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## Evaluation of management of paraumbilical hernias in a tertiary care centre

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### Abstract

**Background:** Umbilical hernia (UH) and paraumbilical hernia (PUH) are ventral herniae that occur in the region of the umbilicus or around the umbilicus. The present study compared different approaches in the management of paraumbilical hernias.

**Materials & Methods:** 60 patients of paraumbilical hernias of both genders were divided into 2 groups. In group I, mesh was then inserted and fixed with interrupted polypropylene sutures, and in group II and only anatomical suture repair was done without mesh use. Both groups were compared according to: size of incision, time of operation and complications.

**Results:** There were 16 males and 14 females in group I and 15 males and 15 females in group II. Incision size was 11.5 cm in group I and 9.1 cm in group II, time of operation was 42.6 minutes in group I and 31.2 minutes in group II. Complications recorded were wound dehiscence in 4 in group I and 2 in group II, infection 3 in group I and 1 in group II and seroma 1 in group I. The difference was significant ( $P < 0.05$ ). The recurrence rate was seen in 1 at 3<sup>rd</sup> month in group II and 1 and 4 at 6<sup>th</sup> months in group I and II respectively. The difference was significant ( $P < 0.05$ ).

**Conclusion:** Herniorrhaphy method of paraumbilical hernia repair found to be better than hernioplasty.

**Keywords:** Herniorrhaphy, paraumbilical hernia, wound infection

### Introduction

Umbilical hernia (UH) and paraumbilical hernia (PUH) are ventral herniae that occur in the region of the umbilicus or around the umbilicus. UH accounts for 10% of abdominal herniae. UH occurs in infants and children, while PUH occurs in adults. UH rarely occurs in adult patients with ascites, obesity, and massive abdominal distention from various causes. There are advantages to the management of UH and PUH using meshes [1]. The different surgical methods employed in the repair of UH and PUH are open anatomical repair, open mesh repair with different sites of mesh placement (onlay, sublay, and inlay), laparoscopic intraperitoneal onlay mesh repair (IPOM), and open IPOM. The recurrence rate (19% to 54%) is greater in anatomical suturing than in mesh repair. The different sites of deployment of mesh have advantages and disadvantages [2].

Mesh implantation options include bridging the defect with mesh, inserting a preperitoneal underlay of mesh reinforced with suture repair, and installing it laparoscopically, among other techniques [3]. In general, women are more likely than males to have umbilical hernias; nevertheless, there are certain series in which male patients are more prevalent. Typically, a mass can be seen near the umbilicus [4]. When it comes to seeking medical attention and undergoing surgery, pain is the most prevalent reason. Even in situations when a prosthetic mesh is utilised, recurrence may occur. The size of recurrent umbilical hernias is frequently larger than the size of original hernias and they can mimic the appearance of incisional hernias [5]. The present study compared different approaches in the management of paraumbilical hernias.

### Materials and Methods

This was a cross-sectional study of 60 patients of paraumbilical hernias of both genders, attending Prakash institute of medical sciences and research, Islampur, between 2018 and 2021. Data such as name, age, gender etc. was recorded. In group I, mesh was then inserted and fixed with interrupted polypropylene sutures, and in group II and only anatomical suture repair was done without mesh use.

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Both groups were compared according: size of incision, time of operation, occurrence of wound complications including infection and seroma, recurrence rate and overall cost during the period of follow-up which was six months. All patients were operated on by same surgeon and received a single dose of preoperative prophylactic antibiotic administered intravenously. Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant. The data was conducted after obtaining permission from institutional ethical clearance committee of institution.

**Results**

Table 1 shows that there were 16 males and 14 females in group I and 15 males and 15 females in group II. Table 2, graph 1 shows that incision size was 11.5 cm in group I and 9.1 cm in group II, time of operation was 42.6 minutes in group I and 31.2 minutes in group II. Complications recorded were wound dehiscence in 4 in group I and 2 in group II, infection 3 in group

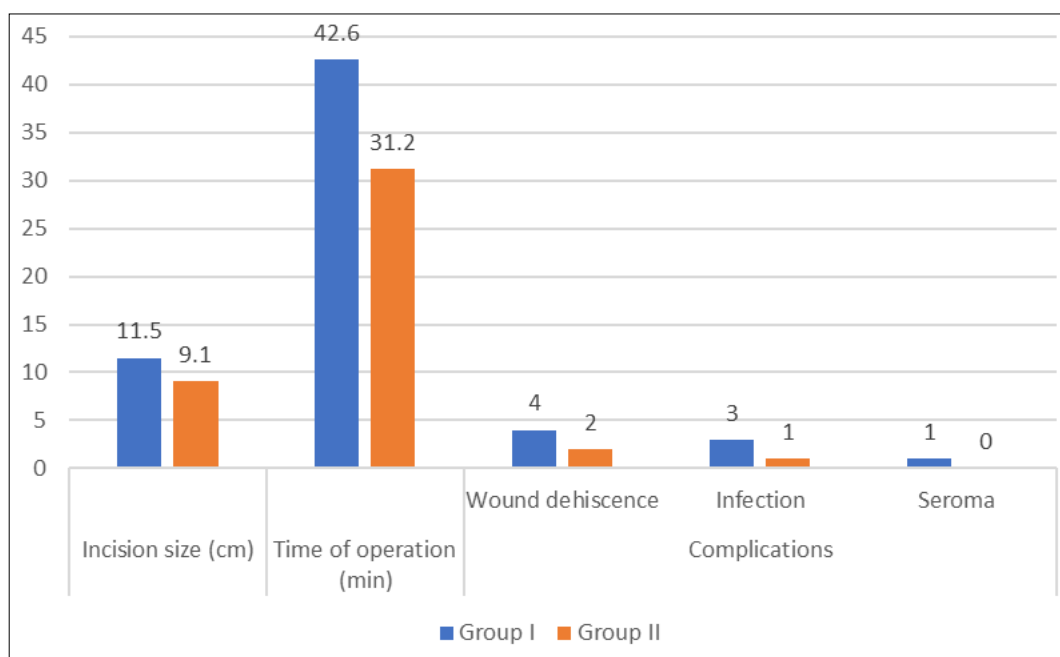
I and 1 in group II and seroma 1 in group I. The difference was significant ( $P < 0.05$ ). Table 3 shows that recurrence rate was seen in 1 at 3<sup>rd</sup> month in group II and 1 and 4 at 6<sup>th</sup> months in group I and II respectively. The difference was significant ( $P < 0.05$ ).

