



General Surgery

DESARDA TISSUE REPAIR VERSUS LICHTENSTEIN MESH REPAIR - A COMPARATIVE STUDY OF SURGICAL OUTCOMES IN PATIENTS OF INGUINAL HERNIA

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ABSTRACT **BACKGROUND AND OBJECTIVES:** The inguinal hernia is one of the most common problems in the world. An ideal hernia repair is still elusive. Currently Lichtenstein mesh repair technique is widely followed for hernia repair. Desarda technique of inguinal hernia repair was introduced in 2001 and is still not considered standard tissue based hernia repair technique. The aim of the study was to compare the tissue based Desarda technique with standard Lichtenstein repair in treatment of primary inguinal hernia. **METHODS:** 140 cases were allocated into 2 groups. Desarda (D Group) had 70 and Lichtenstein (M Group) had 70 patients. Primary outcome factors included operative time measured from skin incision to skin closure. Post operative pain scores was assessed on day using visual analogue scale. Duration of hospital stay was noted, hematoma, seroma, surgical site infections, foreign body sensation etc. were evaluated as postoperative complications. Patients were followed up regularly for a maximum period of 22 months. Early recurrence and chronic groin pain was assessed at 6 months. **RESULTS:** Mean age in desarda's group 53.61 years while Lichtenstein group was 52.1 years. The mean duration of surgery 34.6 min(D) vs 36.86 min(M). Duration of hospital stay was similar in both arms. There was no statistical difference in post operative pain reduction at 9 months however patients in Desarda repair arm had reduction in pain more earlier than mesh repair group. Statistical difference was seen in post operative infection as mesh removal was done in 14 patients in Lichtenstein group. After 22 month mean follow up period no recurrence was noted in each arm. **CONCLUSION:** On comparison of Desarda technique with standard Lichtenstein repair. Desarda technique does not use a mesh thus do not have a component of mesh infection. Patients after Desarda's operative procedure gets normal activity sooner as compared to the standard Lichtenstein mesh repair. We also found the use of Desarda technique in patients with inguinal hernia is a technically sound option than Lichtenstein technique.

KEYWORDS : Inguinal hernia, Lichtenstein mesh repair, Desarda's repair

INTRODUCTION

A hernia is an abnormal protrusion of an organ or tissue through a defect in its surrounding walls. Although a hernia can occur at various sites of the body, these defects most commonly involve the abdominal wall, particularly the inguinal region. Abdominal wall hernias occur only at sites at which the aponeurosis and fascia are not covered by striated muscle¹. Most of the patients of hernia present with pain or discomfort and groin swelling especially when intra abdominal pressure increases while coughing, exercising. Pain might get worse throughout the day and improve when lying down³.

Worldwide, inguinal hernia repair is one of the most common surgeries, performed on more than 20 million people annually. The first groin hernia surgeries were done during the end of the sixteenth century. They involved hernia sac reduction and resection and posterior wall reinforcement of the inguinal canal by approximating its muscular and fascial components. Subsequently, many hernia repair variants were introduced. Prosthetic material utilization commenced in the 1960s, initially only in elderly patients with recurrent inguinal hernias. Favorable long-term results of these mesh repairs encouraged adoption of mesh repair in younger patients. Presently, the majority of surgeons in the world favor mesh repair of inguinal hernias. Surgical treatment is successful in the majority of cases, but recurrences necessitate re-operations in 10–15% and long-term disability due to chronic pain (pain lasting longer than 3 months) occurs in 10–12% of patients.² According to European Hernia Society (EHS) guidelines published in 2009, mesh-based techniques, particularly the Lichtenstein technique and endoscopic methods are recommended for treatment of symptomatic primary inguinal hernia in adult men.² The Lichtenstein technique, introduced in 1984, is currently the best evaluated and most popular of different open mesh techniques with minimal peri-operative morbidity and low recurrence rates (4%) in the long term. In 2001 Dr Mohan P Desarda developed a new operation technique based on the physiological principle that provides dynamic posterior wall for inguinal hernia repair. This technique is based on the concept of providing a strong, mobile and physiologically dynamic posterior wall to the inguinal canal. An undetached strip of the 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. External oblique muscle gives additional strength to the weakened muscle arch to keep this strip physiologically dynamic⁴.



METHODOLOGY:

This was a prospective study which included 140 patients who underwent hernia surgery : patients admitted to the department of general surgery were thoroughly assessed pre-operatively and randomized by lottery system and allocated into two arms- group-D and group-L by a sealed envelope picked by the patient. D and L were planned to be operated by Desarda repair and Lichtenstein repair respectively.

INCLUSION CRITERIA: All male patients aged 18-70 years admitted in the Department of General Surgery at HIMSS Hassan, from August 2022 to March 2023 with primary unilateral or bilateral inguinal hernia will be included in the study.

EXCLUSION CRITERIA

- Aged less than 18 and more than 70 years
- Obese patients BMI > 30 kg/m²
- Patients with obstructed and strangulated inguinal hernia
- Giant inguino scrotal hernias
- Recurrent inguinal hernia
- Medically unfit - poorly controlled diabetes, chronic cough, COPD, active TB cases
- Obstructive uropathy
- ASA more than grade 3

Written informed consent were 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 and patient were given a choice of procedure they want to undergo.

