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Original Research Paper

Oncology

LAPAROSCOPIC ASSISTED VERSUS OPEN ABDOMINO-PERINEAL RESECTION FOR LOW RECTAL AND ANAL CARCINOMA: A SINGLE INSTITUTIONAL EXPERIENCE

Dr Rohit Kumar Jha Mch Resident GCRI Ahmedabad

Dr Amol Singhal* Mch Resident GCRI Ahmedabad *Corresponding Author

ABSTRACT

Aim: To evaluate and compare the results of laparoscopic assisted and open abdominoperineal resection (Lap-APR and Open-APR) for low rectal cancer and anal canal cancer.

Methods: Between 1st October 2012 to 30th September 2015 at Gujarat cancer & research institute, 82 patients were undergone surgery for low rectal or anal adenocarcinoma, among them 37 patients underwent laparoscopic assisted APR, and 45 patients were underwent open APR. The operative outcomes and postoperative complications of these two groups were compared.

Results: There were no significant differences between Lap-APR and open-APR in patient's age and tumour stage. Post-operative recovery was better in Lap-APR group, with earlier return of bowel function and early mobilization. But the operative time was longer in Lap-APR. Perineal wound morbidity was same in both groups. But abdominal wound infection rate was higher in Open-APR as Lap-APR devoid of long laparotomy wound. Two year survival was nearly same in both groups.

Conclusion: LapAPR have advantages over Open-APR in rapid postoperative recovery of bowel function, early oral intake, and early mobilization. But Lap-APR has disadvantage of longer operative time.

KEYWORDS : Laparoscopic abdominoperineal resection; Open abdominoperineal resection

INTRODUCTION

Abdominoperineal Resection (APR) is the surgical procedure being done for patients, with distal rectal cancer in which an anterior resection cannot be done to preserve anal sphincter or for anorectal cancer. APR was first described by Ernest Miles in 1908[1], and Jacobs was the first who, in 1991 reported the Laparoscopic colectomy[2], since then Laparoscopic colorectal surgery is being increasingly practice worldwide. Recently APR was performed in not more than 14% of patients of rectal cancer[3].

Laparoscopic technique for colon and rectum resection versus open technique, have less postoperative pain, shorten the postoperative ileus, lessen the hospital stay, allow rapid recovery, and quick resumption of normal daily activities[4]. In laparoscopic assisted APR the magnified view of narrow pelvis facilitates identification of surgical planes, and nerves[5]. The purpose of this study was to evaluate and compare the results of laparoscopic and open APR in terms of operative outcome,postoperative recovery and complications.

MATERIAL AND METHODS

This prospective study was done on 82 patients, having low rectal cancer (within 5cm of anal verge) and anal adenocarcinoma admitted and operated, between 1st October 2012 to 30th September 2015. Of these 82 patients, 37 patients underwent lap assisted APR and 45 patients underwent open APR. 5 patients were started as Lap but due to severe adhesion they were converted into Open ,they were also grouped in Open category.

Decision about the technique (Lap-APR or Open APR) is made by the operating surgeon with consultation with patients. All patients were provided written informed consent preoperatively. Patients having following criteria were excluded from the study

(1) Tumor more than 5cm higher up from anal verge
(2) Bulky tumor or locally advanced tumor
(3) Multiple cancer or synchronous proximal colonic cancer
(4) Patients having ulcerative colitis
(5) Distant metastasis
(6) Age >70 years
(7) Patient having significant co morbidities (MI,DM,renal failure,chronic liver disease)
(8) Recurrent rectal cancer

All patients after physical examination underwent preoperative proctoscopy and complete colonoscopy and biopsy of the tumor, abdominal and pelvis ultrasonography and computed tomography to record the size of tumor and involvement of adjacent structures, and to see the secondaries in liver, Chest

X-Ray to see the lungs metastasis. CBC and CEA tests were conducted before surgery. Patients with tumor stage T3 and regional lymph node enlargement were offered preoperative chemo radiotherapy (CCRT).

Mechanical bowel preparation was carried out day before surgery with sodium phosphate oral solution.

All operations were done under GA in modified lithotomy position. In LapAPR technique surgeon stand on right side of table, monitor and assistant on left side. For perineal part of operation, surgeon stand/sit in between the leg rest of table. Pneumoperitoneum was created by open technique and 10mm trocar was inserted below the umbilicus.Three or four working trocars were inserted under direct vision in the right and left midclavicular line at the level of umbilicus and anterior superior iliac spine.The left lower Trocar was inserted in left lower quadrant at the planed site of colostomy. The sigmoid colon and rectum was mobilized by using medial and lateral approach. Clipped and divided inferior mesenteric artery 1.5cm above its origin. The ureters,the hypogastric nerve, and the pelvic parasympathetic plexus were preserved and respected. With the help of perineal surgeon,rectum and whole mesorectum was completely mobilized,the sigmoid colon was transected with linear stapler and the specimen was removed through the perineal wound. An end colostomy was constructed at the left lower trocar site. The perineal wound was closed after placing a drain in the pelvic cavity through separate stab wound.

