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KEYWORDS: Primary Inguinal hernia, Desarda repair, Lichtenstein repair Mesh repair, Tissue based repair, Shouldice technique, pure tissue repair.

EVALUATION OF HERNIOPLASTY DONE BY DESARDA TECHNIQUE

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ABSTRACT

INTRODUCTION: It is estimated that 5 percent of the population will develop an abdominal wall hernia and of these, 75 percent are inguinal hernias. Men are 25 times more likely to develop an inguinal hernia than are women. The right side is affected more commonly than the left(1).Inguinal hernia repair is one of the most common treatable surgical procedures and several different surgical techniques are available .Open inguinal hernia repair is done by two methods. The conventional method uses a prosthetic mesh for strengthening the defect but has been associated with complications. Another new method uses a strip of the external oblique aponeurosis to do the same. **AIMS AND OBJECTIVES:** Our purposes to follow up 232 cases repaired by desarda technique. And this technique is as good as mesh repair, and sometimes better in terms of early recovery , post operative pain, recurrence rate and cost effective. **MATERIAL AND METHODS:** The study was a retrospective in small town at Malda , conducted for last five years from April 2014 to March 2020. The data was collected from the register of the General Surgery Operation theatre and Hospital files and from private hospitals.194 cases was elective and rest was obstructed or strangulated hernia. **RESULTS:** Until date, no recurrence found and postoperative pain was minimal.

INTRODUCTION

The word "hernia" derived from a Latin term meaning "a rupture."An inguinal hernia is a protrusion of the contents of the abdominal cavity or pre peritoneal fat through a hernia defect in the inguinal area. The incidence and prevalence of inguinal hernia are not precisely known. The chance of a person having to undergo an inguinal hernia operation during his/her life is quiet high, 27% in men and 3% in women (2).

Early on, it was acknowledge that there was a need to reinforce the abdominal wall and it has been proven that, in the general treatment of inguinal hernias, there is a need for some kind of mesh to minimize the risk of recurrence [3]. Surgeons are seeking the optimal mesh, location, and method of placement. Two methods are currently dominating, one being the open anterior approach, the Lichtenstein repair, and the other being the posterior approach, the laparoscopic repair. European hernia society published guidelines in 2009 for hernia repair. They recommended Lichtenstein or laparoscopic methods for repair of primary inguinal hernia in adult males. The Shouldice repair technique is considered best among the non-mesh repair techniques with strength of recommendation level 1A. The Shouldice technique offers a recurrence rate ranging from 0.7 to 1.7% up to 15% depending on experience. The Lichtenstein method is currently the most popular open mesh repair technique with recurrence rates of around 4% in long term follow up.

Lichtenstein method uses mesh implantation which has shortcomings like chronic groin pain, foreign body sensations, abdominal wall stiffness, surgical site infection , which interferes with daily patient activities. Additionally problems like those that mesh migration, mesh rejection, sexual dysfunction leading to pain and impairment of sexual activity has been reported after the mesh based hernia repair technique [4].

The benchmarks against which a successful hernia surgery is evaluated are recurrence rate, rate of complications, simplicity to be performed by surgeons in training, low cost and time taken to return to normal activities.

DESARDA'S NO MESH REPAIR: This is pure tissue repair that resembles the Lichtenstein mesh repair in its simplicity. Desarda repair is based on the concept of providing a strong, mobile, and physiologically dynamic posterior wall.

AIMS AND OBJECTIVE

Aim of the study was to see the result of effectiveness of Deserda method. According to Desarda inguinal hernia repair should be based on physiological principle and not on anatomical principle to give the best results. Posterior wall of inguinal canal through which herniation takes place is not formed by transversalis fascia but is formed by the transversus abdominis aponeurosis, an aponeurotic sheet. If this sheet is absent or deficient then only hernia, formation takes place. Replacing this absent or deficient aponeurotic sheet with a strip from the adjacent external oblique aponeurosis to give long lasting cure from the inguinal hernia.

