

Evaluation of Desarda's Technique in Inguinal Hernia**Chandra Mohan Sinha¹, Hari Shankar Prasad², Sumit Mishra³, Kashinath Pandit⁴,
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Abstract**Aim:** The aim of the present study was to evaluate the treatment of inguinal hernia with this method in terms of various operative and postoperative parameters.**Methods:** The present study included 200 patients, presented to depart of General Surgery for elective repair of uncomplicated inguinal hernia, for the period of 2 years. All patients admitted to the surgery department signed a written informed consent.**Results:** 164 patients (82%) had a right sided hernia while 36 patients (18%) had a left side one. 180 of them (90%) had oblique hernia while 20 patients (10%) had direct one. As regard to the operative time (calculated from skin incision to skin closure), it ranged from 30-70 minutes with a mean of (46.24 ± 12.48). Technical difficulties presented in 28 patients (14%). 12 patients were obese and needed longer time for dissection with an operative time reached 70 minutes, and 12 patients had an unclear anatomy. The overall operative time for these patients was 70 minutes. The surgeons were almost satisfied with the procedure (in 95% of the patients). Surgeons were unsatisfied in 10 cases (5%) earlier in the study as they were not so familiar with the new technique which took longer time than expected (5 minutes). The cremasteric muscle was cut in 15 patients (15%) for better positioning of the external oblique flap. The three nerves (ilio-inguinal, ilio-hypogastric and genital branch of genito-femoral nerve) were identified and preserved in 172 patients (86%). The iliohypogastric nerve was cut in 18 patients (9%), while clear identification of the 3 nerves failed in 10 patients (5%). In the present study, seroma, wound infection and hematoma complications were noted.**Conclusion:** Desarda's repair is easy to perform and is good in terms of postoperative pain, return to everyday activity and no foreign body sensation. Desarda technique could be indicated in young cases, infected surgical fields or in the presence of financial limitations or when patients refusing mesh or have a history of mesh rejection in another site.**Keywords:** Hernia; Inguinal; Desarda; Herniorrhaphy; Tension-Free.This is an Open Access article that uses a funding model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.**Introduction**

The word "hernia" is derived from a Latin term meaning "a rupture." [1] An inguinal hernia is a protrusion of the contents of the abdominal cavity or preperitoneal fat through a hernia defect in the inguinal area. [2] 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. [3-5] Surgery for inguinal hernia is one of the most common surgical procedures performed throughout the world. [6] From Bassini's repair to today's mesh-based open and laparoscopic repairs, this history parallels

closely the evolution in anatomical understanding and development of the techniques of general surgery. [7] Classical suture-based repairs described by Bassini, Shouldice, and McVay have the advantage of over permanent mesh repairs in that they do not introduce significant permanent foreign body material but require expertise to do a risky dissection of the inguinal floor. The recurrence rate after the procedure done by expert surgeons or done at specialized centers is less, but in the hands of an average or junior resident is high. [8]

Recently, mesh repair has become popular, but it has its own sets of complications like chronic pain, discomfort, mesh rejection and host reaction, infection, mesh migration, meshoma, foreign body sensations, and testicular atrophy. [9-12] Furthermore, mesh is readily not available in many parts of the world and is expensive. The benchmarks against which the success of any hernia surgery is evaluated are the recurrence rate of the operation, complications including chronic groin pain, cost, and time taken to return to normal activities. The search for a method that accomplishes all the above goals perfectly, preferably without the insertion of any foreign body such as mesh, continues. An example of such efforts is Desarda's method of repair of inguinal hernia, which is a new surgical option for tissue-based groin hernia repair. The result of this technique was promising, as were the results presented by other authors. [13-15]

The first self-reported results of M.P. Desarda were promising but based on a single surgeon's experience. [16] In the course of defining a true pure tissue method, Desarda used only long-term resorbable sutures. [17] Since then, his intuitive technique has been characterized by the use of only autologous external oblique fascia and long term absorbable sutures to stabilize the posterior inguinal wall in order to avoid chronic pain. This seems important, as numerous variations in inguinal hernia repair have been historically described and scientifically established, and even reinforcement strategies have used biological mesh material as pure tissue. [18,19]

The aim of the present study was to evaluate the treatment of inguinal hernia with this method in terms of various operative and postoperative parameters.

