# My experience with a new method of inguinal hernia repair described by Dr M.P. Desarda

**Author:**

Dr Ghosh A, MBBS; DNB (General Surgery)

**Affiliations:**

Junior Consultant, Poona Hospital and Research Centre, Pune-411030

**Address for correspondence:**

B4 / 201, Silver Oak,

Kalyaninagar, Pune-411 014.

India.

**Telephone number:** +91 9860827552

**Email address:** leo_abhishek@indiatimes.com

## Abstract

The Lichtenstein inguinal hernia repair though widely practiced has its drawbacks and complications. This necessitates the introduction of a new technique of hernia repair with reduced complication rates. The author came across this new technique of open inguinal hernia repair which is without mesh, easy to learn and has excellent results. The author describes his experience with this technique in 150 patients.

Methods: This is a prospective study of 150 patients having 161 hernias operated by this new technique during a period from February 2003 to January 2006. A strip of the external oblique aponeurosis, without detaching its insertion and keeping its continuity intact, is sutured between the inguinal ligament and the muscle arch to form the new posterior wall. Data of hospital stay, complications, ambulation and pain were recorded. Follow up was done till March 2008.

Results: 138 patients (92%) were followed up for a mean period of 42 months (Range 26 to 62 months). There were no intra operative complications. 99% patients were ambulated within 6 hrs after surgery and 96% attained full ambulation within 18 to 24 hours. All patients returned to work within 6 to 14 days with a mean of 9.22+/-1.37 days. The mean stay of the patients was 1.12+/-0.65 days. There were only 9 (6%) minor complications. There was no recurrence or incidence of chronic groin pain.

Conclusions: The results of this study correlate well with the original author's publications and compares favourably with the international studies on open mesh repair. The excellent results and the simplicity of this new pure tissue hernia repair technique make this a safe and reliable technique for all groin hernias. This seems to be an attractive alternative to the mesh repair.


Key words: Inguinal hernia, open repair, new method of hernia repair.

## Introduction

Inguinal hernia repair is one of the most common surgical procedures performed in the world. Improved surgical techniques and a better understanding of the anatomy and physiology of the inguinal canal have significantly improved outcomes for many patients. These improvements have occurred most notably in centers specializing in hernia surgery, with some institutions reporting failure rates of less than 1% [1, 2]. In contrast, failure rates for general surgeons without expertise in hernia surgery, who perform most hernia repairs at secondary or tertiary level general hospitals, remain significantly higher (up to 10% for primary hernias and 5% to 35% for recurrent hernias). [3] This has important socioeconomic implications, adding an enormous cost of treating the recurrences, which runs into billions of dollars.

The recurrence rate of the operation, complications including chronic groin pain, cost, and time taken to return to normal activities are the benchmarks against which the success of any hernia surgery is evaluated. The search for a method that accomplishes all the above goals perfectly, preferably without insertion of any foreign body like mesh, continues. It is this quest for a better surgery, which will give excellent results even when performed by a novice general surgeon that led the author to this new method of hernia repair described by Dr Desarda. [4]

The present study reports the author's experience with this new method of inguinal hernia repair in 150 patients having 161 hernias, operated from February 2003 to January 2006 and the patients were followed up till March 2008.

## Methods

This is a prospective study of 150 patients with 161 inguinal hernias repaired by this new technique from February 2003 to January 2006. Patients were between 23 to 86 years of age with mean age of 53.9+/-12.82 years. All patients were operated under spinal or local anesthesia. Exclusion criteria included associated surgical pathologies where the patient was getting operated for both conditions at the same time. An IV antibiotic was administered intra operatively in all cases. No further antibiotic doses were given and analgesics were given on demand. Patients were kept fasting for 4 hours after the procedure. Patients were encouraged to ambulate immediately after 5-6 hours and return to work as soon as possible within limits of their tolerance.

The patients were evaluated during their stay in the hospital. The data regarding hospital stay, pain, ambulation and complications recorded during operation or the hospital stay was collected. Pain was measured using the VAS scale with 0-30mm being mild pain, 31-60mm -moderate pain, 61-90 -severe pain and 91-100 - excruciating pain. Limited ambulation was taken as movements inside the room, free movements as movements out side the room and no movements where bed rest was advised. The OPD follow up schedule was explained to the patient at the time of discharge. On discharge, they were requested to attend the OPD after 8 days for suture removal, then, after one month, three months and then yearly. At each assessment, the patients were evaluated in detail and the data recorded. At the end of the study, the entire data was collated and analyzed. 12 patients who were lost in follow up were called back to the clinic for examination but they did not turn up. Thus, 138 patients (92%) were followed up for a mean period of 42 months

(Range 26 to 62 months). Appearance of a bulge with cough impulse was treated as recurrence. The operative technique of this new repair was followed as described by Dr Desarda MP [4].

