



RECURRENT INGUINAL HERNIA REPAIR BY DESARDA TECHNIQUE

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ABSTRACT

The breakdown of a hernia repair, which often increases the complexity of the problem, is called recurrent hernia. Recurrence is a significant public health problem. Recurrence of the hernia in the early postoperative setting is rare. When this does occur, it is often secondary to deep infection, undue tension on the repair, or tissue ischemia. Clearly, all of these etiologies raise the concern for a technical complication on the part of the surgeon, either in the handling of the groin tissues or the placement of mesh or suture. The patient who is overactive in the immediate postoperative setting may also be at risk for early hernia recurrence. It is thought that early exercise disrupts the suture or mesh in the repair before. Recurrent hernias can be repaired using either traditional open surgery or using laparoscopic techniques. We represent 23 male patients who underwent herniorrhaphy and developed recurrent hernias were treated by Desarda method between 2015 and 2019. 19 were elective and 4 were acute emergency patients, respectively. Hernias in 8 cases were direct, 15 indirect. There was 1 scrotal hernia, 2-sliding hernia cases among elective patients. No patient had discomfort for more than 11 days after this repair. Among postoperative complications there were not any severe complications. No chronic pain, sensation of foreign body and no recurrence was observed. The mean hospital stay was 2 ± 0.78 . According to our experience Desarda method seems to be an attractive alternative of other methods widely adopted today.

KEYWORDS : Hernioplasty, Recurrent Inguinal Hernia, Desarda Technique.

INTRODUCTION

Hernia repair one of the most common operations performed by general surgeons. Despite the frequency of this procedure, no surgeon has ideal results, and complications such as postoperative pain, nerve injury, surgical site infection, and recurrence remain. The repair of recurrent inguinal hernias is challenging, and results are associated with a higher incidence of secondary recurrence.(1)

Hernia recurrences are usually caused by technical factors, such as excessive tension on the repair, missed hernias, failure to include an adequate musculoaponeurotic margin in the repair. Recurrence also can result from failure to close a patulous internal inguinal ring, the size of which is always assessed at the conclusion of the primary surgery.

Other factors that can cause hernia recurrence are chronically elevated intra-abdominal pressure, a chronic cough, deep incisional infections, and poor collagen formation in the wound.

Common medical issues associated with recurrence include malnutrition, immunosuppression, diabetes, steroid use, and smoking. Technical causes of recurrence include improper mesh size, tissue ischemia, infection, and tension in the reconstruction. A focused physical examination should be performed.(2)

Recurrences are more common in patients with direct hernias and usually involve the floor of the inguinal canal near the pubic tubercle, where suture line tension is greatest. The use of a relaxing incision when there is excessive tension at the time of primary hernia repair is helpful to reduce recurrence. Recurrent hernias almost always require placement of prosthetic material for successful repair.

Desarda technique is a pure tissue repair that resembles the Lichtenstein mesh repair in its simplicity. The external oblique is incised similarly to the way it is done in the other repairs. The spermatic cord is dissected free the same way it is done in all the other anterior approach repairs. The herniated organs are

returned to the abdomen as usual. The sac is dissected free as usual and generally cut away.(3)

The upper flap of the external oblique aponeurosis is sutured to the inguinal ligament, behind the spermatic cord. Then the external oblique is incised again, 1-2 centimeters above the inguinal ligament, simultaneously creating (1) a new lower edge to the upper flap, and (2) a "strip," or in other words a patch, made out of a strip of external oblique that is several centimeters wide. The upper edge of this "patch" is sutured to the internal oblique. The result is that a "patch" of external oblique aponeurosis is in place behind the spermatic cord, similarly to the way a Lichtenstein patch would be in place behind the spermatic cord. The difference is, that (1) this is a patch of living tissue and (2) the strip of external oblique aponeurosis is still attached normally to external oblique muscle and contractions of the external oblique muscle have a dynamic effect on countering intra-abdominal pressure, rather than merely static effect that the Lichtenstein repair, would have. The new lower edge of the upper flap is sutured to the original upper edge of the lower flap, above in front of the spermatic cord -- that is, the external oblique is closed similarly to the way it is closed in Bassini, McVay, and Shouldice repairs. However it is the newly created lower edge of the upper flap that is being used, instead of its original lower edge; the original lower edge of the upper flap has previously been sutured to the inguinal ligament. Thus, when the operation is completed, there are 2 layers of external oblique: one under the cord and one above it, instead of only one layer, above the cord, as in normal anatomy, and as in Bassini, McVay, and Shouldice repairs. This will result in closure effects of both these flaps when the external oblique muscle contracts during cough. Due to this closure effect the entire canal and the spermatic cord will get compressed giving protection against the recurrence of hernia again. (4)

During many years there are suggested huge amount of methods of hernioplasty. In the EHS guidelines(5), mesh-based techniques and endoscopic methods are recommended for treatment of recurrent inguinal hernia in adult men. The problem of our age is to find an operation that

is simple, does not require implantation of a foreign body like mesh and does not produce major complications during or after surgery. The aim of our study is to present a method of such a hernioplasty that provides treatment of inguinal hernias with the above-mentioned advantages. Desarda repair is based on the concept of providing a strong, mobile, and physiologically dynamic posterior wall.