Materials and Methods

The present study included 200 patients, presented to Department of General Surgery, JLNMC, BHagalpur, Bihar, India for elective repair of uncomplicated inguinal hernia, for the period of 2 years. All patients admitted to the surgery department signed a written informed consent.

Inclusion criteria were: Age over 14 years, non-recurrent, uncomplicated inguinal hernia. Exclusion criteria were irreducible, strangulated or recurrent hernia, intra-operative non-fit criterion (an aponeurosis that was divided, tiny, and/or weak), patients at high risk for anaesthesia, class 4 and 5 according to physical status classification of the American Society of Anaesthesiologists (ASA), history for drug abuse, psychiatric illness, uncontrolled depression and suicidal attempt and patients unable to understand the questionnaire.

Surgical Techniques

Operations were carried out under spinal anaesthesia. Proper herniotomy was done by suturing the external oblique aponeurosis to the reflection of the inguinal ligament starting from the pubic tubercle till 2 cm behind the cord using polypropylene sutures, then incision is done in the external oblique aponeurosis 2.5-3 cm above the previous suture line leaving flap of external oblique aponeurosis in the floor of inguinal canal where its upper border is sutured to the conjoint tendon using continuous polypropylene sutures. Then, the cord contents are returned to their anatomic position. The external oblique aponeurosis is then re-approximated. Scarpa's fascia is closed with interrupted absorbable sutures. Lastly, skin is closed with subcuticular stitches. Wound was closed without insertion of a drain.

Data were analyzed using IBM SPSS software package version 20.0. Quantitative data were presented as mean and SD. Qualitative data were presented as number and percentage.

Results

Table 1: Patient details

Side affected	N	%
Right side	164	82
Left side	36	18
Type of hernia		
Oblique hernia	180	90
Direct one	20	10

164 patients (82%) had a right sided hernia while 36 patients (18%) had a left side one. 180 of them (90%) had oblique hernia while 20 patients (10%) had direct one.

Table 2: Comparison between the two studied groups according to the surgical technique

Technical difficulties	N	%
No	172	86
Yes	28	14
Causes for technical difficulties		
Not-yet- familiar with technique	12	6
Obese patient	12	6
Anatomy (unclear)	12	6
Surgeon Satisfaction		
Not Satisfied	10	5
Satisfied	190	95
Operative time (min)		
Min - Max	30.0 - 70.0	
Mean \pm SD	46.24 \pm 12.48	
Nerves		
Not Clear	10	5
Preserved	172	86
Cutting iliohypogastric	18	9
Cremasteric muscle		
Cut	28	14
Preserved	172	86

As regard to the operative time (calculated from skin incision to skin closure), it ranged from 30-70 minutes with a mean of (46.24 \pm 12.48). Technical difficulties presented in 28 patients (14%). 12 patients were obese and needed longer time for dissection with an operative time reached 70 minutes, and 12 patients had an unclear anatomy. The overall operative time for these patients was 70 minutes. The surgeons were almost satisfied with the procedure (in 95% of the patients). Surgeons were unsatisfied in 10 cases (5%) earlier in the

study as they were not so familiar with the new technique which took longer time than expected (5 minutes). The cremasteric muscle was cut in 15 patients (15%) for better positioning of the external oblique flap. The three nerves (ilio-inguinal, iliohypogastric and genital branch of genito-femoral nerve) were identified and preserved in 172 patients (86%). The iliohypogastric nerve was cut in 18 patients (9%), while clear identification of the 3 nerves failed in 10 patients (5%).