**Operation technique (Dr.Desarda's repair):** [4] Skin and fascia are incised through a regular oblique inguinal incision to expose the external oblique aponeurosis. The thin, filmy fascial layer covering it is kept undisturbed as far as possible. The external oblique is cut in line with the upper crux of the superficial ring. The sac is excised in indirect hernias whereas in direct hernias it is inverted. The upper leaf of the external oblique aponeurosis is sutured with the inguinal ligament from the pubic tubercle to the abdominal ring using No 1 Polydiaxone continuous sutures. The first two sutures are taken in the anterior rectus sheath where it joins the external oblique aponeurosis. The last suture is taken so as to narrow the abdominal ring sufficiently without constricting the spermatic cord. Each suture is passed first through the inguinal ligament, then the transversalis fascia, and then the external oblique. (Figure 1)

A splitting incision is made in this sutured medial leaf, partially separating a strip with a width of 1.5 -2 cms. This splitting incision is extended medially up to the pubic symphisis and laterally 1–2 cms beyond the abdominal ring. The medial insertion and lateral continuation of this strip is kept intact. The upper free border of the strip is now sutured to the internal oblique or conjoined muscle lying close to it with No 1 Polydiaxone sutures throughout its length. The aponeurotic portion of the internal oblique muscle is used for suturing to this strip whenever possible. This will result in the strip of the external oblique being placed behind the cord to form a new posterior wall of the inguinal canal. (Figure 2)

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, as usual, again using No 1 Polydiaxone continuous sutures. Undermining of the newly formed medial leaf on both of its surfaces facilitate its approximation to the lateral leaf. This is followed by closure of the superficial fascia and the skin as usual.

## Results

Out of 150 patients, 75 had right, 64 left, and 11 bilateral hernias making a total of 161 hernias. 63 of these hernias were direct, 81 indirect, and 17 pantaloons. Out of the 161 hernias 9 were recurrent and 3 obstructed. The mean age of the patients was 53.9+/-12.82 years (range 23-86years). 96 patients were operated under SA while 64 were operated under LA. The mean operating time was 28.5 minutes +/-12.57min. There was no intra operative complication. 148(99%) patients were ambulated within 6 hrs after surgery and 144(96%) were fully mobile within 18 to 24 hours after surgery. All patients returned to work within 6 to 14 days with a mean of 9.22+/-1.37 days. The mean stay of the patients was 1.12+/-0.65 days. Postoperative pain was described as mild by 144 of the 150 patients on day one. Analgesics were given on demand and 64 patients required oral analgesics (Tab. Diclofanac 50 mg twice a day) for two days. The quantum of pain reduced significantly and most patients complained of a slight discomfort rather than any pain by day 3. No patient had discomfort for more than 15 days after this repair. There was no recurrence or long-term complication seen. Only 6 patients (4%) had transient wound edema and 3 patients (2%) had seroma which settled without intervention. There were no patients with chronic groin pain.

.

## Discussion

Inguinal hernia is a very common condition afflicting mankind. The management of inguinal hernia has proved to be a challenge to surgeons all around the world. Newer techniques are developed as the complication rate of older ones become unacceptable.

The Lichtenstein technique and its modifications have become the most popular and frequently performed surgery but complications and recurrence continue to plague this repair. Various methods of mesh repair were devised to minimize recurrence and complications but to no avail. There is a high incidence of chronic groin pain following hernia repair in the range of 28.7% [5] to 43.3%. [6] The groin being a mobile area, there is a tendency for the mesh to fold, wrinkle, or curl. The slightest movement of the mesh from the sutured area is a leading cause of failure of mesh repair of inguinal hernias [7]. There is also a concern of mesh rejection, mesh migration and infection. Chronic groin sepsis after mesh repair is more common than previously reported and complete removal of mesh is required to treat it [8].

There is also a concern about the possible damage to spermatic cord following mesh repair. A study in the Journal of Urology [9] has reported: ”Half of the testicles had gross abnormalities after mesh repair versus none in the control and Shouldice dogs. Although all vasograms were patent, vasal luminal size was significantly decreased with a marked soft tissue foreign body reaction identified after mesh repair. A traumatic neuroma was identified suggesting nerve entrapment in the fibrotic mesh reaction, which may account for post-operative pain seen in some patients. Marlex [TM] mesh may adversely affect spermatic cord structure and function.”