MATERIALS AND METHOD

We represent 23 male patients who underwent hernioplasty by Desarda method between January 2015 and August 2019. A total of 23 patients were included in this study with the inclusion criteria: age between 18 and 70 years old, all are recurrent inguinal hernia. Exclusion Criteria: previous mesh hernioplasty, mental disorder, refusal to participate. Written informed consent was obtained from all patients included in the study after detailed explanation of the purpose of the study. Patients undergoing both elective and emergency surgery were included in the study. 19 were elective and 4 were obstructed recurrent hernia patients, respectively. 16 cases were right sided, 7 were left sided recurrent hernia. Hernias in 8 cases were direct, 15 were indirect. There was 1 scrotal hernia, 2 sliding hernias. In 2 acute cases there was necrosis of incarcerated intestinal loop and acute intestinal obstruction. Intestinal resection with end to end anastomosis was performed. Except two cases, in all cases we performed in spinal anesthesia.

All patients were subjected to **preoperative evaluation** including careful history taking, clinical examination and basic laboratory investigation.

The age of patients was from 18 to 70 years. 9 patients were aged 60 and over. Among these 9 Patients 6 had severe co morbidity of circulatory, respiratory systems and/or other disease.

19 patients had history of smoking.

Table I – Elderly and senile patients co morbidity

Co morbidity	Number of patients
Diabetes mellitus	5
Hypertension	6
Cardiac ischemia	2
Chronic obstructive pulmonary disease (COPD)	4

DURATION OF HERNIA:

12 patients had more than 3 years history, while 11 had less than 3 years.

6 patients had paresthesia and numbness in inguino scrotal region before our operation.

Skin and fascia are incised through a regular oblique inguinal incision to expose the external oblique aponeurosis. The external oblique is cut in line with the upper crux of the superficial ring, which leaves the thinned out portion in the lower leaf so a good strip can be taken from the upper leaf. The spermatic cord together with the cremasteric muscle and fibrous tissue is separated from the inguinal floor. The sac is excised except in small hernias where it is inverted. The medial leaf of the upper external oblique aponeurosis is sutured with the inguinal ligament from the pubic tubercle to the abdominal ring using 1/0 monofilament polypropylene continuous sutures. A splitting incision is made in this sutured medial leaf, partially separating a strip with a width equivalent to the gap between the muscle arch and the inguinal ligament but not more than 2 cms. This splitting incision is extended medially up to the pubic symphysis and laterally 1.5–2 cms beyond the internal ring. The upper free border of the strip is now sutured to the internal oblique or

conjoined muscle lying close to it with continuous sutures throughout its length. The spermatic cord is placed in the inguinal canal and the lateral leaf of the external oblique is sutured to the newly formed medial leaf of the external oblique in front of the cord. This is followed by closure of the superficial fascia and the skin as usual.

Overall follow up period was 2 years postoperatively.

The first follow-up assessments were performed at 1st and 2nd postoperative weeks by examining the patient in the **outpatient** clinic. Follow-up was completed later at 1, 6, 12, and 24 months. On follow up visits, hernia recurrence and postoperative complications were assessed by physical examinations.

The extent of **numbness** or paraesthesia in the operative field, in the groin or towards the **scrotum** was assessed in regard to the **dermatomes** of the iliohypogastric and ilioinguinal nerves to detect possible nerve damage. Time to return to normal gait was calculated by the time needed to walk comfortably and move freely after surgery. Time to return to work was calculated by time needed to return to all previous performed activities without pain.

RESULT

We considered mean operating time, pain, postoperative complications, mean hospital stay and recurrence rate. Mean operating time was 60. (60 ± 5 min).

There were no significant intraoperative complications.

Pain was measured using the visual analog scale (VAS) with 0-30 mm signifying mild pain, 31-60 mm moderate pain, 61-90 severe pain and 91-100 excruciating pain. Postoperative pain according to VAS (Mean ± SD) on day 1 was 45, 42 ± 0.86.

The magnitude of pain was significantly low and patients complained of a slight discomfort rather than any pain by day 3 except two patients with resection of the small intestine that had moderate pain.

Patients were freely mobile within 18-24 h after surgery (mean: 19.26 h). No patient had discomfort for more than 15 days after this repair.