Figure 1:EOA strip creationPost operative pain at 8, 24, 48 hours, 8th day one, three, six, nine and

twelfth month was assessed with visual analogue score(VAS) with 0 being no pain and 10 being the worst.

STATISTICAL ANALYSIS:

Data was collected and entered into Microsoft Excel sheet and then exported into SPSS data system for analysis. The baseline information was presented in tables. Categorical variables were reported as numbers and proportions. The proportions of outcomes of the two groups was compared using chi square test. Mean score between the two groups was compared using unpaired T- test. Source of data collection were adult males admitted in the department of general surgery to undergo hernia repair surgeries at Hassan Institute of Medical Sciences, Hassan .

RESULTS

Evaluation of all patients included in the study with respect to history, physical findings, operative findings and postoperative complications in line with the predetermined objectives was done. Thirty six patients underwent Desarda's repair and thirty six patients underwent Lichtenstein mesh repair. All the patients in both groups were monitored for a period of 6 months. The patients are followed up at monthly, three monthly and six monthly intervals for any complications or recurrence. Any recurrence of hernia or death of patient was regarded an end point.

Mean age in desarda's group 53.61 years while Lichtenstein group was 52.1 years .The mean duration of surgery 34.6 min(D) vs 36.86 min(M). Duration of hospital stay was similar in both arms. There was no statistical difference in post operative pain reduction at 9 months however patients in Desarda repair arm had reduction in pain more earlier than mesh repair group. Statistical difference was seen in post operative infection as mesh removal was done in 14 patients in Lichtenstein group. After 22 month mean follow up period no recurrence was noted in each arm .

DISCUSSION

Inguinal hernia is one of the most common surgical abdominal entities in adults. In past 10 years, Lichtenstein repair is practised as the gold standard for the treatment of patients with inguinal hernias mainly because of reduction in recurrence rates. It is used as a blanket surgery for all types inguinal hernia with very less expectations. However it is practiced widely it is far from the definition of an ideal hernia repair as it is not tissue based and has complications like 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%.⁸⁷ 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.

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 tension free, tissue based and as per results of various 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 undetached strip of external oblique for repair .External oblique aponeurosis acts as a near perfect mess alternative as it as negligible foreign body reactions, causes no pathologic fibrosis, has 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 aponeurosis if well preserved.

Mann-Whitney U					
	Sl no	N	Mean	Std. Deviation	
Post op pain BL	DESARDA	70	0.00	0.000	NA
	MESH	70	0.00	0.000	
At 8 hr	DESARDA	70	4.76	.751	0.732
	MESH	70	4.71	.725	
At 24 hr	DESARDA	70	5.43	.972	0.860
	MESH	70	5.46	.943	
At 48 hr	DESARDA	70	3.83	0.742	0.910
	MESH	70	3.81	0.748	

Pain 10 day	DESARDA	70	1.14	0.873	0.001*
	MESH	70	1.67	0.847	
Pain 20 day	DESARDA	70	0.37	0.543	0.009*
	MESH	70	0.67	0.775	
pain 1 month	DESARDA	70	0.01	0.120	<0.001*
	MESH	70	0.29	0.486	
pain 3 month	DESARDA	70	0.01	0.120	<0.001*
	MESH	70	0.23	0.423	
pain 6 month	DESARDA	70	0.01	0.120	0.016*
	MESH	70	0.11	0.320	
pain 9 month	DESARDA	70	0.00	0.000	0.007*
	MESH	70	0.10	0.302	
pain 12 month	DESARDA	70	0.00	0.000	0.013*
	MESH	70	0.09	0.282	
pain 15 month	DESARDA	70	0.00	0.000	0.081
	MESH	70	0.04	0.204	
pain 18 month	DESARDA	70	0.00	0.000	0.081
	MESH	70	0.04	.204	

CONCLUSIONS

Desarda's technique is relatively an easier technique to master and is easily reproducible. A thinned out external oblique aponeurosis poses a difficulty in performing the procedure.

Desarda's technique is best suited for young patients and for Indirect Hernias as it has less risk of post-operative orchitis, scrotal edema and inguinodynia.

The operating time for Desarda's procedure is lesser than that of Lichtenstein's Mesh repair overall by nearly 3mins.

The postoperative pain is lesser with Desarda's technique during postoperative follow up 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 but removal of mesh due to infection had a significant trouble.

There is a comparative difference in incidence of chronic pain-inguinodynia in Desarda's technique as compared to mesh placement as there is no risk of nerve entrapment.

The recurrence data in this study is insufficient to comment on the chances of recurrence in these patients. However other studies in this aspect prove that there is no significant difference between the procedures as far as recurrence is concerned.

Desarda's technique is definitely a promising procedure and has a lot of potential to replace mesh repair in certain conditions and is best suited for situations like strangulated hernias where mesh use is contraindicated.

More number of Randomized control trails and multicentre trials need to be undertaken to study the pros and cons of this procedure in future. Desarda's technique is a very reasonable alternative to mesh repair in many clinical situations.

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