Laparoscopic hernia repairs increase the cost [10], are technically complex and have a long learning curve. [11]

The open non-mesh techniques also have their own limitations. The Shouldice technique, which is considered the gold standard in open non-mesh techniques, has recurrence rates of 1-4% in specialized centres. [12,13] But the long learning curve, the risky dissection of the inguinal canal and the lack of experience makes these figures unattainable for the general surgeon practicing outside these specialized centres.[14]

In this context this new method is easy to learn and perform, does not need risky dissection, has minimal complication and recurrence rates and does not use any foreign body. In addition it does not need any specialized instruments or general anaesthesia and therefore saves on cost too.

This new method of hernia repair described by Dr Desarda is based on physiological principles rather than anatomical principles seen in the mesh repairs. The posterior wall of the canal is made up of the transversalis fascia, which is strengthened medially by the falx inguinalis and more laterally by the transversus abdominis arch and its aponeurotic extensions. These aponeurotic extensions are absent or deficient in 53% of the population [15]. Strong musculo-aponeurotic structures around the inguinal canal still give protection to prevent the herniation in such individuals. This protection is lost if those muscles are weak. The weak and physiologically adynamic posterior wall of inguinal canal in such individuals leads to hernia formation. [4] The strip of external oblique aponeurosis in this new technique provides the aponeurotic cover to the transversalis fascia of the posterior wall. The strip provides a new insertion to the weak and flabby internal oblique and transversus abdominis muscles that helps to improve their ability to shield against raised intra abdominal pressures.

Tension created in this strip is graded as per the force of muscle contractions. Stronger intra abdominal blows result in stronger abdominal muscle contractions and stronger muscle contractions result in increased tension in this strip to give graded protection. The strip or the suture line is without any tension at rest. Thus, a strong and physiologically dynamic posterior wall is prepared in this operation. [16]

Chronic groin pain is also a very common problem being encountered following groin hernia surgeries. In contrast, there was no incidence of chronic groin pain with the new method. Quality of life is a very important consideration after any surgery and the new method seems to score well on this count.

This technique of inguinal hernia repair is easy to learn and does not require complicated dissection. As the steps in this surgery are fixed there is very less scope for modification by individual surgeon. Hence even in the hand of junior surgeons this technique will prove to be very effective. The uniformly excellent results seen for this repair in centers all over the world confirms this fact. [4] In contrast, individual surgeons bring in a lot of modification in the Lichtenstein mesh repair (like using a smaller size mesh, or not overlapping the mesh over the tissues adequately, or cutting a large sized mesh into multiple pieces for different patients). This can be one of the reasons for the high recurrence rates and complications that are seen outside the specialist hernia centers with regards to mesh repair.

No foreign prosthetic material is used in this technique and hence it does not cause extensive fibrosis which is seen in mesh repair. The continuous absorbable suturing saves time and leave no foreign body inside the patient after repair. Moreover the new technique of hernia repair does not need any costly mesh or laparoscopic instruments. This makes this repair highly cost effective. This repair has no incidence

of chronic groin pain and recurrence hence it saves a huge amount of productive work-hours of the patients, translating into a huge saving for the economy.

As this new technique of inguinal hernia repair compares favorably with other methods of hernia repair in vogue, this technique needs to be evaluated more extensively. This method is currently under evaluation in many countries like Cuba, Poland, Ukraine, Albania, Brazil, Korea, Libya, Afghanistan, Russia, India, etc. and has given excellent results. [4]

**Mechanism of action:**[16] Contraction of the abdominal wall muscles pull this strip upwards and laterally against the fixed structures like inguinal ligament and pubic symphisis, creating tension above and laterally and turning the strip into a shield to prevent any herniation. The shielding action of the strip of EOA can be elegantly demonstrated on the operating table by asking the patient to cough. Second important factor that prevents hernia formation in the normal individuals is anterior-posterior compression of the inguinal canal caused by the external oblique aponeurosis compressing against the posterior wall. This compression is lost if the posterior wall is weak and flabby due to absent aponeurotic extension cover.[16] The strip of EOA sutured in this operation gives the aponeurotic cover to the posterior wall transversalis fascia again and restores this anterior-posterior compression effect during the raised intra-abdominal pressures (Fig.3 & 4). The contraction of the external oblique muscle pulls anterior aponeurosis and the posterior placed strip also, naturally compressing the inguinal canal.

