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Original Research Article

A Study On Desarda Versus Lichenstein Technique For Inguinal Hernia Treatment

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Abstract

Suture repair for inguinal hernia is still under development, and recently, desarda as described an operation where a 1-2 cm strip of external oblique aponeurosis lying over the inguinal canal is isolated from the main muscle but attached both medially and laterally. It is then sutured to the conjoint tendon and inguinal ligament, reinforcing the posterior wall of inguinal canal. As the abdominal muscle contract, this strip of aponeurosis tightens to have further physiological support to the posterior wall. Patients underwent necessary investigations including blood routine including Heamoglobin, Total count, Differential count, Erythrocite sedimentation rate, Platelet count, Bleeding time, Cloting time and Biochemical routine including Blood Urea, Serum creatinine, Serum electrolyte and urine analysis. Chest Xray and Electrocardiography. Any other investigations was done if required based on history and other complaints. Among the postoperative complications encountered in the present study seroma rate was roughly similar in both groups.

Keywords: Desarda, lichenstein technique, inguinal hernia treatment

Introduction

The surgical treatment of inguinal hernias has evolved through several stages to reach a modern and successful era. It has been said that the history of groin hernias is the history of surgery itself.[1] hernia repair is one of the most commonly performed general surgical procedures worldwide.[2] since the time bassini described his technique the search for an ideal inguinal hernia repair is still on. An ideal inguinal hernia repair should be tension free, tissue based, with no potential damage to vital structures, no long term pain or complications and no recurrences [1].

Other tissue repairs like modified bassini, iliotibial tract repair, shouldice, nylon darn, halsted-taner, McVay and many others either require good surgical experience or are tension repairs with recurrences [2].

Shouldice method which closely compairs with the mesh repair rarely used probably because of complexity involved in tissue dissection and repair. Recurrences vary from surgeon to

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surgeon centre to centre owing to complexity of procedures [3].
Though lichenstein prosthetic repair using prolene mesh has being popular lately it is not a tissue based repair and hence cannot be considered ideal. Though this method of hernia repair is simple and safe, at the slightest moment of the mesh from the sutured area is leading cause of failure of mesh repair of inguinal hernias. Mesh works as a mechanical barrier. Does not give mobile and physiologically dynamic posterior wall [3]. Moreover this technique is associated with chronic groin pain and testicular atrophy and infertility [4].
Suture repair for inguinal hernia is still under development, and recently, desarda as described an operation where a 1-2 cm strip of external oblique aponeurosis lying over the inguinal canal is isolated from the main muscle but attached both medially and laterally [5]. It is then sutured to the conjoint tendon and inguinal ligament, reinforcing the posterior wall of inguinal canal. As the abdominal muscle contract, this strip of aponeurosis tightens to have further physiological support to the posterior wall. This operation is currently being evaluated [6]. This new technique is theoretically closer to ideal hernia repair.it is based on the concept of providing a strong, mobile and physiologically dynamic posterior inguinal wall. The technique is simple, easy to learn and do. It does not require complicated dissection or suturing. There is no tension on suture line. It does not require any foreign material and does not use weakened muscles or transversalis fascia for repair. The results are superior to those previously published in the field of hernia surgery [7].
Success of groin hernia is measured primarily by permanence of operation, fewest complications, minimal cost, and earliest return to normal activities. To validate the use of Desarda's repair at large, its comparison to open mesh (lichenstein) – in these outcomes must be established. The purpose this study is to attempt to establish the influence of this new technique on early clinical outcomes of inguinal hernia repair, and limited study of long term outcomes. If proved to be effective it will be a basis for promotion of use globally [8].

Methodology

Patients underwent necessary investigations including blood routine including Heamoglobin, Total count, Differential count, Erythrocite sedimentation rate, Platelet count, Bleeding time, Cloting time and Biochemical routine including Blood Urea, Serum creatinine, Serum electrolyte and urine analysis. Chest Xray and Electrocardiography. Any other investigations was done if required based on history and other complaints.
Written informed consent was obtained from all the patient with detailed explanation of the procedure going to be performed on them the risks and complications involved and the advantages and disadvantages of the same.
All patients underwent procedures under spinal aneashthasia. In Lichtenstein hernioplasty a 6x18 cm polypropylene mesh made by same company was used in all cases. The mesh was 0.5 mm thick and has burst strength of approximately 14 kg/cm. polypropylene 1-0 was used to suture the mesh in place. In Desarda repair an un-detached strip of external oblique aponeurosis (EOA) is sutured to the inguinal ligament below and the muscle arch above, behind the cord,to form a new posterior wall using 1-0 polypropylene interrupted sutures.one dose of same antibiotic was given for all patients.
Operating time was measured as time of total procedure. The patients were followed up for postoperative pain which was evaluated using sheifield score, wound hematoma, wound seroma, wound infection and scrotal swelling. Time for free ambulation, postoperative stay and time to return to routine work was also documented.
Primary outcome is post-operative pain was calculated at post op 3rd,14th day,1month,3month by Sheffield scale for pain.0-no pain,1-no pain at rest but appears during movement,2-temporary pain at rest and modrrate during movement,3-constant pain at rest and sever during movement.
Patient was asked to fill a proforma detailing all the study aims and objectives.

