

**Original article****17 A BEGINNER SURGEON'S EXPERIENCE OF MINIMAL ACCESS SURGERY AT TERTIARY CARE HOSPITAL AUTHORS DR AAKASH G RATHOD , DR YOGESH N MODIYA**

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**ABSTRACT:**

**Introduction:** Minimal access surgery is the need of the hour for departments of surgery running throughout the country. Laparoscopic surgeries are being performed routinely in surgical departments with increasing frequency. Basic laparoscopy surgeries are nowadays incorporated in training programs for post graduate students. Therefore it is important for a surgeon to achieve enough experience in basic laparoscopy and move on to advanced laparoscopic procedure for benefit of the continuing field of surgical education

**Material & Methods:** in this prospective observational study, 120 cases of laparoscopic surgery performed at department of general surgery, AMC MET MMC were reviewed in terms of age & sex distribution, mean operative time & post op complications.

**Results:** out of 120 cases performed, 28 lap appendicectomies (23.3%), 51 lap cholecystectomies (42.5%), 27 lap hernias (22.5%), and single case of hydatid cyst of liver, nephrectomy, hiatus hernia, and ventral rectopexy were performed. Age & sex distribution of cases, the mean operative time & post-operative general complications of laparoscopy were comparable to reference data & were found satisfactory.

**Conclusion:** laparoscopy surgery is a rapid advancement in field of general surgery and should be integrated in routine curriculum as well as practice of any surgical training institute. However sufficient experience should be gained in basic laparoscopy before progression towards advanced stages of laparoscopy surgery.

**KEYWORDS:** laparoscopy, minimal access surgery, appendicectomy, cholecystectomy, hernia.

**INTRODUCTION:** Laparoscopic surgery has become a necessity in a surgical department nowadays and is being performed with increasing frequency nationwide in tertiary care centers. Basic & advanced laparoscopy techniques have established themselves as gold standard in management of diseases of appendicitis, gallbladder calculi, inguinal & hiatus hernia. For any center well equipped with necessary technical setup it has become mandatory to provide facilities and skill demanded for laparoscopic

surgery. We put forward our experience of various basic as well as advanced laparoscopic procedures performed at AMC MET medical college and hospitals over the past one year.

**MATERIAL&METHODS:** Data of all laparoscopic surgeries performed from January 2016 to January 2017 was retrospectively reviewed. IRB at AMC MET medical and LG hospitals Ahmedabad approved this study. A total of 120 laparoscopy surgeries were performed during a period of twelve months from 3/1/16 up-to 3/1/17. 61 cases of cholecystectomy, 28 cases of appendectomy, 26 cases of inguinal hernio- plasty (TEP &TAPP), 1 case of Nissen's Fundoplication, 1 case of Umbilical Hernia repair, 1 case of Nephrectomy, 1 case of Hydatid cyst exploration& Ventral Rectopexy were performed. A follow up period of 6 months was selected to observe general complications of laparoscopic surgery.

**Inclusion Criteria:** Only elective cases were selected for laparoscopy. Patients of calculus cholecystitis were selected for interval cholecystectomy. Patients of simple appendicitis with emergency presentation were selected. Patients of uncomplicated unilateral and bilateral inguinal hernia & Umbilical hernia were selected. A patient of type 1 hiatus hernia& a patient of Hydatid cyst of liver were selected. Patient of unilateral non functioning kidney & isolated rectal prolapsed were selected for Laparoscopic Nephrectomy & Laparoscopic ventral rectopexy respectively.

Laparoscopy surgery was performed after diagnosis, pre-operative preparation and anaesthetic workup. All Pt were operated in a sterilized operative theatre and all universal pre- cautions were followed. Pnuemo-peritoneum was created using closed Veress needle method, and IAP between 8-15 mm hg were kept depending upon type of surgery and operative findings. Optical xenon light source and 30\* camera with Full HD three chip camera system was used. All patients were evaluated on age, sex, and ASA grade, pre-operative co-morbidities, intra-operative findings, intra-op complications rate & indications for conversion to open procedure, mean operative time, post-operative stay & general complications of laparoscopic surgery.

#### **OBSERVATIONS:**

All patients of appendicitis were operated on index admission within 24 hrs of admission. The mean age of patients undergoing Laparoscopic Appendectomy was 21.1 yrs, the youngest 10 yrs and oldest 42 yrs. 18(64.2%) were females and 10(35.8%) males. All patients were operated by 3 port laparoscopic appendectomy technique. Intra-op findings were inflamed appendix in 92.5% (26), pus collection 7.1% (2) & bowel adhesions in 10.7% (3). Position of the appendix was retro cecal in 67.85% (19), pelvic in 25% (7) & pre ileal in 7.1% (2). Mean operative time was 37.2 min and none of the pt required conversion to open surgery. Postoperative complications were seen in 4(14.2%) pts, with 1 URTI, 2 Fever, 1 wound infection which were treated successfully. Mean post operative stay was 72.8 hrs (3 days). No mortality was reported in our study.

