

## Original Research

### Assessment of efficacy of Sutureless mesh repair of inguinal hernia: A clinical study

Anil Kumar Keshari<sup>1</sup>, Anil Kumar<sup>2</sup>

<sup>1,2</sup>Assistant Professor, Deptt of General Surgery, UPUMS, Saifai, Etawah-206130, U.P., India

#### ABSTRACT:

**Background:** Hernia is generally defined as the protrusion of a viscus from the cavity in which it is normally contained or more precisely, as the protrusion of a loop or knuckle of an organ or tissue through an abnormal opening. So, our study was planned to evaluate the efficacy of new technique of sutureless mesh repair. **Materials & methods:** The study included 100 consecutive patients of inguinal hernia admitted for elective surgery. Inguinal hernia repair was 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. Light weight prolene mesh was used. All patients were operated under spinal anesthesia. Postoperative care was done and the patients was put on i.v. fluids till post op 12 hr. Visual analog scale (VAS) was used to evaluate the pain severity of the patients on the 1st postoperative day. Sutures were removed on 7<sup>th</sup> post op day and all the participants were examined. **Results:** Punched out defect in transversalis fascia was seen in 19 percent of the cases. Mean duration of operative procedure was found to be 41.58 minutes. Mean postoperative pain at 1 hour postoperatively, 6 hour postoperatively and 12 postoperatively was found to be 4.99, 3.96 and 2.13 respectively. **Conclusion:** Sutureless tension free mesh repair in the treatment of inguinal hernia cases is an effective technique.

**Key words:** Inguinal hernia, Sutureless

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**Corresponding author:** Dr. Anil Kumar, Assistant Professor, Deptt of General Surgery, UPUMS, Saifai, Etawah-206130, U.P., India

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#### INTRODUCTION

Hernia is generally defined as the protrusion of a viscus from the cavity in which it is normally contained or more precisely, as the protrusion of a loop or knuckle of an organ or tissue through an abnormal opening. Hernias are among the oldest known affliction of humankind. Inguinal hernia is a common problem that affects a large number of people around the globe. The development of hernia surgery was contributed by many legends in the field of surgery.<sup>1-3</sup> There have been a number of erudite reviews on the history of hernia and its treatment. The final word on surgery for hernia is yet to be heard. Today new techniques are being explored and introduced frequently in inguinal hernia surgery. The future will tell how hernia repair will evolve in the next decades.<sup>4,5</sup> The technique of sutureless repair of hernia has attracted attention to evaluate its morbidity

and recurrence rate.<sup>6,7</sup> So, our study was planned to evaluate the efficacy of new technique of sutureless mesh repair.

#### MATERIALS & METHODS

The present study was conducted in the department of general surgery of the medical institute and it included assessment of the efficacy of new technique of sutureless mesh repair. Ethical approval was obtained from institutional ethical committee and written consent was obtained from all the patients after explaining in detail the entire research protocol. The study included 100 consecutive patients of inguinal hernia admitted for elective surgery. Inclusion criteria for the present study included:

- Male patients
- Patients between 20-50 years of age

- Patients having uncomplicated inguinal hernia
- Patients with negative history of any other systemic illness.

Complete demographic details of all the patients were obtained. Inguinal hernia repair was 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. Light weight prolene mesh was used. All patients were operated under spinal anesthesia. Postoperative care was done and the patients was put on i.v. fluids till post op 12 hr. Visual analog scale (VAS) was used to evaluate the pain severity of the patients on the 1st postoperative day. Sutures were removed on 7<sup>th</sup> post op day and all the participants were examined. All the results were recorded in Microsoft excel sheet and were analysed using SPSS software. Mann Whitney U

test and Chi- square test was used for assessment of level of significant.

**RESULTS**

The present study included assessment of 100 patients within the age group of 20 to 50 years. Mean age of the patients was 29.4 years. 44 percent of the patients belonged to the age group of 20 to 30 years. 34 percent of the patients belonged to the age group of 41 to 50 years. Right side involvement occurred in 62 percent of the cases, while left side involvement occurred in 38 percent of the cases. While classifying patients on the basis of content, it was observed that gut was present in 35 percent of the cases, while omentum was seen in 65 percent of the cases. Punched out defect in transversalis fascia was seen in 19 percent of the cases. Mean duration of operative procedure was found to be 41.58 minutes. Mean postoperative pain at 1 hour postoperatively, 6 hour postoperatively and 12 postoperatively was found to be 4.99, 3.96 and 2.13 respectively.