Complication rates immediate postoperative period:

- Ilio-inguinal nerve injury – 3
- Ilio-hypogastric nerve injury - 2
- Scrotal edema - 2
- Scrotal hematoma - 1
- Inguinal hematoma - none
- seroma - 2
- Surgical site infection - 2
- Groin pain and numbness - 1

Day to return to normal gait (days) mean ± SD (range)	3.9 ± 0.9 (3–6)
Day to return to work (days) mean ± SD (range)	17.44 ± .4 (10–28)

No recurrence of hernia till September 2019.

DISCUSSION

Hernia operations are among the oldest operations in surgery up to the extent that we can say; the history of hernia is the **history of surgery**. In the 20th century the diagnosis and management of an inguinal hernia was based on the following 2 concepts: (1) all groin hernias should be repaired at diagnosis to prevent a hernia accident (defined as strangulation and/or bowel obstruction) and (2) the Bassini classical sutured repair or one of its modifications, such as the Shouldice technique, is the preferred operation by most

surgeons. However, the past 25 years have seen a dramatic shift in many aspects of groin hernia management, including indications for surgery, replacement of the tissue repair with the prosthetic-based tension-free repair, and the application of laparoscopic and now robotic principles.

The repair of recurrent inguinal hernias is challenging, and results are associated with a higher incidence of secondary recurrence. Recurrent hernias almost always require placement of prosthetic material for successful repair. When a recurrent hernia is discovered and warrants reoperation, an approach through a virgin plane facilitates its dissection and exposure. Extensive dissection of the scarred field and mesh may result in injury to cord structures, viscera, large blood vessels, and nerve.

Numerous named operations for the repair of an inguinal hernia can be found in the literature. **Conventional Anterior non prosthetic repair are The Bassini Repair, The Maloney Darn, The Shouldice Operation, McVay Cooper Ligament Repair, Desarda Repair.** Application of the external oblique muscle aponeurosis in the form of an undetached strip (which makes the posterior wall of the inguinal canal stronger) has been established as a new concept in tissue based hernia repair. It also satisfies the principles of no tension presented by Lichtenstein. There are no clear scientific evidences to prove that the mesh prosthetic repair is superior to the non-prosthetic repair in this respect. There are advantages and disadvantages associated with all types of open inguinal hernia repairs. Existing non-prosthetic repair (Bassini/Shouldice) is blamed for causing tissue tension and mesh prosthetic repair is blamed for known complications of a foreign body(6). Desarda method gives a strong and physiologically dynamic posterior wall. This results in a tension free repair without the use of any foreign body. Being simple to perform, it also eliminates the disadvantage of technical difficulty seen with Shouldice repair. It is also important to note that Desarda was the first to advocate performing the inguinal hernia repair on physiological considerations to give complete cure from hernia [7].

Bassini's repair and its modifications stood for the test of time till Lichtenstein tension free repair appeared and it took most of the ground from Bassini's repair leaving some areas for the Shouldice repair. In a large multicenter controlled trial, recurrence rates of 8.6%, and 11% were reported after Bassini and McVay repairs respectively. Shouldice repair, which started more than 30 years ago, is considered the best tissue-based repair but it needs long learning curve, sophisticated, with recurrence rates less than 1% at Shouldice hospital and up to 15% in general surgical practice. This unacceptably high recurrence rates in non-specialist centers supports the view that the Shouldice technique does not fulfill the requirements of a universal surgical technique for **inguinal hernia repair** (8). The idea of using **prosthetic materials** is largely adopted by many surgeons with many accesses which may be open, minimally invasive non-laparoscopic (Kugel repair), or laparoscopic. Many advances in the prosthetic materials have emerged; whether a biosynthetic mesh will gain more ground for treatment of hernia is a question for the future. The idea of using a prosthetic material to induce fibrosis and avoiding use the weakened tissue of the locality, is interesting but it has its drawbacks such as: cost, infection, and making a static entity rather a dynamic one, in addition data are rising about the possible impairment of **testicular and sexual function after mesh implantation**(9). So, the search still continues for the optimum surgery for the treatment of recurrent hernia which should introduce a technique with low costs, low rates of re-recurrence and other complications even in the hands of general surgeons operating at smaller or district level general hospitals, easy to learn and does not necessitate a long learning curve, and also enables early

return to every day activity. We believe that the Desarda technique may be a step in the right track for such an ideal technique.

CONCLUSION

Successful recurrent **inguinal hernia** treatment without mesh **implantation** can be achieved using Desarda repair as it is effective as the standard Lichtenstein procedure. Desarda repair is a simple and straightforward procedure with no complexity involved in the tissue dissection and repair. Shorter operating time, early return to normal gait and lower cost (no mesh) are potential benefits of Desarda repair.

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