

Original article:

Study of suitability of different types of advanced laparoscopic surgeries in Indian population

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Abstract:

Introduction: Advances in the surgical endeavors; laparoscopic skills of retraction, dissection and suturing and other devices e.g. the light source from halogen to xenon and more advice like ultrasonic shears, vessel sealing system has and endostaplers for anastomosis making advances in acceptance to surgeries beyond LC, the advances in other visceral surgeries.

Methodology: This study was carried out at Government Medical college and Hospital. Patients undergoing advanced laparoscopic procedures on elective basis were studied. Sample size was estimated with the help of statistician. We included patients planned for surgeries having age more than 18 years . 65 patients undergoing advanced laparoscopic procedures on elective basis were studied. We excluded patients less than 18 years. The study was approved by Ethics Committee.

Results: The procedure performed most commonly was Laparoscopic Adhesiolysis (29.5%), followed by procedures for Hydatid cyst - excision, deroofting and live omentopexy (18%) and Inguinal hernia repairs (12%) [TAPP – 1; TEPP – 7]. Inguinal Hernia repair was done in 12% of patients. Of these, 1 patient underwent TEPP repair, while the other 7 had TAPP repair done. 2 patients with incisional hernia had mesh repair done. The time taken for completion of procedures was between 1 and 2 hours in 50% of the patients. 22% of procedures were completed within 30 minutes, and most of these included Adhesiolysis, some of which were finished within a mere 20 minutes. Only 1 surgery lasted more than 3 hours, which was diaphragmatic repair with gastropexy, which lasted for 280 minutes.

Conclusion: Fever and wound infection were the post op complications encountered most frequently and wound hemorrhage, the least.

Keywords : laparoscopic skills , wound infection

Introduction:

Advances in the surgical endeavors; laparoscopic skills of retraction, dissection and suturing and other devices e.g. the light source from halogen to xenon and more advice like ultrasonic shears, vessel sealing system has and endostaplers for anastomosis making advances in acceptance to surgeries beyond LC, the advances in other visceral surgeries.¹ Having said all this, there can be no doubt that laparoscopy is the most compelling and dynamic force driving surgical progress and endeavor in the current era. This “Study of Advanced Laparoscopy beyond Cholecystectomy” attempts to study the types of advanced laparoscopic surgeries being performed, their efficacy and suitability at this institution, as also to study the age and sex distribution, disease profile of patients undergoing advanced laparoscopies and to study the duration of surgery, postop complications and duration of post op hospital stay. It can only be said that the duration and number of patients in this study are not significantly enough to make any outstanding conclusions.^{2,3}

Methodology:

This study was carried out at Government Medical college and Hospital. Patients undergoing advanced laparoscopic procedures on elective basis were studied. Sample size was estimated with the help of statistician. We included patients planned for surgeries having age more than 18 years . 65 patients undergoing advanced laparoscopic procedures on elective basis were studied. We excluded patients less than 18 years. The study was approved by Ethics Committee.

The patients selected for laparoscopy were admitted in ward. According to their diagnosis further surgeries were planned by our unit.

All necessary investigations were carried out . Preoperative as well as post operative parameters were recorded by us.

Data was tabulated in MS Excel sheet and was further analyzed in Excel sheet.

Results:

In this study, the sex ratio of patients shows a female preponderance, with 64% of patients undergoing elective advanced procedures being females. The highest number of patients belonged to the productive age group consisting of 79% of total patients.

The procedure performed most commonly was Laparoscopic Adhesiolysis (29.5%), followed by procedures for Hydatid cyst - excision, deroofting and live omentopexy (18%) and Inguinal hernia repairs (12%) [TAPP – 1; TEPP – 7]. Inguinal Hernia repair was done in 12% of patients. Of these, 1 patient underwent TEPP repair, while the other 7 had TAPP repair done. 2 patients with incisional hernia had mesh repair done.

The time taken for completion of procedures was between 1 and 2 hours in 50% of the patients. 22% of procedures were completed within 30 minutes, and most of these included Adhesiolysis, some of which were finished within a mere 20 minutes. Only 1 surgery lasted more than 3 hours, which was diaphragmatic repair with gastropexy, which lasted for 280 minutes.

Mechanical bowel preparation (MBP) was done in 22% patients, though bowel resection and anastomosis was done in only 20% patients.

Of the 13 anastomoses done, intracorporeal anastomosis was possible in 5 (38.5%) whereas extracorporeal was done in 8 (61.5%) patients. Anastomosis was performed with stapler in 8 (61.5%) patients and by manual suturing method in 5(38.5%) patients.

Post op Abdominal drain was kept in 26 % of patients. Postoperatively, most patients reverted back to having oral diet within 3 days, with only 20% being NBM beyond 4 days of operation.

Table 1) Post-op patient received IV antibiotics (no. of days)

No. of days IV antibiotics	No. of patients	%
Upto 5 days	25	38.5
6 – 7 days	27	41.5
8 – 15 days	10	15.5
>15 days	03	04.5
Total	65	100

Antibiotics were given by IV route for 7 days in 80% patients.

Post op hospital stay was reduced in these patients, with 56% being discharged within 5 days of operation.

Table 2) Post-op complications

Complication	No. of patients	%
Hemorrhage	Nil	Nil
Fever	08	12
Wound Infection	08	12
Ileus	06	09
Bowel Perforation	01	01.5
Fistula	02	03
Septicemia	03	04.5
Others		
Surgical Emphysema	01	
Death	02	
d/t bowel perforation	01	
d/t respiratory complications	01	
Others (total)	03	04.5
TOTAL	31	45.5

Fever and wound infection were the post op complications encountered most frequently and wound hemorrhage, the least. Septicemia was seen in 3 patients, 1 of whom had gossypiboma and was cured with antibiotic support. Of the remaining 2, 1 patient suffered from intraop bowel perforation, which was undetected at operation, and succumbed on postop day 6. The other patient had Ca Descending colon with extracorporeal stapler anastomosis done, but developed postop ARDS, septicemia and succumbed on postop day 15.

