

Long Term Evaluation of Paraumbilical Hernioplasty by Onlay Technique

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ABSTRACT

Objective: To evaluate long term results of paraumbilical hernioplasty by onlay technique.

Material & Methods: This prospective study was started in Jan 2017 and completed in Oct 2021. A total number of 196 patients having paraumbilical hernia were included in the study by convenient sampling. Patients with recurrent, strangulated and obstructed hernia as well as patients with ulcerated skin over the hernia were excluded from the study. All the patients were operated under general anesthesia with muscle relaxants. A non-absorbable standard prolene mesh (15x15 cm or 30x30 cm) was used and fixed with prolene 3-0 suture. Redivac drain was used over the mesh for minimum of three days. After discharge, all the operated cases were advised to visit the outpatient department after one week, one month, three months, six months, one year and two years. Maximum follow-up was two years and minimum was one year to assess the long term complication including recurrence. Demographic data along with diagnosis, complication, were collected and analyzed with Excel 2019.

Results: Total 196 patients were operated for paraumbilical hernia. From which 53 were male and 143 were female. Minimum age was 18 years old and oldest patient was 78 years old. Average age was 40.19± 10 years, median age was 38 years. Seroma was seen in 04 patients. Superficial wound infection was observed in 02 patient no deep-seated infection was reported in our study. During three months of follow-up, numbness was noted in 03 patients and 02 patients had pain at the operation site during manual work. After two years recurrence was observed in two female patients, who failed to control their weight.

Conclusion: Paraumbilical hernia is very common presentation in female patients. In order to prevent complication of hernia like, incarceration, strangulation and obstruction, early repair of the hernia is recommended in all the cases. Onlay mesh hernioplasty is one of the safest techniques which is relatively easy procedure, has a short learning curve with promising results. It has a low recurrence rate.

Keywords: Onlay Mesh hernioplasty, Paraumbilical Hernia, PUH.

INTRODUCTION

Paraumbilical hernia (PUH) is defined as a midline herniation through a defect in linea alba above or below the umbilicus¹. Classical crescent shape of the umbilicus is found in PUH. These hernias are more common in female patients (3:1)^{2,3}. It is an acquired defect and is directly related to increased abdominal pressure due to obesity, multiple pregnancies, older age, COPD, chronic constipation and prostatism⁴. PUH hernia may enlarge and attain a huge size under the skin but the neck of the sac remains dangerously small which poses the risk of strangulation. Longstanding PUH leads to formation of firm adhesions between the peritoneal sac and its contents (omentum, small bowel, transverse colon etc.). So that almost all large hernias are irreducible and should never be treated by the use of an abdominal support or truss. Early surgical treatment is recommended to all the patients. The choice of appropriate repair is still subject of debate⁵. Simple suture repair was performed over many years. In 1893 W.J. Mayo, introduced an effective repair known as "Myo's Repair". Due to high recurrence rate of Mayo's repair (28-30%)¹, it was soon replaced by tension free mesh hernioplasty. Mesh hernioplasty has very low recurrence rate and hence it becomes the gold standard technique for repair of PUH. Three types of mesh hiatoplasty are commonly performed onlay, sublay and inlay⁶. The aim of the study was, to evaluate long term results of paraumbilical hernioplasty by onlay technique.

MATERIAL AND METHODS

This prospective study was started in Jan 2017 and completed in Oct 2021 in the surgery department of, Pak Red Crescent Teaching Hospital. Ethical review committee approval was taken. Patients with paraumbilical hernia (PUH) presented in outpatient department were enrolled in the study by convenient sampling.

Received on 07-11-2021

Accepted on 17-12-2021

Patients with recurrent, strangulated and obstructed paraumbilical hernia as well as patients ulcerated skin over the hernia were excluded from the study. Written informed consent was taken for operation. Routine preoperative tests; chest x-ray, ultrasound abdomen, blood count, HbsAg, Anti-HCV, and coagulation profile were performed.

All the patients were operated under general anesthesia with muscle relaxants. Antibiotic prophylaxis was administered 30 mins before the skin incision and induction of anesthesia. After antiseptic measures a transverse crease (supra or infra umbilical) skin incision was made. In case of large hernia an elliptical incision which includes the umbilicus was made. Subcutaneous tissue was divided with electrocautery. Hernia sac was identified, dissected circumferentially and opened from the neck, contents were delt accordingly and redundant sac excised. Careful search was done for multiple sacs. Primary hernial defect of was closed with interrupted Prolene 1-0 suture. Hemostasis was secured meticulously. An appropriate size tailored Prolene mesh (15 x 15 cm or 30 x 30 cm) was placed over the primary repair with 5 cm overlap on each side and fixed with Prolene 3-0 interrupted sutures. Injection gentamycin 160 mg is sprayed via 5 cc syringe on the surface of the mesh. A Redivac negative suction drain was placed. Membranous layer was approximated with Vicryl 3-0 and skin was closed with Prolene 3-0 subcutaneous fashion. Post-operative chest and legs physiotherapy was done in order to prevent basal atelectasis and deep vein thrombosis respectively. Patients were encouraged to be mobilized and pass urine after complete recovery from general anesthesia. Patients were closely observed for any complication and negative suction was strictly maintained. After 12 hours clear oral fluid was allowed. Redivac drains was left until loss is < 30ml/day and was usually removed on 3rd postoperative day. After discharge, all the operated cases were advised to visit the outpatient department after one week, one month, three months, six months, one year and two years. Maximum follow-up was two years and minimum was one year to assess the long term complication including recurrence.