**Table 1:** Distribution of subjects according to age group

Age-group (years)	Frequency	Percentage
20- 30	44	44
31- 40	22	22
41- 50	34	34
Total	100	100
Mean age (years) = 29.4		
±SD = ±10.27		

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

Type of hernia	Frequency	Percentage
Right	62	62
Left	38	38

**Table 3:** Distribution of patients according to content

Content	Frequency	Percentage
Gut	35	35
Omentum	65	65

**Table 4:** Distribution of patients according to state of posterior wall

State of posterior wall	Frequency	Percentage
Punched out defect in transversalis fascia	19	19
Normal	81	81

**Table 5:** Duration of operative procedure

Duration of operative procedure (minutes)	Value
Mean	41.58
SD	4.33

**Table 6:** Postoperative pain score at different time intervals

Time interval	Mean Postoperative pain score	SD
1 hour	4.99	1.58
6 hour	3.96	1.22
12 hour	2.13	1.09

## DISCUSSION

Hernia and its treatment has fascinated surgeons of all latitudes throughout the years of recorded medical history. The operations for hernia have been a paramount indicator of the progress of surgical technique itself. Inguinal ligament is the fibrous band made of thickened folds of the external oblique aponeurosis that extends from the ASIS to the pubic tubercle; fibers of the inguinal ligament that pass laterally and attach to the pectin pubis form the Cooper ligament (pectineal ligament). Inguinal canal is the passage that transmits structures from the pelvis to the perineum, it is approximately 4 cm long and connects the deep inguinal ring to the superficial inguinal ring. The spermatic cord passes through the deep ring and comes out through the superficial ring before descending into the scrotum. The spermatic cord consists of the vas deferens, three arteries/veins, and the pampiniform plexus.<sup>8-10</sup> Hence; the present study was planned to evaluate the efficacy of new technique of sutureless mesh repair.

The present study included assessment of 100 patients within the age group of 20 to 50 years. Mean age of the patients was 29.4 years. 44 percent of the patients belonged to the age group of 20 to 30 years. 34 percent of the patients belonged to the age group of 41 to 50 years. Right side involvement occurred in 62 percent of the cases, while left side involvement occurred in 38 percent of the cases. While classifying patients on the basis of content, it was observed that gut was present in 35 percent of the cases, while omentum was seen in 65 percent of the cases. Weyhe D et al assessed 571,445 hernia repairs reported in 39 publications and identified the following potential risk factors: patient age, ASA score, diabetes, smoking, mode of admission (emergency vs. elective surgery), surgery in low resource settings, type of anesthesia, and (in men) bilateral and sliding hernias. The most commonly reported complications are bleeding (0.9%), wound infection (0.5%), and pulmonary and cardiovascular complications (0.2%). In 3.9% of the included publications, a reliable grading of the reported complications according to Clavien-Dindo classification was possible. Using this classification retrospectively, they could show that, in patients with complications, these are clinically relevant for about 22% of these patients (Clavien-Dindo grade  $\geq$  IIIa). About 78% of all patients suffered from complications needing only minor (meaning mostly medical) intervention (Clavien-Dindo grade  $<$  III). Especially with regard to the low incidence of complications in inguinal hernia repair, future studies should use the Clavien-Dindo classification to achieve better comparability between studies, thus enabling better correlation with potential risk factors.<sup>11</sup>

In the present study, punched out defect in transversalis fascia was seen in 19 percent of the cases. Mean duration of operative procedure was found to be 41.58 minutes. Mean postoperative pain at 1 hour postoperatively, 6 hour postoperatively and 12

postoperatively was found to be 4.99, 3.96 and 2.13 respectively. Cunha-e-Silva JA 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 (Nyhuss 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.<sup>12</sup>

## CONCLUSION

Sutureless tension free mesh repair in the treatment of inguinal hernia cases is an effective technique. However; further studies are recommended.

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