

Laparoscopic Complications: Risk Factors

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This study was designed to describe various laparoscopic complications in relation to different risk factors. For this purpose a prospective one year study was conducted on all patients admitted for diagnostic as well as operative laparoscopy at unit-II, Lady Willingdon Hospital, Lahore complication was defined as an unexpected or unplanned event requiring intra operative or post operative intervention. Complications were classified as approach and technique related. Indications of laparoscopy, its complications and associated risks factors were noted. Total 115 patients underwent laparoscopy, 106 were diagnostic and 9 were for operative procedures. Previous laparotomy was encountered as main risk factor. Most complications occurred during operative laparoscopy. Overall rate of complications were 5.2%, 3.7% for diagnostic and 22.2% for operative laparoscopy. Major complications occurred during adhesiolysis mostly related to laparoscopic approach. There is no doubt that operative laparoscopic procedure are still hazardous but incidence of complications can be decreased by more supervised training during learning of laparoscopic technique, being aware of risk factors and proper patient selection. Laparoscopic approach can also be ultrasound guided in patient with previous laparotomy.

Key Words: Laparoscopy, complications.

The popularisation of laparoscopy by Steptoe (1967) has been followed by a wide use of this procedure in recent years in the field of gynaecology but the incidence of complications causes concern. Operative laparoscopy is associated with higher risk of complications. Majority of these complications have been reported as a result of development of pneumoperitoneum and blunt insertion of trocar and cannula rather than laparoscopic operation². Previous laparotomy for pelvic surgery was most frequently encountered with complications.

So we designed a prospective observational study to evaluate various complications associated with diagnostic and operative laparoscopy and their associated risk factors.

Material and Methods

This study was conducted at department of obstetrics and gynaecology (Unit-II) Lady Willingdon Hospital, Lahore from November, 1997 to October, 1998. All the patients who were admitted in Gynae Unit-II needing laparoscopy for various diagnostic and operative indications were included in our study. The need for laparoscopy was decided by the attending consultant in the out patient department laparoscopy was performed under general anaesthesia in our endoscopy theatre. A complication was defined as unexpected/unplanned event during the laparoscopic procedure which required further treatment e.g. laparotomy, longer post operative observation or further surgery. The complications of laparoscopy were classified in two categories, laparoscopic approach and the laparoscopic technique. Complications due to laparoscopic approach were caused by the creation of the pneumoperitoneum or insertion of the first trocar. Complications due to laparoscopic technique were a consequence of laparoscopic operation itself. Various indications of laparoscopy, type of operative laparoscopic

procedure performed, various complications along the associated risk factors were noted.

Result

Total 115 laparoscopies were performed during the study period: 106 were diagnostic and 9 were operative. Various indications of laparoscopy are given in table I & II

Table-I: Indication of laparoscopy (Diagnostic 106)

Indication	n=
Primary Infertility	43
Secondary Infertility	31
PID	09
Chronic pelvic pain	06
Endometriosis	05
Ectopic pregnancy	04
Pelvic mass	04
Primary amenorrhoea	02
Lost IUCD	02

Table-II Indication of Laparoscopy (Operative 9)

Indication	n=
Adhesiolysis	01
Myomectomy	01
Cyst aspiration	01
LOD	01
L.O.D.	01
Ovarian Biopsy	01
IUCD	01
Ovarian cystectomy	02

Infertility was the most indication for diagnostic as well as operative laparoscopy. Previous laparotomy (myomectomy, cystectomy) was associated with major complications (intestinal injury) requiring laparotomy other risk factors are shown in Table IV. Table III shows

various laparoscopic complications. Overall incidence of complications 5.2 %. Most complication were approach related. Bleeding from inferior epigastric vessel and abdominal wall was due to insertion of 2nd trocar and cannula.

Both patients were kept under observation, laparotomy was not needed. Intestinal injury occurred in two cases. In first case due to verrus needle during diagnostic laparoscopy. Immediate laparotomy and intestinal repair was performed. In second case large gut injury followed diathermy burn during operative laparoscopy while performing Adhesiolysis. Immediate laparotomy intestinal repair and colostomy was performed. Colostomy was later successfully closed. Both made uneventful recovery. Both patient had previous laparotomy scar. One patient had cardiac arrest during

maintenance phase of anaesthesia but survived after cardio pulmonary resuscitation. She was obese. There was no death in this study either due to anaesthesia or laparoscopic procedure.

Table-III Laparoscopic Complications

Complications	n=(%age)
Bleeding from inferior epigastric vessel	1 (0.86)
Bleeding from abdominal wall	1 (0.86)
Intestinal injury	2 (1.72)
Uterine perforation	1 (0.86)
Cardiac Arrest	1 (0.86)
Total	6 (5.2)

Table IV: Risk factors, no., type of complications, causative factor and outcome.

Risk Factors	Type of complication	n=	Causative factor	outcome
Previous laparotomy	Intestinal injury	1	Verrus needle Diathermy burn	Laparotomy Laparotomy Both patient survived
Obese	Cardiac Arrest	1	Anaesthesia	Patient revived
No risk factors	Bleeding from inferior epigastric vessel	1	During 2 nd puncture	Patient kept under observation settled
No risk factor very thin	Bleeding from abd. wall	1		
	Uterine perforation	1	Uterine sound	Patients kept under observation settled

Table V Type of complications in relation to laparoscopic approach and techniques in various diagnostic and operative procedures and need for laparotomy.

Complication	Total	Diagnostic laparoscopy.	Operative laparoscopy	Approach	techniques	outcome
Intestinal injury	2	1	1	1	1	Laparotomy
Bleeding from inferior epigastric vessels	1	-	1	1	-	-
Bleeding from anterior abdominal wall	1	1	-	1	-	-
Uterine perforation	1	1	-	1	-	-
Cardiac arrest (anaesthesia)	1	1	-	-	-	-
Total	6 (5.2%)	4 (3.7%)	2 (22.2%)	4	1	

Discussion

Laparoscopy has a small risk which cannot be completely eliminated for more than half of the complications are due to laparoscopic approach. However it is important to recognize patients at risk especially those with a history of previous laparotomy as well as women undergoing operations with an inherent risk of laparoscopic complication. There is increase incidence of adhesions after previous laparotomy and increased risk of laparoscopy thereafter³.

We noted overall complication rate of 5.2% complication rate of 3.6% has been cited in the report of working party of the confidential inquiry into gynaecological laparoscopy (1978) among 50,000 laparoscopic procedures done in Britain in 1976-1977. Recently complication rate of 2.7% for diagnostic laparoscopy and 17.9% for operative laparoscopy has been

cited⁵. Our higher rate is due to the fact that majority of our patients are referred from centres where previous laparoscopy attempt has either failed or laparoscopy not carried out due to some risk factors in the patients particularly previous laparotomy, there is non availability of optimum instruments. Most of them remain out of order. Light supply is often interrupted during laparoscopic procedure. Operative laparoscopy has recently started in our institution. Time taken to acquire sufficient experience in laparoscopic surgical technique is long and the risk of complications is greatest early in the career of the laparoscopic surgeon. Complications are likely to occur when new techniques are practised or new operating instruments are acquired⁶.

The surest way to reduce complications is to study them⁷. Prevention starts by raising awareness of the risk of the procedure and precautions necessary to ensure

safety. Previous laparotomy should be considered as relative contraindication to laparoscopic surgery and when performed extraordinary care is required.

We also suggest that technical improvement of ever increasing experience of the surgeon will reduce the complication rate. Series of laparoscopies should be performed in a gradation of difficulty and requirement for manual dexterity under supervision.

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