**Table 1:** Distribution of patients.

Groups	Group I	Group II
Method	Hernioplasty	Herniorrhaphy
M:F	16:14	15:15

**Table 2:** Assessment of parameters.

Parameters	Variables	Group I	Group II	P value
Incision size (cm)		11.5	9.1	0.05
Time of operation (min)		42.6	31.2	0.02
Complications	Wound dehiscence	4	2	0.04
	Infection	3	1	
	Seroma	1	0	



**Graph 1:** Assessment of parameters.

**Table 3:** Evaluation of recurrence rate.

Follow up	Group I	Group II	P value
3 <sup>rd</sup> month	0	1	0.01
6 <sup>th</sup> month	1	4	

**Discussion**

Umbilical hernia and PUH are repaired using mesh to avoid recurrence. The laparoscopic IPOM technique is technically demanding [6]. The cost of the mesh is high when compared to the mesh used for open hernia. Generally, postoperative pain due to tackers is less than that due to intracorporeal suturing [7]. However, the open IPOM technique is not technically demanding compared to laparoscopic IPOM. In open mesh repair, the long duration of postoperative stay was attributed to delayed removal of the drainage tube [8, 9]. Although many surgeons favour open only mesh repair, the postoperative stay and frequency of seroma formation make it a less attractive option [10]. The present study compared different approaches in the management of paraumbilical hernias.

In present study, there were 16 males and 14 females in group I and 15 males and 15 females in group II. Kumar *et al.* [11].

divided 120 patients of paraumbilical hernia into group 1 (paraumbilical hernioplasty with mesh insertion) and group 2 (paraumbilical herniorrhaphy). Gender of patients in both groups: In group (1): 25 males (41.67% of group) and 35 females (58.33% of group), while in group (2): 28 males and 32 females with  $p=0.45$ . Comparison of age of patients in both groups, it was found that: In both groups the range of age was 24-57 years old. There were significant differences between both groups as regarding operative details. Drain was inserted in only 40 patients of group (2) while all patients of group (1) had drains inserted. Incision size mean in group (1) was about  $11.07 \pm 1.26$  cm. while in group (2) it was only  $8.87 \pm 0.82$  cm. Also, operation time was reduced in herniorrhaphy group with a mean  $31.15 \pm 3.11$  minutes while in hernioplasty group was  $41.23 \pm 3.17$  minutes. In comparison between both groups in wound complications, it was found that seroma occurred in 4 patients of group (1) and 2 patients in group (2). Infection occurred in 6 patients in group (1) while only 2 patients in group (2) had wound infection  $p=0.177$ . Dehiscence occurred in only 2 patients in group (1). As regarding recurrence rates, both groups had no statistically significant differences during the 6-month

follow-up period; only 2 cases had hernia recurrence, which was identified clinically and by ultrasonography after 5 months of operation in group (2) while no cases in group (1) had hernia recurrence during the period of follow-up.

We found that incision size was 11.5 cm in group I and 9.1 cm in group II, time of operation was 42.6 minutes in group I and 31.2 minutes in group II. Complications recorded were wound dehiscence in 4 in group I and 2 in group II, infection 3 in group I and 1 in group II and seroma 1 in group I. Arunagiri *et al.* [12] in their study 23 patients underwent open mesh repair, 12 patients underwent laparoscopic intraperitoneal onlay mesh repair, and eight patients underwent open intraperitoneal onlay mesh repair. The duration of the surgery, mesh used, number of days of hospital stay, type of anaesthesia, and postoperative complications were analysed. Of the 43 patients, the patients who underwent open intraperitoneal onlay mesh repair had shorter postoperative hospital stays compared to other methods (median=1 day; range=1 to 2 days). The duration of surgery was longer for laparoscopic intraperitoneal onlay mesh repair and open mesh repair compared to the open intraperitoneal onlay mesh repair technique ( $P<0.05$ ). The open intraperitoneal onlay mesh repair technique had advantages over the other methods for small-defect umbilical hernia and paraumbilical hernia. The duration of surgery was long for laparoscopic intraperitoneal onlay mesh repair compared to open mesh repair and the open intraperitoneal onlay mesh repair technique. Postoperative complications were insignificant for all three methods. Another advantage of the open intraperitoneal onlay mesh repair technique was a shorter postoperative hospital stay.

Sadiq *et al.*, which showed that there was no recorded difference in recurrence rates after six months of follow-up. The only recorded recurrence cases were after one year of follow-up; two cases in suture repair technique group and one case in herniorrhaphy group which still gives no statistically significant difference [13]. Anjum *et al.*, found no significant difference between both techniques in recurrence rates; 3/25 in suture repair group and 1/25 in mesh repair group with no relation to the type of anaesthesia used [14]. On the other hand, these results regarding recurrence rates disagree with those of Kaufmann *et al.*, who recorded an incidence of 9% of recurrence among suture group compared with only 1% incidence in Meshgroup [15]. In conclusion, herniorrhaphy method of paraumbilical hernia repair was found to be better than hernioplasty.

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