Table 3: Postoperative complications

Postoperative complications	N%
Seroma	10 (5%)
Wound Infection	8 (4%)
Hematoma	6 (3%)
Orchitis	0
Testicular Atrophy	0
Recurrence	0
F.B. sensation	0

In the present study, seroma, wound infection and hematoma complications were noted.

Discussion

Inguinal hernia is a common problem for which mesh based repairs is the treatment of choice. Lichtenstein repair is considered the gold standard. However, it has its own limitation such as foreign body sensation, wound infection, cord fibrosis, chronic pain, etc. [20] Desarda's technique for repair of inguinal hernia is new technique characterised by its low-cost, low recurrence rate and feasibility. [21] Desarda suggested that, this repair method achieves the principle of "no-tension" presented by Lichtenstein. The strip is

moved from the anterior to the posterior wall of the inguinal canal without tension on the posterior wall. The concept of an undetached, movable aponeurotic strip that "physiologically" enforces the posterior wall of the inguinal canal is original and interesting. [22] The expenses of inguinal hernia management are not insignificant, especially in developing countries in Asia or Africa. A great advantage of Desarda's technique is its low cost.

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ranged from 30-70 minutes with a mean of (46.24 ± 12.48) . Technical difficulties presented in 28 patients (14%). 12 patients were obese and needed longer time for dissection with an operative time reached 70 minutes, and 12 patients had an unclear anatomy. The overall operative time for these patients was 70 minutes. The surgeons were almost satisfied with the procedure (in 95% of the patients). Surgeons were unsatisfied in 10 cases (5%) earlier in the study as they were not so familiar with the new technique which took longer time than expected (5 minutes). In a study by Szopinski et al., a total of 208 male patients were randomly assigned to the D or L group (105 vs. 103, respectively). The primary outcomes measured were recurrence and chronic pain. During the follow-up, two recurrences were observed in each group ($p = 1.000$). Chronic pain was experienced by 4.8 and 2.9% of patients from groups D and L, respectively ($p = 0.464$). Foreign body sensation and return to activity were not different between the groups. There was significantly less seroma production in the D group ($p = 0.004$). [23]

The Desarda technique for inguinal hernia repair is a new tissue-based method and is different from the historical methods using the external oblique aponeurosis, proposed initially by McArthur and Andrews or Zimmermann. [24,25] Desarda's repair can routinely be done under local or regional anesthesia, is easy to do and learn, avoids the insertion of any foreign body, has minimal complications with no recurrence of hernia or chronic groin pain, and gives results equivalent to those reported for mesh repair. The time taken by the patients to resume their routine work is usually less than routine mesh repair owing to less post-operative pain experienced by them. Desarda's repair provides a strong and physiologically active posterior wall. The transversalis fascia acts as a barrier to prevent hernia simply because it is supported in the posterior wall of the inguinal canal by aponeurotic extensions from the muscle arch. The additional strength given by the external oblique muscle to the weakened conjoined muscle to create tension in the strip and prevent re-herniation and is the essence of this operation. As we know that aging process is least in the tendons and aponeurosis, so a strip of the external oblique, which is tendo-aponeurotic, is the best alternative to the mesh or Shouldice repairs. [26]

The cremasteric muscle was cut in 15 patients (15%) for better positioning of the external oblique flap. The three nerves (ilio-inguinal, ilio-hypogastric and genital branch of genito-femoral nerve) were identified and preserved in 172 patients (86%). The iliohypogastric nerve was cut in 18 patients (9%), while clear identification of the 3 nerves failed in 10 patients (5%). In the present

study, seroma, wound infection and hematoma complications were noted. This is a simple operation to do, does not require prosthesis or complicated dissection of the inguinal canal compared to Bassini and Shouldice. Desarda method represents an alternative of other methods widely adopted today. This repair has the potential to become the gold standard of hernia repair in the future.

Conclusion

Desarda's repair is easy to perform and is good in terms of postoperative pain, return to everyday activity and no foreign body sensation. Desarda technique could be indicated in young cases, infected surgical fields or in the presence of financial limitations or when patients refusing mesh or have a history of mesh rejection in another site.

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