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Original Research

Assessment of results of Sutureless mesh repair of inguinal hernia: An observational study

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***ABSTRACT*:**
Background: Inguinal hernias account for 75% of abdominal wall hernias, with a lifetime risk of 27% in men and 3% in women. "Non-mesh" repairs may be considered as an option in women. Transversalis fascia is often quite strong in women and indirect hernias in these patients can be treated without a mesh. Marcy repair where internal inguinal ring is narrowed by one or a couple of sutures is also rarely used in certain cases with a small indirect hernia and a normal-size internal ring. So this study is planned to evaluate of results of a new technique of sutureless mesh repair of inguinal hernia. **Materials & methods:** 50 Male patients between 20-50 years of age and having uncomplicated inguinal hernia and fit for spinal anaesthesia were enrolled. Inguinal hernia repair were performed by placing mesh on posterior inguinal wall and without applying fixation suture or glue. Visual analog scale (VAS) were used to evaluate the pain severity of the patients. Sutures were removed on 7th post op day and all the participants were examined for complications. After completing the collection of data through already designed structured performa, it was statistically analysed using SPSS software. **Results:** Mean postoperative pain score at 1 hour, 6 hours, 12 hours and 24 hours was 4.86, 3.69, 2.94 and 1.83 respectively. During the immediate postoperative period, no complication was seen. At 1 week postoperative follow-up, seroma was seen in 2 patients (4 percent), while infection and scrotal swelling were seen in 1 patients (2 percent) and 2 patient (4 percent). No complication was seen in patients at three month and six month follow-up. **Conclusion:** Sutureless mesh repair in the treatment of inguinal hernia cases is an effective technique in terms of occurrence of postoperative complications, time of procedure and cost effectiveness.
Key words: Inguinal hernia, Sutureless

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INTRODUCTION

Abdominal wall hernias are common, with a prevalence of 1.7% for all ages and 4% for those aged over 45 years. Inguinal hernias account for 75% of abdominal wall hernias, with a lifetime risk of 27% in men and 3% in women. Repair of inguinal hernia is one of the most common operations in general surgery. Ninety five per cent of patients presenting to primary care are male, and in men the incidence rises from 11 per 10 000 person years aged 16-24 years to 200 per 10 000 person years aged 75 years or above.[1-4]

Inguinal hernias are at risk of irreducibility or incarceration, which may result in strangulation and obstruction; however, unlike with femoral hernias, strangulation is rare. Older age and longer duration of hernia and of irreducibility are risk factors for acute complications. Gallegos and colleagues studied the presentation of inguinal hernias with a "working diagnosis of strangulation." Traditionally almost all inguinal hernias are referred for surgical treatment following diagnosis. Progression of a hernia by time is natural and most surgeons prefer repairing all inguinal hernias as soon as possible. Inguinal hernia is a benign disease and it repair results in only rare

and minor complications in elective setting. Nevertheless complications developed after emergency repairs may be more dramatic and frequent, even mortality may be recorded. It is especially so if patient is elder. Therefore a repair in elective setting is recommended generally.[4-7]

"Non-mesh" repairs may be considered as an option in women. Transversalis fascia is often quite strong in women and indirect hernias in these patients can be treated without a mesh. Marcy repair where internal inguinal ring is narrowed by one or a couple of sutures is also rarely used in certain cases with a small indirect hernia and a normal-size internal ring.[6-8] So this study is planned to evaluate of results of a new technique of Sutureless mesh repair of inguinal hernia.

MATERIALS & METHODS

The present study was planned to evaluate of results of a new technique of sutureless mesh repair of inguinal hernia. Inclusion criteria were as follows: 50 Male patients between 20-50 years of age and having uncomplicated inguinal hernia and fit for spinal anaesthesia. Inguinal hernia repair were performed by placing mesh on posterior inguinal wall and without applying fixation suture or glue. All the patients were kept fasting for 8 hours, the operation area was shaved and cleaned one day before surgery. All patients were operated under spinal anesthesia. Post-operative care was given; i.v. fluids till post op 12 hr. Visual analog scale (VAS) were used to evaluate the pain severity of the patients. Sutures were removed on 7th post op day and all the participants were examined for complications. After completing the collection of data through already designed structured performa, it was statistically analysed using SPSS software.

RESULTS

Mean age of the patients of the present study was 38.4 years. Right hernia was involved in 64 percent of the patients. Direct hernia was found to be present in 16 percent of the cases while indirect hernia was found to be present in 84 percent of the cases. Gut was present in 44 percent of the cases while omentum was present in 56 percent of the cases. Mean duration of procedure was 43.6 minutes. Mean postoperative pain score at 1 hour, 6 hours, 12 hours and 24 hours was 4.86, 3.69, 2.94 and 1.83 respectively. During the immediate postoperative period, no complication was seen. At 1 week postoperative follow-up, seroma was seen in 2 patients (4 percent), while infection and scrotal swelling were seen in 1 patients (2 percent) and 2 patient (4 percent). No complication was seen in patients at three month and six month follow-up.