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Study design

Single centre, single blind, Randomized two group comparative surgical study.

Sample size

Considering mean difference in time taken for surgery to be 8.8 minutes between D and L group with 95% CI and 80% power our sample size will be 30 in each group. Considering 10% nonresponse rate and 10% loss to follow up we will include 36 in each group. Sample size calculated using OpenEpi version 3.03.

Inclusion criteria

All cases of inguinal hernia admitted for surgery

1. Above 18 years of age.
2. With a primary, reducible inguinal or inguino-scrotal hernia; unilateral or bilateral or strangulated hernia.

Exclusion criteria
Patients with

1. Old and debilitated patients of poor general condition as they will be unable to give an accurate assessment of the key outcomes of the operation.
2. Recurrent Hernias.
3. Per operative finding of separated, thin and/or weak external oblique aponeurosis

Results

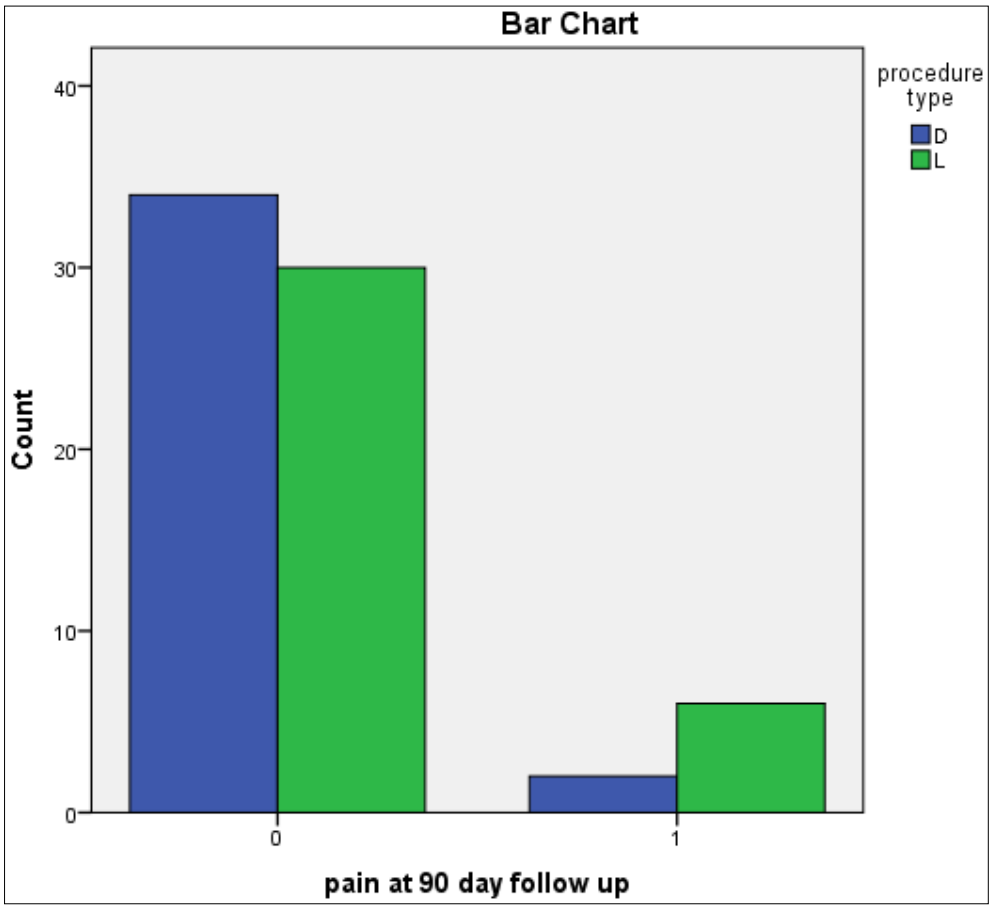

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Fig 1: Pain at 90th daty follow up

Table 1: Eryhema, cellulitis vs procedure type

			Procedure type		P value
			D	L	
Eryhema, cellulitis	Absent	Count	33	30	
		% within procedure type	91.7%	83.3%	0.23
	Present	Count	3	6	
		% within procedure type	8.3%	16.7%	
Total		Count	36	36	
		% within procedure type	100.0%	100.0%	