The Open-APR was performed by midline laparotomy incision, otherwise same as Lap-APR.
Operative outcomes were recorded and compared between the two groups.

RESULTS

Eighty two patients were operated for adenocarcinoma of low rectum. 37(45.12%) patients were operated by Lap-APR technique, among then 23(62%) patients were male, and 14 (38%) patients were female. 45(54.88%) patients were operated by Open-APR technique, among them 29(64.45%) patient were male, while 16(35.5%) patients were female. There were 5 patients who were converted from Lap-APR group to Open-APR technique and were considered in open APR group. Most common reason for conversion was dense adhesion in pelvis.

About operative outcomes, the mean operative time was slightly longer in Lap-APR (155 minutes), while in Open-APR it is 135 minutes. The time to pass first bowel motion was significantly less in Lap-APR (mean 56.4 hours) while in Open APR it is (mean) 68 hours.

Patients in Lap-APR group starts taking water earlier then patients of Open-APR group (41±13.2 hours in Lap-APR, 54±12.2 hours in Open-APR), that is statistically significant.

After surgery patients of Lap-APR group started taking soft diet earlier then Open-APR group (4.6±1.2 days in Lap-APR and 5.5±1.7 days in Open-APR), that is also significant.

Patients of Lap-APR were mobilized earlier, 6.9±3.19 days in Lap-APR while 9.2±3.45 days in Open-APR.

Postoperative hospital stay was slightly less in Lap APR then in Open-APR group, 7.8±3.4 days in Lap APR and 9.5±4.8 days in Open-APR. 3 patient (8%) patient in Lap group developed sub -acute intestinal obstruction, all of them managed conservatively, while 8 (17%)patient in Open group developed intestinal obstruction in post-operative period, out of which in 3 patients(6%) exploratory laparotomy was done & rest were managed conservatively.

6 patients in Open APR group developed abdominal wound infection while none in Lap APR group, which is significant.

6 male (16.2%) and 3 female (8%) in Lap-APR while 7 male (15.5%) and 5 female (11%) in Open-APR describes that their sexual function become worse.

The rate of tumor recurrence was similar in both groups.

Two year survival was 91.9% in Lap-APR and 91.1% in open APR group. Local recurrence occur in2 (6.7%) and 3(6.7%) patients of Lap-APR and open-APR group respectively.

Liver recurrences occur in 4(10.8%) patients of Lap-APR and 5(11.1%) patients of open APR.

DISCUSSION

Lap assisted APR first time described by the Sackier[6], in 1992. After that many studies have demonstrated the benefits and safety of laparoscopic rectal surgery for rectal cancer[7]. Decanini et al[8] described in their study Lap-APR, can be performed according to oncologic principles with proximal vascular ligation of inferior mesenteric artery. This study demonstrates that, the Lap-APR did not jeopardize patients oncologic outcome as in the study of Toe-Wei Ke et al[9]

Fodera et al[10] reported the risk of port site metastasis in Lap-APR but in this study no port site metastases occur in any patient.

Leung et al[11] and other studies shows that Lap-APR has better immediate outcomes in terms of, fast return of bowel function, earlier mobilization and less analgesic requirement, when compared with open surgery for rectal cancer. This study also shows better results of Lap-APR in terms of, earlier return of bowel function, and less postoperative hospital stay. But the mean operative time was longer in LapAPR.

Inomata M et al[12] study reveals no significant shortening the length of hospital stay in Lap-APR.

Male and female sexual dysfunction after Lap and Open APR has no significant differences. Quah H[13] study shows poorer sexual outcomes in Lap-APR when compare to Open-APR. Paraskevas et al[14] Study elicited that sexual function was significantly worse one year after laparoscopic surgery.

Patients in the Lap-APR group devoid long abdominal laparotomy incision except trocar site, seem to provide the earlier mobilization and recovery,

it also made easier to educate patients for stoma management. It also seems, stoma care is easier without long abdominal incision in Lap-APR group.

Open-APR has two big wounds, one long abdominal laparotomy wound, and 2nd perineal wound. In this way APR is different from other colorectal resection, in having a higher complication rate because of the perineal wound[15]. Although the Lap-APR devoid of laparotomy wound but the perineal wound and its related complications may not be altered by the Lap-APR. In addition to reduced abdominal wall trauma in Lap-APR, the less manipulation of abdominal contents may diminish postoperative adhesions and reduces the rate of incisional hernia. While in Open-APR there is more chance of postoperative adhesions, intestinal obstruction, and incisional hernia.

CONCLUSION

Lap-APR have particular advantages to patients with low rectal cancer, including rapid recovery of bowel function, early oral intake of water, semi fluid and solid diet, and early education of stoma care. Stoma care also easy in Lap-APR and short hospital stay without jeopardizing oncologic results, but at the expense of long operative time and more technical demanding procedure.

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