic abortion sigmoid colostomy by exteriorizing the perforation was done in one case. In the other two patients perforation was at rectosigmoid junction so simple closure/resection anastomosis and a de functioning transverse colostomy was done. Colostomy could have been avoided in the other three patients if gut was prepared before surgery. Bowel preparation is therefore, strongly recommended for the gynaecologic surgeon operating on a huge mass, endometriosis, or malignancy, or when difficult dissection is anticipated with the potential for inadvertent enterotomy and spillage of intestinal contents¹²

In the teaching setups where residents are provided training facility, trainees must be given a good exposure to general surgery to give them opportunity to master the basic techniques. The growing trend of minimal invasive access and laparoscopic surgery is another modality putting bowel at risk especially during the learning curve. A structured training program and expert supervision is a mandatory prerequisite for the surgeons going for such procedures. However, the pelvic surgeon must be familiar with the most common injuries and be able to solve the problem without hesitating to call for intraoperative consultation whenever indicated⁵.

Thorough irrigation of peritoneal cavity with plenty of warm saline and abdominal or vaginal pelvic drain is most appropriate in these patients.

Finally a broad spectrum antibiotic cover should be started as soon as the patient lands in emergency or injury is recognized per operatively.

Conclusion:

we conclude that every gynaecological surgeon performing hysterectomy, operating on malignancies, and operating inpatients with known history of pelvic inflammatory disease should have high index of suspicion so that bowel injuries could be diagnosed early and treated appropriately.

Conflict of Interest: None

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