Table 2: Hematoma vs procedure type

			Procedure type		P value
			D	L	
Hematoma	No hematoma	Count	33	31	
		% within procedure type	91.7%	86.1%	
	Hematoma	Count	3	5	0.355
		% within procedure type	8.3%	13.9%	
Total		Count	36	36	
		% within procedure type	100.0%	100.0%	

Table 3: Seroma vs procedure type

			Procedure type		P value
			D	L	
Seroma	No seroma	Count	32	29	
		% within procedure type	88.9%	80.6%	0.25
	Seroma	Count	4	7	
		% within procedure type	11.1%	19.4%	
Total		Count	36	36	
		% within procedure type	100.0%	100.0%	

Table 4: Surgical site infection vs procedure type

			Procedure type		P value
			D	L	
Surgical site infection	No surgical site infection	Count	35	34	
		% within procedure type	97.2%	94.4%	0.5
	Surgical site infection	Count	1	2	
		% within procedure type	2.8%	5.6%	
Total		Count	36	36	
		% within procedure type	100.0%	100.0%	

Table 5: Testicular oedema vs procedure type

			Procedure type		P value
			D	L	
Testicular oedema	No testicular seroma	Count	33	32	
		% within procedure type	91.7%	88.9%	0.5
	Testicular seroma	Count	3	4	
		% within procedure type	8.3%	11.1%	
Total		Count	36	36	
		% within procedure type	100.0%	100.0%	

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Table 7: Foreign body sensation vs procedure type

			Procedure type		P value
			D	L	
Foreign body sensation	No forign body sensation	Count	30	18	
		% within procedure type	83.3%	50.0%	0.005
	Forign body sensation	Count	6	18	
		% within procedure type	16.7%	50.0%	
Total		Count	36	36	
		% within procedure type	100.0%	100.0%	

Discussion

Inguinal hernia is the most common surgical abdominal entity in the adults. In the past decade Lichtenstein repair has become the gold standard for treatment of inguinal hernias mainly due to the reduction in recurrences noted and due to the reproducibility of the procedure. It is used as blanket surgery for all types and sizes of inguinal of inguinal hernia with very few expectations. However thought it is practiced widely it is far from the definition of an ideal hernia repair as it is not tissue based and has complications likes chronic inguinal pain as quoted in an editorial in annuals of surgery in 2001 which observed that the incidence of chronic groin pain has dramatically increased from around 3% to nearly 19%. The Nerve entrapment within the mesh is often blamed for this consequence. Several other complications of mesh repair include hematoma, seroma, ischemic orchitis, testicular atrophy, mesh infection and sinus formation. Young patients especially those undergoing mesh repair for indirect hernias are affected mostly with a risk of infertility in future [9].

Hence a search for ideal hernia repair still underway and desarda's procedure might be the procedure satisfying procedure for an ideal hernia repair as it is tention free, tissue based and as per results of varies studies as less chronic groin pain than mesh repair as nerve entrapment does not occur. There is no risk of mesh infection as it uses an undetached strip of external oblique for repair. External oblique apponuerosis acts as a near perfect mess alternative as it was negligible foreign body reactions, causes no pathologic fibrosis, as low adhesion potential, as tensile strength >16N. Is of biological origin and matches the abdominal wall dynamics as closely as possible in flexibility, elasticity and memory as per the criteria let down by 30th international congress of European hernia society. This procedure if proved successful can be used extensively in all types of hernias where external oblique apponeurosis if well preserved [10].

Among the postoperative complications encountered in the present study seroma rate was roughly similar in both groups, however seroma rates were high compared to Szopinski J *et al*. at the same time scrotal swelling, hematoma rates and wound infections rates were lesser than the given study.

A mean time for painless ambulation in present study was in Lichtenstein's group and days in Desarda group while the mean duration of hospital stay was days and days respectively. The comparison of these parameters with others studies was not possible due to different operational definition of these variables in different studies. However a common trend of earlier mobilization [11].

After 6 months follow up the percentage of patients with chronic pain in Desarda group was at percent while that in Lichtenstein's group was at. Though the rates in Desarda group was not similar but in Szopinski J *et al*. it was lower than Lichtenstein's by nearly 10% after 3 years follow up. The number of recurrences though an insignificant number with a 6 months follow-up was similar to other studies. There was no statistically significant data regarding recurrence in the present study [12].

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Conclusion

Desarda's technique is best suited for young patients and for in direct Hernias as it has less risk of post-operative orchitis, testicular atrophy, infertility and inguinodynia.
The postoperative pain is lesser with Desarda's technique on all three postoperative days and patients ambulate faster and get discharged faster with this technique than with mesh repair.
The risk of complications is roughly equal in both the procedures, however Desarda's technique is inherently free of risk of mesh infection as no prosthesis is used.

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