

Comparison of Lichtenstein and Darn Repair Techniques in Terms of Recurrence

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ABSTRACT

Between the years 2004 and 2008, the file records of 121 patients with inguinal hernia, who were operated on by the same surgeon with Lichtenstein and darn repair techniques in three state hospitals, were retrospectively compared in terms of relapse. Of these, 61 patients were operated with the darn repair technique, while 60 patients underwent hernia repair with the Lichtenstein technique. When the patients were evaluated in terms of postoperative recurrence, no difference was found between two groups. Also, the darn repair technique was considered more economical as no meshes were used.

Key words: Darn repair, inguinal hernia, Lichtenstein

INTRODUCTION

Although inguinal hernia surgery is a fairly common procedure used in general surgery, a search for ideal operation technique still continues. In this quest starting with Bassini, initially the myopectineal space was closed by pulling a tissue on another tissue. With this, a tension occurred in the repair line and recurrence rates increased with the severity of the tension in accordance with the technique. (1-5)

In these hernia repairs with tension, recurrence rates reached up to 25%. Using the Lichtenstein technique, in which the myopectineal space was closed with a synthetic mesh, this rate dropped to less than 1%. (6) However, the success of tension-free operations was negatively influenced by chronic pain and foreign body reactions because of the fibrosis induced by the synthetic mesh. The recurrence in hernia repair decreased but the patient comfort was negatively impacted. That is why the search for an ideal mesh that will not cause fibrosis and chronic pain still continues today. (7-9)

The darn repair technique was first introduced by Maloney in 1946 (10) and popularized by Abrahamson in the seventies. (11) The longest study about this method was a 23-year study reported by El-Bakry. (12)

This study retrospectively compared Lichtenstein and darn repair techniques in 121 patients with inguinal hernia in terms of recurrence.

PATIENTS AND METHOD

Between the years 2004 and 2008, 121 patients with inguinal hernia, who were operated on by the same surgeon in three different state hospitals with Lichtenstein and darn repair techniques, were retrospectively compared in terms of relapse. All patients were male and had unilateral hernia. Patients with recurrent hernias were not included in this study. The darn repair technique was used in 61 patients. The 60 patients in the other group underwent the Lichtenstein polypropylene mesh reinforcement procedure. Among the patients treated with the darn repair technique, 21 had direct hernia, 37 had indirect hernia, and 3 had combined (pantaloon and saddle bag) hernia. Among the patients treated with the Lichtenstein polypropylene mesh reinforcement procedure, 19 had direct hernia, 36 had indirect hernia, and 5 had combined (pantaloon and saddle bag) hernia. Both groups revealed no recurrence retrospectively in the 5-year follow-up. Spinal anesthesia was applied to all patients in both the groups.

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Following herniaectomy, all the sutures were made using number "0" polypropylene suture material. In the darn repair technique, the mesh was woven over two floors between the conjoint tendon and the iliopubic tract with polypropylene. Sutures were passed through the muscle and fascia transversalis. The patients received 1 g metamizole sodium intramuscularly three times for analgesia after operation.

RESULTS AND DISCUSSION

All patients were mobilized in 8 hours after surgery and discharged the next day. Six years postoperatively, the patients were retrospectively called by phone for recurrence control. In both the groups, no early or late recurrence was detected.

The success of the tension-free operations was negatively influenced by the chronic pain caused by synthetic mesh-induced fibrosis and complications associated with foreign body reactions. The recurrence rates in hernia repair were reduced but patient comfort was negatively impacted. That is why the search for an ideal mesh that will not cause fibrosis and chronic pain still continues today (7-9).

Every kind of defect in the myopectineal space in the inguinal region results in hernia, and every attempt to treat this has a place in hernia surgery. The common ground for the techniques started by Bassini and modified later (Halsted, McVay, Shouldice etc) (1-5) is suturing aponeurosis of m. obliquus internus and m. transversus abdominis to inguinal ligament, iliopubic tract, or Cooper ligament. However, as two tissues are pulled together and secured by suturing in the inguinal region that has a movable structure, there is always a tension between the suture line and the movement line, which affects wound healing negatively. (13) In addition to this tension, the presence of weakened muscle and aponeurotic tissue due to hernia are of concern. (14) Because of the tension in the suture line, these repairs are called tension repairs. To decrease the tension in the suture line, Lichtenstein, rather than pulling the tissues together to support the myopectineal space, added a synthetic mesh and sutured from the edges. Hernia repair performed in this manner initially had quite successful results and the recurrence rates dropped to less than 1% (6). However, this drop in recurrence was subdued by the complications of the synthetic mesh. As a result of fibrosis due to the mesh, the patients had chronic inguinal pain, foreign body feeling, and abdominal wall stiffness. The removal of the mesh due to chronic infection was reported in 4.5% and

TABLE 1: The age distribution and average age of the patients.

Age Distribution (Years)	Darn Repair (Number of Patients)	Lichtenstein (Number of Patients)
16–20	3	2
21–30	8	9
31–40	17	15
41–50	12	14
51–60	13	11
61–70	5	6
71–80	2	2
81–90	1	1
Total	61	60
Average age	49.3	48.6

TABLE 2: Distribution of hernia types.

Types of Hernia	Darn Repair (Number of Patients)	Lichtenstein (Number of Patients)
Direct	21	19
Indirect	37	36
Combined	3	5
Total	61	60

43.8% of the patients (7, 15-18). In addition to that, due to the shrinking of the mesh, the recurrence rates increased over time. In Lichtenstein's own case series, the recurrence rates were about 1%, but later the recurrence rates of up to 18% were reported (19). Polypropylene mesh reinforcement is recommended due to recurrence rates lower than 5% in all the centers (20-22). Drosier et al published a study in 2014 with 6.5-year follow-up and 260 cases. In this study, the recurrence rate with the Lichtenstein method was found to be 8.1%; for 268 patients who received a mesh plug, the recurrence rate was found to be 7.8% (23). With the darn repair technique, El-Bakry found the recurrence rate to be 0.2% in 600 patients (11 of which had recurrent hernias) with 23-year follow-up (12).

Because of these problems with synthetic meshes, search for an ideal mesh still continues. For a good hernia repair, either a mesh has to be sutured without inducing a foreign body reaction or an unmeshed repair with no tension has to be performed. The

darn repair technique fulfills these conditions. It also does not cause a foreign body reaction. In the present study, as well as other studies, this surgery could be performed in 1 day. The pain component was not included in this study; however, El-Bakry reported no chronic pain (12). Because the study showed that synthetic meshes might cause sexual dysfunction in young patients, the use of synthetic meshes remains controversial (24). Therefore, the darn repair technique might be a better alternative in young patients. In addition to that, if aponeurosis of the obliquus externus muscle is too thin to be able to hold the sutures, the Desarda technique, which is a repair technique without a mesh (23), cannot be used. Indeed, this situation was indicated in the study by Szopinks et al. (24). The study by Koukourou et al showed that the darn repair technique was cheaper because it did not require a proline mesh, and it also caused less infection (25).

Eventually, although no recurrence was reported in the darn repair group in this 6-year retrospective study, recurrence might emerge if the number of cases increases. The simple and easily applicable darn repair technique can be used in contaminated patients who cannot receive prosthetic material, and are young patients, nonrecurrent cases, and patients who refuse a mesh. In addition, it is more economical.

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