**Conclusion:** The results of the new repair described by Dr Desarda look very promising. This repair does not use any foreign body and has minimal complications with no recurrence or chronic groin pain in our series. The continuous absorbable

suturing leaves no foreign body in side the patient after repair. This repair is easy to learn and is an attractive alternative to the standard methods of inguinal hernia repair.

## References

1. Gilbert AI. Inguinal hernia repair: biomaterials and suture less repair. Perspect Gen Surg. 1991; 2:113-129.

2. Gilbert AI. Suture less repair of inguinal hernia. Am J Surg. 1992; 163:331-335.

3. Nyhus LM, Condon RE. *Hernia.* 3rd ed. Lippincott; 1989:263-64

4. Desarda MP. Physiological repair of inguinal hernia: a new technique (a study of 860 patients). Hernia 2006; 10: 143-146.

5. Bay-Nielson M et al. Pain and functional impairment 1 year after inguinal herniorrhaphy nationwide study. Ann Surg 2001; 233:1-7.

6. Nienhuijs SW, van Oort I, Keemers-Gels ME, Strobbe LJA, Rosman C. Randomized clinical trial comparing PHS, mesh plug repair and Lichtenstein repair for open inguinal hernia repair. Br J Surg Jan 2005; Vol 92:33-38

7. Amid PK, Lichtenstein IL. Lichtenstein open tension free hernioplasty. In: Maddern GJ, Hiatt JR, Philips EH, eds. Hernia repair (open vs laparoscopic approaches). Edinburgh: Churchill Livingstone, 1997: 117-122.)

8. Taylor SG, O'Dwyer PJ. Chronic groin sepsis following tension - free inguinal hernioplasty. Br J Surg 1999; 86: 562 - 565.

9. Uzzo, Robert G; Lemack, Gary E; Morrissey, Kevin P; Goldstein, The effects of mesh bioprosthesis on spermatic cord structures. A preliminary report in a canine model. Journal of Urology.161 (4): 1344-1349, April 1999.

10. The MRC Lap Groin Hernia Trial Group Lancet 1999; 354:185-190

11. Lau H, Patil NG, Yuen WK, Lee F. Surg Endosc 2002; 16:1724-1728

12. Welsh DR.J, Alexander MAJ.The Shouldice repair. Surg Clin North Am 1993; 73:451-469

13. Devlin HB, Gillen PHA, Waxman BP, Mc Nay RA. Experience of Shouldice operation 1970-1982. Br J Surg; 73:123-124.

14 Danielson P, Isacson S, Hansen MV, Eur J Surg 1999:165:49-53.

15. Anson BJ, Morgan EH, McVay CB. Surgical anatomy of the inguinal region based upon a study of 500 body-halves. Surg Gynaecol Obstet. 1960; 111:707.

16. Desarda MP (2003) Surgical physiology of inguinal hernia repair-A study of 200 cases. BMC Surgery 3**:**2.

**Legends :**

Figure 1

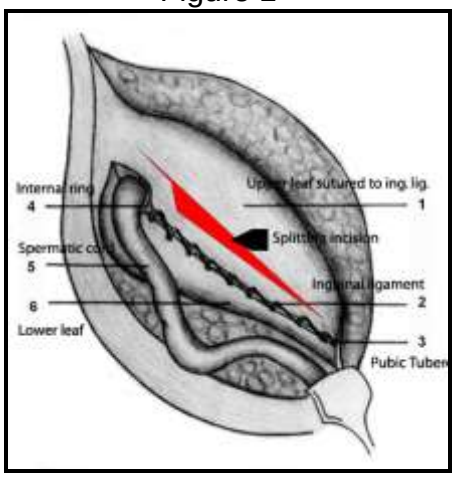


FIG. 1. The medial leaf of the external oblique aponeurosis is sutured to the inguinal ligament.1=Medial leaf; 2= Interrupted sutures taken to suture the medial leaf to the inguinal ligament; 3= Pubic tubercle; 4= Abdominal ring; 5=Spermatic cord; and 6= Lateral leaf.