Demographic data along with diagnosis, complication, were collected and analyzed with Excel 2019.

RESULTS

Total 196 patients were operated for paraumbilical hernia. From which 53 were male and 143 were female. Minimum age was 18 years old and oldest patient was 78 years old. Mean age of the patients was 40.19± 10 years, median age was 38 years and mode was 35 years. Early postoperative complications are given in table no. 01.

Table 01. Early postoperative complications

	Number of Cases	Percentage (%)
Seroma	4	2.04
Superficial wound infection	2	1.02
Total	6	3.06

Seroma was noted in 04 patients and aspirated under antiseptic measures. Superficial wound infection was seen in 02 patient and managed with antibiotics after culture & sensitivity. No deep-seated infection was reported in our study. Short term complications are given in Table No. 02.

Table 02. Short term Complications.

	Number of Cases	Percentage (%)
Numbness	3	1.53
Occasional Pain	2	1.02
Recurrence	0	0.00
Total	5	2.55

After 6 months numbness and occasional pain was resolved spontaneously. In long term follow-up we lost five patients. In remaining 191 (97.44%) patients recurrence was observed in only two female patients (1.02%).

DISCUSSION

Low recurrence rate in mesh hernioplasty is gaining popularity worldwide, even in developing countries. Mesh hernioplasty is considered a gold standard method of repair. Still there is no conscience in which plane one should place the mesh^{7, 8}. Onlay mesh hernioplasty is widely used technique and is easy to learn^{9, 10}. Our study shows long term results of onlay mesh hernioplasty. The current study shows paraumbilical hernia is more common in females (72.96%) as compare to males. The finding of our study is consistent with literature^{2, 4, 11}.

Formation of a seroma is a common complication after onlay mesh hernioplasty^{12, 13}. In onlay hernioplasty, dissection of subcutaneous fat leads to formation of seroma, it is a collection of liquefied fat, lymphatic fluids and excessive inflammatory response towards the foreign body i.e., mesh. Large collection of seroma after removal of the drain may require aspiration under strict aseptic measures. Seroma was found in 04 (2.04%) patients after removal of the drain. However, its incidence is considerable low as compare to other studies carried out elsewhere in the country^{5, 14} and abroad^{9, 15}. Low incidence of seroma formation in our study is perhaps related to meticulous dissection with low wattage monopolar cautery, particular attention towards hemostasis and keeping the Redivac drain until loss is < 30ml/day.

In literature higher rate of wound infection 6-12% is reported with onlay position of the mesh^{16, 17, 18, 19}. We found considerably low infection rate in our study (1.02%). This low surgical site infection might be related to our technique in which we sprayed injection gentamycin directly over the mesh. Over and above we kept the drain till the drainage is less than 30 ml/day, this definitely helped us in prevention of seroma and blood collection.

In onlay mesh hernioplasty, occasionally there are numb patches in the skin around the wound which get better after two to three months²⁰. In our study we found 1.53% of the cases had

numbness around the operative site, patients were reassured that, it will get better in few months.

Occasional Pain was noted in 1.02 patients following exertion at the site of operation which settles within six months. Incidence of pain in tension-free hernioplasty is considerably low¹⁸. However, persistent pain occurs due to accidental injury of the nerve and nerve entrapment by suture or tackers²¹.

Nightmare of both surgeon and patient is the recurrence of hernia. Recurrence of hernia is a stressful event to the patient and challenging to the surgeons. There is no doubt that tension free mesh hernioplasty has the lowest incidence of recurrence^{22,23,24,25} as compared to conventional repair²⁶. Recurrence of paraumbilical hernia is multifactorial. Many potential risk factors have been reported in literature which contributes to recurrence like; obesity, multiparity, smoking, large seroma, surgical site infection, excessive weight gain after repair^{27, 28, 29}.

In order to prevent recurrence Steven. B recommended 4-5 cm overlap of the mesh²¹. During long term follow-up recurrence was seen in 02 (1.02%) patients. This low recurrence rate is probably due to the fact that, all the repairs were done by senior surgeons with strict adherence to the policy of 5cm overlap of the mesh from each side of the primary repair. Our results of recurrence are comparable with recent literature²¹.

CONCLUSION

Paraumbilical hernia is very common in female patients. In order to prevent complication of hernia like, incarceration, strangulation and obstruction, early repair of the hernia is advocated in all the cases. Onlay mesh hernioplasty in paraumbilical hernia is a feasible technique, it has a short learning curve with low infection and recurrence rate.

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