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Full Length Research Paper

Laparoscopic repair of ventral hernia an early experience at Khyber teaching hospital Peshawar

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To analyze the results and outcome of laparoscopic ventral hernia repair as a relatively new technique in our setup. Prospective study from June 2007 to June 2008. Surgical- D Unit, Khyber Teaching Hospital, Peshawar. All the patients undergoing laparoscopic ventral hernia repair. The patients were evaluated clinically and by investigations. After appropriate preparation, laparoscopic mesh repair was performed. Intra and post operative complications and the outcome were noted and the whole data analyzed. Out of the total 54 cases, 7(12.96%) were umbilical Hernia, 13(24.07%) para umbilical, 9(16.66%) epigastric and 25(46.29%) were incisional hernia. All patients had mesh repaired, the operating time ranged from 35 min to 2 h in difficult cases with adhesions. All cases were successfully carried out laparoscopically. The complication rate was low with only 3 patients having portsite bleeding, 2(3.7%) seroma, 3(5.55%) had superficial infection. Severe pain in 11(20.37%) requiring injectable analgesics and only 1(1.85%) patient had recurrence at 4 months. No mortality or major complication. LVHR is a safe procedure with acceptable operating time, few complications, short hospital stay, few recurrence and better patient satisfaction, as compared to open surgical procedures (Table 3).

Keywords: Ventral hernia, incisional hernia, umbilical hernia, epigastric hernia, mesh repair, laparoscopic repair, outcome, complications.

INTRODUCTION

Ventral hernias result from a weakness or loss of structural integrity, of the musculo-apenecurolic layer of the anterior abdominal wall. Primary ventral Hernias occurs spontaneously due to primary fascial pathology and include umbilical, epigastric, spigelion, lumbar and other hernias (Salameh, 2008). Post operative ventral hernia or incisional hernia is a common complication following abdominal surgery and is a significant cause of morbidity (Adotey, 2006). An incisional hernia develops in 3 - 13% of laparoscopy incisions (Lomanto et al., 2006).

Repair of ventral hernia may be difficult and a wide range of surgical procedure has been developed for it. Tension-free repair is one of the key concepts in hernia surgery. The repair may be direct suturing or use of prosthetic mesh using the open or laparoscopic technique. Prosthetic mesh and tension free repair has revolutionized the repair of ventral hernias resulting in decrease in recurrence rates (Gray et al., 2008).

Laparoscopic repair of ventral hernias is rapidly becoming more popular, its utility, cost-effectiveness, lower infection and recurrence rates makes it a very attractive option (Le Blanc, 2007; Beldi et al., 2006).

We receive a number of patients with primary and incisional ventral hernias, sometimes recurrent hernias, from different parts of the province. Laparoscopic repair of ventral hernias has been recently started in our setup. This study was aimed to analyze the outcome of laparoscopic repair of ventral hernia using a prosthetic

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Table 1. Type of hernia (n = 54).

Type of hernia	No. of patients	% age
Umbilical	7	12.9
Para umbilical	13	24.07
Epigastric	9	16.66
Incisional	25	46.29
1 Upper midline	5	9.25
2 Lower midline	5	9.25
3 Pfenenstiel	6	11.11
4 Subcostal	4	7.40
5 Grid iron	4	7.40
6 Transverse midline	1	1.85

Table 2. Size of hernial defect (n = 54).

Size in cm	No. of patients	% age
2 –5 cm	33	61.11
6 –10 cm	19	35.18
> 10 cm	2	3.70

mesh as a relatively new technique in our hospital.

MATERIALS AND METHODS

This study was conducted in the surgical- D unit of Khyber Teaching Hospital Peshawar from June 2007 to June 2008. All patients presenting with ventral hernia were included in the study patients with respiratory and cardiac compromise unfit for laparoscopy and anesthesia were excluded.

Patients were evaluated by a detailed history including history of previous surgery and medical disease. Detailed physical examination was done to demarcate the extent and location of hernia and to rule out any strangulation. An abdominal ultra sanography was done to exclude any other pathology like gall stones or any other intra abdominal pathology. The patient was counseled regarding the procedure and a written consent was obtained. The laparoscopic mesh repair was performed under general anesthesia. The patient was positioned according to the site of hernia.