METHODS AND MATERIAL

We represent 232 male patients who underwent hernioplasty by Desarda method between April 2014 and March 2020, in the department of General Surgery, Malda Medical College and local private hospitals. Patients underwent both elective and emergency surgery. Informed consent was obtained from each patient before surgery. This Study was a Prospective Randomized Controlled Trial. Institutional Ethical Committee approved the Study.

INCLUSION CRITERIA:

Male inguinal hernia patients of age >18 years.

EXCLUSION CRITERIA:

Exclusion criteria were patients <18 years and >80 years;
Patients unable to interpret VAS or give consent.
Patients with infection in the inguinal region or epididymo-orchitis.
Recurrent hernia with history of mesh hernioplasty.
194 were elective and 38 cases were acute emergency patients. Hernias in 66 cases were direct, 166 indirect. Among elective cases, 5 patients had bilateral hernia. Right sided hernia was139 and rest was

left sided. In all five cases of bilateral hernia hernioplasty done by Desarda bilaterally. 12 elective patients had recurrent hernia. There were 13 scrotal hernias, 4 sliding hernia.

In 38 acute cases, there was acute intestinal obstruction. Intestinal resection with end-to-end anastomosis performed in nine cases. Seven cases required general anaesthesia in emergency procedure, 31 cases performed under spinal anaesthesia.

In elective cases 152 cases performed under spinal anaesthesia, 42 cases were under local anaesthesia.

Clinical characteristic of primary inguinal hernia.

Character of Hernia					
1) Site					
	Right	**139**	**Left**	**93**	
2) Type					
A)	**Direct**	**66**	**Indirect**	**166**	
B) Combined					
(Direct +Indirect)					**5**
B)		**Reducible**	**198**	**Irreducible**	**34**
C) Obstructed					**38**
3) Content of hernia sac					
A) Omentum	**105**	**Bowel**	**95**		
B) Both omentum and bowel					**28**
C) Urinary bladder and					
large gut 4					

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

The age of patients was from 18 to 70 years. 43 patients were aged 60 and over. Among these 36 patients had severe co-morbidity of circulatory, respiratory and /or other diseases.

89 patients had history of smoking.

Table I – Elderly and senile patients co morbidity

Co morbidity	Number of patients
Diabetes mellitus	26
Hypertension	76
Cardiac ischemia	15
Chronic obstructive Pulmonary disease (COPD)	34

165 patients had more than 2 years history, while 67 had less than 2 years.6 patients had paresthesia and numbness in inguino scrotal region before our operation in recurrent hernia.

Patient were explained visual analogue scale (VAS), written and informed consent was obtained and were kept fasting of minimum 4 hrs for solid and 2 hours for liquid, prior to procedure.

Inguinal region prepared by shaving just before surgery, Inj. Ceftriaxone 1 gm was given 1 hour prior to incision and spinal anaesthesia was given under monitoring by Anaesthetist. After the induction of anaesthesia, site was painted by 10% betadine solution and draped with sterile sheets.

Operative Technique;-

The Desarda hernia repair described in 2001, and it consists of a mesh-free repair utilizing a strip of external oblique aponeurosis.

An oblique skin incision made, and dissection carried down to the external oblique fascia. The integrity of the fascia is preserve as much as possible. The cremasteric muscle then incised, and the spermatic cord along with the cremasteric muscle separated from the inguinal floor. Excision of the sac done in all cases except in small direct hernias, where it is inverted .The upper leaf of the external oblique aponeurosis is sutured to the inguinal ligament from the pubic tubercle to the abdominal ring using 1–0 Prolene interrupted sutures.

The first two sutures taken at the junction of the anterior rectus sheath, and EOA. The last suture is taken to sufficiently narrow the deep inguinal ring without constricting the spermatic cord. Each suture passed first through the inguinal ligament, then the transversalis fascia, and then the EOA. The index finger of the left hand used to protect the femoral vessels and retract the cord structures laterally while taking lateral sutures. A splitting incision then taken in the EOA, partially separating a strip. This splitting incision is extending medially up to the pubic symphysis and laterally 1 to 2 cm beyond the reconstructed abdominal ring.