DISCUSSION

Hernia and its treatment has fascinated surgeons of all latitudes throughout the years of recorded medical history. The advent of synthetic mesh has made possible the bridging of large gaps in the tissues without tension, making it possible to cure every hernia, regardless of its size or shape. Originally used for the repair of incisional hernias, mesh was subsequently applied with great success to the repair of recurrent inguinal hernias.[6-8] Hence; the present study was planned to evaluate of results of a new technique of Sutureless mesh repair of inguinal hernia.

Table 1: Distribution of subjects according to age group

Age group	Number of patients	Percentage
Less than 40	28	56
More than 40	22	44
Total	50	100

Table 2: Distribution of patients according to the site of inguinal hernia

Type of hernia	Number of patients	Percentage
Right	32	64
Left	18	36

Table 3: Duration of operative procedure

Duration of operative procedure (minutes)	Value
Mean	43.6
SD	3.9

Table 4: Postoperative pain score at different time intervals

Time interval	Mean Postoperative pain score
1 hour	4.86
6 hour	3.69
12 hour	2.94
24 hour	1.83

In the present study, mean age of the patients of the present study was 38.4 years. Right hernia was involved in 64 percent of the patients. Direct hernia was found to be present in 16 percent of the cases while indirect hernia was found to be present in 84 percent of the cases. Gut was present in 44 percent of the cases while omentum was present in 56 percent of the cases. Mean duration of procedure was 43.6 minutes. Mean postoperative pain score at 1 hour, 6 hours, 12 hours and 24 hours was 4.86, 3.69, 2.94 and 1.83 respectively. Cunha-e-Silva JA et al evaluated the early postoperative results of inguinal hernia repair by the conventional technique with self-fixating mesh versus laparoscopic totally extraperitoneal repair with polypropylene mesh. We compared pain, surgical time and early complications. 80 consecutive patients treated in the surgical clinic of the Gaffrée e Guinle University Hospital (HUGG) were assessed. They included patients with unilateral inguinal hernia, not relapsed and operated only on an elective basis. They divided patients into two groups of 40 patients each, SF group (conventional technique using self-fixating mesh) and LP group (laparoscopic technique with polypropylene mesh). We followed patients up until the 45th postoperative day. Of the 80

patients, 98.7% were male and the majority had indirect right inguinal hernias (Nyhus II). There was no difference between the groups studied in respect to pain and operative time. However, more complications occurred (seroma and hematoma) in the open surgery group. Both operations have proved feasible, safe and with minimal postoperative pain and a low operating time.[9] Amra MA et al evaluated short-term outcomes of Lichtenstein technique of hernia repair using Parietex ProGrip monofilament polyester mesh in Egyptian patients with inguinal hernias. Prospective analysis of 50 patients underwent Lichtenstein technique for hernia repair was done. The primary outcome was chronic pain measured at 3 weeks, 3, 6, and 12 months postoperatively. Secondary outcomes were perioperative and early postoperative complications, return to usual activities and recurrence rate of the hernia. A difference in pain between preoperative and postoperative values was calculated at all follow-up time points. Fifty cases (all males) were studied. Mean ± standard deviation (SD) patient age was 39.2 ± 10.4 (range 18–60) years. Most hernias were Gilbert's type II [12 (24%)] or III [16 (32%)]. During 12 months postoperatively, none of the patients developed systemic postoperative complications or recurrent hernia. The mean ± SD pain visual analog scale score decreased from 12.8 ± 8.4 after 3 weeks to 0.72 ± 2.2 after 6 months. From postoperative 3 weeks to 6 months, there were notable improvements in health and also in health-related quality of life; mean ± SD visual analog scale EuroQoL score increased from 72.1 ± 5 to 93.2 ± 4 and mean ± SD HR EuroQoL score from 0.60 ± 0.3 to 0.92 ± 0.2. At 6 months, mean scores of the eight dimensions of the short form SF-36 questionnaires had raised from baseline.[11]

In the present study, during the immediate postoperative period, no complication was seen. At 1 week postoperative follow-up, seroma was seen in 2 patients (4 percent), while infection and scrotal swelling were seen in 1 patients (2 percent) and 2 patient (4 percent). No complication was seen in patients at three month and six month follow-up. Lin H et al conducted a study to clarify which mesh fixation method was more suitable in Lichtenstein inguinal hernia repair. Articles published up to July 2017 were searched using MEDLINE, the Cochrane Library, Embase, and the Web of Science. Randomized controlled trials (RCTs) comparing glue versus suture mesh fixation in Lichtenstein inguinal hernia repair were included in the review. The quality assessment and data extraction of included studies were applied by 2 independent authors. Thirteen RCTs with 2375 patients were eligible for inclusion. Eight trials compared synthetic glue with suture fixation and 5 compared biological glue with suture fixation. The results showed that there was a lower incidence of early chronic pain, and hematoma in the glue fixation group. Suture mesh fixation method cost more time in operation than glue. There was no evidence of an increase in chronic pain or recurrence rates with glue fixation method in the long-term follow-up. Mesh fixation with glue compared with sutures in Lichtenstein repair inguinal hernia is faster and less painful, without an increasing in terms of recurrence rates in the long term.[12]

CONCLUSION

Sutureless mesh repair in the treatment of inguinal hernia cases is an effective technique in terms of occurrence of postoperative complications, time of procedure and cost effectiveness.

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