TECHNIQUE

Two or three and sometimes four ports were used depending on the hernia site and size, using base ball diamond concept. Adhesiolys was performed and contents of the sac were released and reduced. The was identified and proline mesh (Ethican-INC.RMC;385972. Dual layer, absorbable or PVDF are not available in our country. To prevent bowel adhesion and fistula formation, omentum is brought down under the mesh) was measured on the defect from the outside. Sutures were applied at three corners of the mesh using vicryl 1or 0 and both the ends of suture were left long and cut at 6 to10 centimeter length. Skin stab nicks were made at four quadrants of the hernia defect site, for passing a suture holder. Now through one of the skin nicks one end of another vicryl suture was passed into the abdominal cavity with the help of a suture holder and pulled into the peritoneal cavity and then again brought out through the lateral part, secured to the forth corner of the mesh. The end was left long and the needle cut. The mesh was pulled in the cavity through this part, by pulling on the last vicryl already passed in the skin, the mesh was fixed over the defect. The long ends of the vicryl stitches attached on 4 corners of the mesh were brought out through the skin holes with the help of suture holder and they were tied outside securing the mesh to the abdominal wall. In larger defects another suture was placed in the center for better fixation. The omentum was then brought down under the mesh. The ports are removed after deflating the gas and port sites stitched. The total time taken by the procedure ranged from 35 min to 2 h. Post operatively the patients were given systemic antibiotic for 24 h. The need for pain relief was minimum. Patients were mobilized in the evening and were allowed oral sips. They were discharged on the first or 2nd post operative day. Follow up was done at 2 and 6 weeks for any late complications.

RESULTS

54 patients underwent laparoscopic ventral hernia repair during the study period. 38 were female and 16 were males. The ages ranged from 25 - 62 years with only 3 patients above 50 years of age. Majority of the patients had incisional hernia forming 46.29% of all patients as shown in Table 1. 13 (24.07%) patients had paraumblical hernia, 9 (16.66%) had epigastic and 7 (12.96%) had umbilical hernia. Umbilical and paramblical hernias were small ranging from 2 –5 cm defect. The incisional hernia ranged from 5 –10 cm while in only 2 (3.20%) patients defects were greater than 10 cm in size (Table 2). Incisional hernias of the upper midline and lower midline scars were 5 (9.25%) each, while 6 (11.11%) occurred after suprapubic (pffenenstiel) incision.

Only 2 ports for laparoscopic repair were used in 22 patients and 3 ports in 19 patients. In 3 patients with big

Table 3. Complications and outcome.

Complications	No. of patients	% age
Port site bleeding	3	5.55
Omental bleeding	9	16.66
1 Pain-severe	11	20.37
2 Moderate	22	40.74
3 Mild	18	33.33
Port site infection	3	5.55
Seroma	2	3.70
Reccurrence	1	1.85
Conversion	0	--
Mortality	0	--

hernias a 4th port was also introduced. In all patients proline mesh was used. In all patients the procedure was successfully completed laparoscopically. No additional procedure were carried out during herniorrhaphy. Intra operative blood loss was negligible. The duration of operation was 35 min to 2 h. The post operation stay in hospital ranged from 1 to 3 days.

In our series complication rate was low. There was no mortality or major complication. 3 patients had port site bleeding which was controlled with a ligature. 9 (16.66%) patients had omental bleeding, which was controlled with diathermy. Severe pain was complained post operatively by only 11 (20.37%) patients requiring multiple analgesic injections while in the rest mild to moderate pain was relieved after a single analgesic injection. 2 (3.7%) patients developed seroma that subsided with conservative treatment in 2 weeks while another 3 (5.55%) had superficial port site infection. This responded to daily dressing and cleaning with antibiotic treatment. During follow up period, there was a single recurrence at 4 months, giving a rate of 1.85%. The overall outcome with patient and surgeon satisfaction was excellent, as assessed during follow up by early recvery, less pain, early return to work, minimal scar and low rate of infection.