The free border of the strip of the EOA now sutured to the internal oblique or conjoined tendon lying close to it with1–0 Prolene interrupted sutures. This is followed by closure of the superficial fascia and the skin as usual (5,6).

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. 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.

Overall follow up period was 2 years postoperatively. The follow-up assessments were performed at 1st and 2nd postoperative weeks by examining the patient in **the outpatient** clinic. Follow-up completed later at 1, 6, 12, and 24 months. On follow up visits, hernia recurrence and postoperative complications ,assessed by physical examinations. The extent of **numbness** or paraesthesia in the operative field, in the groin or towards the **scrotum** assessed concerning the **dermatomes** of the iliohypogastric and ilioinguinal nerves to detect possible nerve damage. Time to return to normal gait, calculated by the time needed to walk comfortably and move freely after surgery. Time to return to work calculated by time, needed to return to previous performed activities without pain.

RESULTS

226 patients were included in the study after screening and 6 were lost on follow up.

Meta-analysis :

A). The operating time; B). The return to normal gait; C). The pain score (7th day after surgery); D). The pain score (30th day after surgery).

Operative time (In minutes) (35 ± 5) minutes

Postoperative parameters:

Post-operative pain (average VAS)

Pain on 2nd day (2.31 ±.54), Pain at 1 week (.27 ±.44), Pain at 1 month (.01 ±.10)

No 0f patient had Early complications (<30 days)

A) Fever- 7 B) Cord edema- 11 C) Seroma -11 D) Surgical site infection-14

Most of this complication was in acute cases)

No. of patients having pain at 1 month – 17(mild pain treated with NSAID)

Incidence of local hypoesthesia along ilioinguinal-7 apart from 6 of recurrent hernia.

Incidence of foreign body sensation - none

Incidence of chronic pain- 9(mainly discomfort needed only reassurance)

Cord and testicular

a) Hematoma -4, b) Ischemic orchitis-2, c) Testicular atrophy-0, d) Dysejaculation-3
e) Division of vas deferens-0, f) Hydrocele-4

Hematoma

a) Wound - 6 , b) Scrotal - 5

Bladder injury - none

Osteitis pubis - 1

Day to return to normal gait - 1	

Return to normal activity (in days) - 12 ± 1
Recurrence - none

DISCUSSION

Surgical repair of the inguinal hernia is the most common general surgery procedure performed today (7). The successful surgical repair of inguinal hernia depends on a tension free closure of hernia defect to attain the lowest possible recurrence rate . Among tissue repairs, the Shouldice operation is the most commonly performed technique, and it is most frequently executed at specialized centers. In experienced hands, the overall recurrence rate for the Shouldice repair is about 1%. Although it is an elegant procedure, its meticulous nature requires significant technical expertise to achieve favorable outcomes, and it is associated with longer operative duration and longer hospital stay. One study found the recurrence rate for Shouldice repairs decreased from 9.4% to 2.5% after surgeons performed the repair six times. Compared with mesh repairs, the Shouldice technique resulted in significantly higher rates of recurrence.

Hernia recurrence drastically reduced because of the Lichtenstein tension-free repair. The Stoppa technique results in longer operative duration than the Lichtenstein technique. Nevertheless, postoperative acute pain, chronic pain, and recurrence rates are similar between the two methods.

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. 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 [2, 12]. . 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. . We believe that the Desarda technique may be a step in the right track for such an ideal technique.

CONCLUSION

The results of inguinal hernia treatment with the Desarda technique are similar to the results after standard Lichtenstein operations. Desarda technique does not use a mesh. Patients after Desarda's operative procedure get ambulatory sooner as compared to the standard Lichtenstein mesh repair. Less Postoperative pain, complications similar to standardised technique. Desarda technique has the potential to enlarge the number of tissue-based methods available to treat groin hernias.

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