All cases selected for laparoscopic cholecystectomy were elective. All patients of cholecystitis were operated on interval basis admitted 6 weeks after the initial episode of cholecystitis. The mean age of patients under- going Laparoscopic cholecystectomy was 47.1 yrs youngest 18 yrs& oldest 79 yrs. 50

were females and 11 males. Pre op morbidities were diabetes mellitus 18 (29.5%), hypertension 23 (37.7%), LVD 3 (4.9%), acute bronchitis 1 (1.6%). All patients were operated by standardized 4 port technique. Cystic duct and artery were secured by metal clips in 55 (90.1%) & intra-corporeal suturing 6 (9.9%). Intra-op findings were calculous cholecystitis in 53 (86.8%), bowel adhesions 12 (19.6%), mucocoele in 7(11.4%), perforated gall bladder 2(3.2%). Mean operative time was 76.4 min and 2 patients required conversion to open surgery. Indications for conversion were intra operative bleeding & duodenal adhesions respectively. Post op complications were seen in 11(18.03%) pts vomiting 6, fever 3, URTI 1, sub-acute intestinal obstruction 1. All complications were managed conservatively. The mean postoperative stay was 3.7 days. No mortality was observed in our study.

Only uncomplicated reducible cases of direct & indirect inguinal hernia were selected. All cases were elective. The mean age of pts was 49.3 yrs, youngest 15yrs & oldest 75 yrs. All 26 patients were males. 20(76.9) were unilateral and 6(23.7) were bilateral inguinal hernia. 16(61.5%) were indirect & 10(38.4%) direct inguinal hernia. Pre-op morbidities were diabetes mellitus 3 (11.5%), hypertension 4(15.3%), LVD 1 (3.8%). 24 cases were operated by TEP and 2 cases by TAPP repair. The mean operative time was 84.2 min. post op complications were URTI 1 (3.8%), inguinodynia 1 (3.8%). 1 pt required conversion to open surgery. The mean post op stay was 2.7 days. Pts were followed up over a mean period of 6 months with max follow up 9 months without any recurrence. There was no mortality.

A 63 yrs male pt of hiatus hernia was operated by Lap Nissen's fundoplication using 5 port technique. the operative time was 92 min. there were no intra op or post op complications and pt was followed up for 6 months without recurrence of symptoms.

A 50 yr male pt of hydatid cyst of liver was operated laparoscopically. The operative time was 91 min. there were no intra op or post op complications. Drain was removed on day 7. Pt was followed up over a period of 6 months with no symptoms or recurrence.

A 46 yr female patient of unilateral non functioning kidney was operated for laparoscopic nephrectomy by standardized trans-peritoneal 4 port technique. Operative time was 156 min. Paralytic ileus was observed post operatively and resolved with conservative management.

A 56 yr female patient of isolated rectal prolapse was operated for laparoscopic ventral rectopexy by standardized 3 port technique. Operative time was 137 min. post operative recovery was found uneventful over follow up of 4 months.

A 32 yr female patient of small umbilical hernia was operated for IPOM repair by standard 4 port technique. Operative time was 97 min. recovery was uneventful with follow up of 8 months.

**DISCUSSION:** In all cases of laparoscopic appendicectomy, pt epidemiology, the mean operative time, post op stay & the complication rates were comparable with reference studies and international data. All cases of emergency and elective presentation were managed laparoscopically & no cases required conversion to an open procedure. Difficult intra op presentations such as localized abscess and gangrenous appendicitis could be managed laparoscopically without a significant change in mean operative time or complications.

In all cases of laparoscopic cholecystectomy, pt epidemiology, mean operative time, mean post op stay, and complication rates were comparable to international data. Significant pre op morbidities such as

Type of Surgery	Avg Age (yrs)	No. of Surgeries	Avg op. time (min)	Avg Post op. stay (days)	Complications (%)
Lap Appendectomy	21.1	28	37.2 min	3 days	4%
Lap Cholecystectomy	47.1	51	76.4 min	3 days	14.8%
Lap Inguinal Hernia repair	49.3	26	84.2 min	2.7 days	14.2%
Lap Nissen's fundoplication	63	1	78 min	5 days	-
Lap Hydatid cyst aspiration	50	1	90 min	7 days	-
Lap Nephrectomy	46	1	156 min	7 days	100%
Lap Umbilical hernia	32	1	97 min	3 days	-
Lap Ventral Rectopexy	56	1	137 min	5 days	-

Diabetes and hypertension were successfully operated laparoscopically without significant complications. Difficult cholecystectomies could be managed laparoscopically & advanced techniques such as intra corporeal suturing were performed at the cost of prolonged operative time. Conversion rate to open procedure was lower compared to international data in our study. No post-op bile leak or fistula was observed in our study. Generalized complication rate was also lower in our study compared to reference data.

In all cases of TEP, TAPP & Umbilical hernioplasty, mean operative time, duration of post op stay, post op pain (VAS), were higher compared to reference data. Small size of sample population might be a factor. Over a comparable follow up period no recurrences or mesh related complications were observed. Initial increased operative time was comparable with reference data with increasing pt experience.

Single cases of advanced laparoscopic procedures such as lap Nissen's fundoplication, lap Hydatid cyst aspiration, lap rectopexy & Lap nephrectomy were also performed with encouraging results.

**CONCLUSION:** Laparoscopic surgery is a rapidly growing sub specialty. Laparoscopic approach has become gold standard in management of acute appendicitis, cholecystitis etc. and quickly gaining popularity in management of several other abdominal as well as thoracic surgical diseases. A surgical training institute must focus on performing of basic laparoscopic surgeries such as lap appendectomy or cholecystectomy on routine basis before performing more advanced surgeries laparoscopically. It is recommended for any surgeon learning laparoscopic surgery to perform adequate number of basic

laparoscopic surgeries and acquire ample experience before performing more difficult surgeries and advanced laparoscopic maneuvers.

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