Discussion:

In this study, the sex ratio of patients shows a female preponderance, with 64% of patients undergoing elective advanced procedures being females. The highest number of patients belonged to the productive age group consisting of 79% of total patients. The procedure performed most commonly was Laparoscopic Adhesiolysis (29.5%), followed by procedures for Hydatid cyst - excision, deroofting and live omentopexy (18%) and Inguinal hernia repairs (12%) [TAPP – 1; TEPP – 7]. Inguinal Hernia repair was done in 12% of patients. Of these, 1 patient underwent TEPP repair, while the other 7 had TAPP repair done. 2 patients with incisional hernia had mesh repair done.

Laparoscopic Gastrojejunostomy was done in 7% of patients for Gastric outlet obstruction. Of these 4 patients had Gastric outlet obstruction and 1 had Duodenal stricture. Among these, 4 patients underwent Stapler anastomosis and one patient with Gastric outlet obstruction underwent Manually sutured anastomosis with silk. In 1 patient with Jejunal stricture underwent resection and stapler jejunojejunal anastomosis was done. Laparoscopic Splenectomy was done in 1 patient with Splenomegaly with hypersplenism. However, a left subcostal incision was given for removal of the spleen. In 2 patients with Cryptorchidism, laparoscopic orchidectomy was done. Orchidopexy was not done by Laparoscopic method, but was done by open method. In 2 patients with varicocele, laparoscopic varicolectomy with clip application was performed. Diaphragmatic Repair with gastropexy was done laparoscopically for Diaphragmatic eventration with Gastric Volvulus in 1 patient. In no patient was post op complication like pleural effusion, wound infection, atelectasis, DVT or pulmonary embolism observed.

The time taken for completion of procedures was between 1 and 2 hours in 50% of the patients. 22% of procedures were completed within 30 minutes, and most of these included Adhesiolysis, some of which were finished within a mere 20 minutes. Only 1 surgery lasted more than 3 hours, which was diaphragmatic repair with gastropexy. Of the remaining, 17% took between 2 and 3 hours to completion and another 9% took between 30 and 40 minutes. Mechanical bowel preparation (MBP) was done in 22% patients, though bowel resection and anastomosis was done in only 20% patients. The only patient in whom it was not done was of Ca Cecum in whom only an omental biopsy was taken. Thus, MBP was done in all patients in whom bowel resection and anastomosis was performed. Of the 13 anastomoses done, intracorporeal anastomosis was possible in 5 (38.5%) whereas extracorporeal was done in 8 (61.5%) patients. Anastomosis was performed with stapler in 8 (61.5%) patients and by manual suturing method in 5(38.5%) patients. Postoperatively, most patients reverted back to having oral diet within 3 days, with only 20% being NBM beyond 4 days of operation. Antibiotics were given by IV route for 7 days in 80% patients. Post op hospital stay was reduced in these patients, with 56% being discharged within 5 days of operation. Another 27% were discharged by 10th day of operation. Only 17% patients stayed after 11th post-op day.

Post op fever and wound infection were seen each in 12% of patients 3 of whom had undergone extracorporeal anastomoses, 1 splenectomy, 1 gossypiboma excision and 1 varicocelelectomy. Of the 9% patients with postop ileus, half had undergone extracorporeal anastomoses, 1 had gossypiboma, 1 with diaphragm repaired and 1 with adhesiolysis done. Postop fistula was seen in 2 patients only – 1 with gossypiboma and other with adhesiolysis done. However, it should be remembered that the total no of patients in the study by Binenbaum et al exceeds that of present study. Septicemia was seen in 3 patients, 1 of whom had gossypiboma and was cured with antibiotic support. Of the remaining 2, 1 patient suffered from intraop bowel perforation, which was undetected at operation, and succumbed on postop day 6. The other patient had Ca Descending colon with extracorporeal stapler anastomosis done, but developed postop ARDS, septicemia and succumbed on postop day 15.^{4,5,6,7}

Conclusion:

Fever and wound infection were the post op complications encountered most frequently and wound hemorrhage, the least.

References:

1. Begos, Dennis G. M.D.; Modlin, Irvin M. M.D., Ph.D., F.A.C.S. Laparoscopic Cholecystectomy: From Gimmick to Gold Standard Journal of Clinical Gastroenterology: December 1994 - Volume 19 - Issue 4
2. J A Shea, et al. Mortality and complications associated with laparoscopic cholecystectomy. A meta-analysis; Ann Surg. 1996 November; 224(5): 609–620.
3. Ceppa FA et al. (2007) Laparoscopic transgastric endoscopy after Roux-en-Y gastric bypass. Surg Obes Relat Dis 3: 21–24
4. Peters M et al. (2002) Laparoscopic transgastric endoscopic retrograde cholangiopancreatography for benign common bile duct stricture after Roux-en-Y gastric bypass. Surg Endosc 16: 1106.
5. John. Evolving Trends in Laparoscopic Surgery. Knol. 2008 Jul; (29 – 30).
6. Schwartz , 'Principles of Surgery', 8th edn, 2005, McGraw Hill publications, Ch:27, "Small intestine", p: 1027.
7. Gaosbeke , 'Helical CT signs in diagnosis of intestinal ischemia in small bowel obstruction, AJR 2000;175:p:(1601-1607)