DISCUSSION

Ventral abdominal hernias represent a frequent and often formidable clinical problem and a lasting surgical correction remains a challenge. Laparoscopic ventral hernia repair (LVHR) is becoming a popular technique with good results and a fast post operative recovery. The mesh is placed directly under the peritoneum and anchored with trans-abdominal sutures and tacks (Smietanski et al., 2007).

The LVHR utilizes the principles of the open technique, including using large mesh prosthesis, adequate overlap of the hernia defect and eliminating tension. The mesh is placed intraperitoneally and extensive soft tissue dissection is eliminated (Kannan et al., 2004). Various comparative studies have shown that with LVHR, wound complication rate patient discomfort, length of hospital stay, time to return the normal activities and recurrence rates are all reduced (Adotey, 2006; Olmi et al., 2006; Pierce et al., 2007).

Our study group included 54 patients with ages ranging between 25 - 62 years where as other studies have reported mean ages of 55.25 years and 56 years (Adotey, 2006; Olmi et al., 2006). Incisional hernias were the commonest ventral hernias followed by para umbilical hernias in our patients. Other studies also show post operative ventral hernias as a common occurrence and a significant cause of morbidity and a common indication for laparoscopic repair (Salameh, 2008; Olmi et al., 2006; Birch, 2007).

In our series, the patient as a group had a good outcome. Despite an early experience with this technique there was no conversion to open surgery. The operating time ranged between 35 min to 2 h in difficult cases due to adhesions and obesity. Others have reported mean operating time as 90.6 and 117 min, whereas in one series average time taken was 65.6 min (range 28 - 130 min) (Adotey, 2006; Kannan et al., 2004; Olmi et al., 2006). Open mesh repair also required longer operating time and associated with greater blood loss than simple repair (Ahmad et al., 2003).

There were no major intra operative accidents and also no mortality or major complication in our series. Omental bleeding occurred in 9 (16.66%) and port site bleeding occurred in 3 (5.55%) patients, it was controlled with diathermy laparoscopically. Other series also have reported fewer complications, commonly a seroma in 2 - 4.4%, pain in 2.5% and sepsis in only 0.25% patients (Olmi et al., 2006; Pierce et al., 2007; Chelala et al., 2007). We had seroma in only 2 (3.7%) patients and they were treated conservatively.

The suture site pain was common and severe pain was complained by 11 (20.31%) and moderate pain by 22 (40.74%) patients. Suture site pain may have originated form tissue or nerve entrapment during placement of

sutures through full thickness of anterior abdominal wall. It could also result from traction of trans abdominal sutures fixing the mesh to the anterior abdominal wall.

However fixing is vital to the long term durability of mesh repair and do not advocate any change in technique. Suture site pain was managed by analgesics and improved with time. The other major complications following LVHR, like enterotomy, mesh infection, skin breakdown, intra abdominal abscess have been documented, but we did not encounter such complications. There was only 1 (1.85%) recurrence at 4 months in our series, however others have reported a recurrence rate of 4% and 2.5% between 1 - 3 months of surgery (Gray et al., 2008; Olmi et al., 2006). Cobb et al reported recurrence as 4.7% after a mean follow up period of 21 months (Cobb et al., 2006).

Mobilization, hospital discharge and return to activities were prompt, with an average hospital stay of 2 days in our patients and majority of them returned to work after 2 weeks. Mean hospital stay in LVHR has been reported as 2.4 and 3 days (Pierce et al., 2007; Cobb et al., 2006). Navitsky et al has described LVHR as an approach of choice for his obese patients with no perio perative mortality, mean hospital stay of 2.6 days and a recurrence rate of 5.5% at 25 months follow-up (Novitsky et al., 2006). LVHR can be performed in any patient who is a candidate for open repair and with an acceptable risk for general anesthesia (Kannan et al., 2004). As experience increases LVHR can safely be done in patients with multiple prior abdominal procedures and in atypically located hernias. The limitations in our study are the relatively small study group and the short mean follow up period. This paper serves to show our experience for better awareness and acceptability of the procedure.

Conclusion

Although LVHR may be challenging, it has the potential to be considered a primary approach for most ventral and incisional hernias, regardless of patient status or hernia complexity. LVHR in our experience was safe and resulted in short operative time, few complication, short hospital stays and few recurrence. It should be considered as the procedure of choice for ventral hernia repair.

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