Figure 2

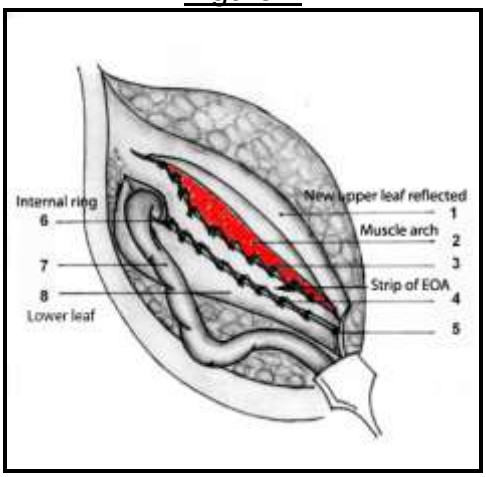


FIG. 2. Undetached strip of external oblique aponeurosis forming the posterior wall of inguinal canal.1=Reflected medial leaf after a strip has been separated; 2= Internal oblique muscle seen through the splitting incision made in the medial leaf; 3= Interrupted sutures between the upper border of the strip and conjoined muscle and internal oblique muscle; 4=Interrupted sutures between the lower border of the strip and the inguinal ligament; 5=Pubic tubercle; 6= Abdominal ring; 7=Spermatic cord; and 8= Lateral leaf.

Figure 3

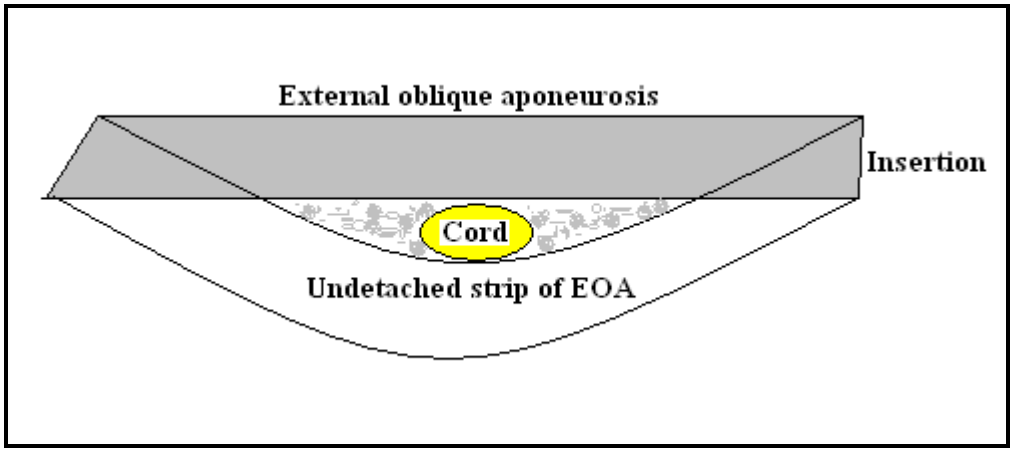


Figure 3. (At rest) External oblique aponeurosis is anterior and strip is posterior to the cord structures.

Figure 4

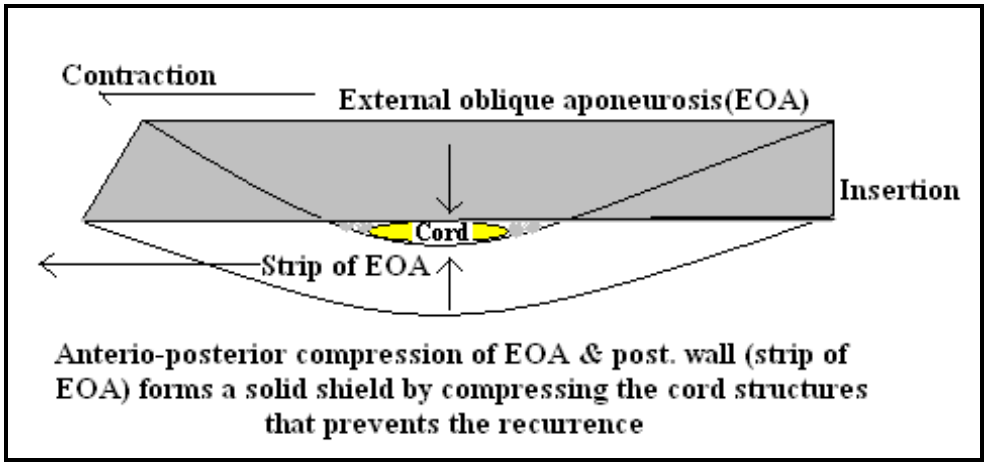


Figure 4. (During action) Anterior aponeurosis and posterior strip both try to come together during contraction causing anterior-posterior compression of the canal.