

Study on the Outcomes of Desarda Repair in Inguinal Hernia Surgery

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ABSTRACT

BACKGROUND

Inguinal hernias are one of the commonest problems encountered by the treating physicians. Even though the learning curve for Lichtenstein hernioplasty is less, there is usage of a foreign body which may produce mesh reactions leading to various other surgical complications. Also the cost of the mesh is a little higher which may not be affordable for people belonging to low or very low socio-economic class especially in developing countries like India. Desarda's repair is a tissue based technique of hernia repair using an undetached strip of external oblique aponeurosis to strengthen the posterior wall of the inguinal canal.

METHODS

This is a hospital based cross sectional study. All patients admitted to the hospital with the diagnosis of inguinal hernia and fulfilling the inclusion criteria were counselled about the study. After obtaining informed written consent, all the study participants were subjected to a standard questionnaire both pre operatively and post operatively. Patients were followed up for a period of 6 months for assessing chronic postoperative pain, to record the post-op day on which they resumed their regular activity and the recurrence rate. Those participants who were unable to attend the review were contacted through the phone and questionnaire was completed.

RESULTS

A total of 165 patients was studied between Oct 2017 and May 2019. Mean operating time was found to be 44.63 ± 7.76 mins; the cost for surgery in 99.4% was between Rs. 1000-2000; 2.4% patients had developed seroma and only 1 person developed haematoma; none of the subjects had infection or recurrence; 77.6% had a pain score of 4 on POD 1, 96.4% had a pain score 2 on POD 2; mean duration of hospital stay was 4.9 ± 0.99 days; mean duration of resuming duty was 18.58 ± 3.43 days.

CONCLUSIONS

Desarda's technique is cost effective and therefore can be done in patients of all socio-economic classes. Our results in this study after Desarda repair are good and similar to the results of Lichtenstein or Shouldice techniques. Hence, Desarda method seems to be an attractive alternative. It is safe, fast, simple and easy to learn and perform with minimal complications or recurrence.

KEYWORDS

Inguinal Hernia, Hernioplasty, Desarda Repair, Cost Effective

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BACKGROUND

Inguinal hernias are one of the commonest problems encountered by the practicing physicians, which requires admission and surgery as treatment. 75% of all abdominal wall hernias are found in the groin of which 95% are hernias of the inguinal canal with the remainder being femoral hernias. Inguinal hernias have a male predominance with a male to female ratio of 9:1. The lifetime risk of a person developing a groin hernia is approximately 15% in males and less than 5% in females.¹ More than 6,00,000 hernias in the United States² and approximately 1,25,000 hernias in the United Kingdom are repaired annually. Although Indian data is not available despite literature and Medline search, the incidence of the abdominal wall hernias in different countries varies from 30-100/100000 population per year.³

There had been various surgical methods tried in the hernia repair over the centuries starting with Bassini's repair to the recent Lichtenstein tension free open hernia repair to laparoscopic hernia surgeries. According to European Hernia Society (EHS) guidelines published in 2009, mesh-based techniques, particularly the Lichtenstein technique and laparoscopic methods are recommended for treatment of symptomatic primary inguinal hernia in adults. The problem with these methods is that although the learning curve for Lichtenstein hernioplasty is less, there is the usage of a foreign body which may produce certain mesh reactions leading to various other surgical complications. Also the cost of the mesh is a little higher which may not be affordable for people belonging to low or very low socio-economic class especially in developing countries like India. The problem with laparoscopic repair is that, it needs a longer learning curve and that the instruments required for the surgery may not be available at all places. So ergonomically the laparoscopy has its own limitations. Desarda's repair is a tissue based technique of hernia repair using an undetached strip of external oblique aponeurosis to strengthen the posterior wall of the inguinal canal. The Desarda technique of non-mesh based or tissue based repair was described in 2001. This procedure is a simple procedure that can be done under any type of anaesthesia from general anaesthesia to local anaesthesia and has a lesser learning curve.

The cost of the surgery, duration of the surgery, post-operative pain, recurrence and chronic pain has been the challenge for various surgeons and patients which inhibit them from resuming back to work early.⁴ Our aim is to study the outcomes of patients undergoing inguinal hernia surgery by the Desarda technique in our hospital.

METHODS

This hospital based cross sectional study was conducted between October 2017 and May 2019. The primary objective of this study is to assess the outcomes of non-mesh based surgery (Desarda technique) for inguinal hernia by assessing the duration of surgery, direct cost for the surgical procedure, complication, chronic pain and recurrence in

patients undergoing inguinal hernia surgery in our hospital in the department of General Surgery. Sample size calculated to be 165 (n=165) using software OpenEpi version 3.01 for the population of Puducherry of 241, 773 with anticipated percentage of frequency as 50% and confidence level of 80%. All the patients above the age of 18 yrs. who were being admitted to the hospital with the Diagnosis of inguinal hernia were included in the study. Patient not willing to participate in the study, patient with complications such as obstructed, strangulated or incarcerated hernia, congenital hernias, bilateral hernias and age less than 18 years were excluded from the study. After obtaining informed written consent, study participants were subjected to a standard questionnaire both pre operatively and post operatively. Patients were followed up for a period of 6 months for assessing chronic postoperative pain, to know the post op day in which they resumed to their regular activity and the recurrence rate. Those participants who were unable to attend the review were contacted through the phone and questionnaire completed.

Statistical Analysis

Data was entered into Microsoft excel data sheet and was analysed using SPSS 22 version software. Categorical data was represented in the form of Frequencies and proportions. Continuous data was represented as mean and standard deviation. p value <0.05 was considered as statistically significant after assuming all the rules of statistical tests.

Ethical Consideration

The study was conducted after presenting the research protocol and obtaining the approval from the institutional ethics committee (SMVMCH-EC/DO/AL/1263/2017).

RESULTS

A total of 165 patients were included in the study. 2.4% were in the age group <20 years, 23% were in the age group 21 to 40 years, 41.8% were in the age group 41 to 60 years, 32.8% were in the age group >60 years. Mean age of subjects was 51.84 ± 16.22 years and Age range was 18 – 80 years. In the study 22.4% had complaints <1 year, 46.1% had complaints for 1 to 3 years and 31.5% had complaints for >3 years. In the study 4.2% had constipation, 18.8% had cough, 7.3% had Dysuria and 69.7% had no complication. In the study 53.3% had no risk factor, 7.3% were alcoholics, 29.7% were smokers and 9.7% were both smokers and alcoholics. In the study 37.6% had left side hernia and 62.4% had right side hernia. 66.7% had indirect hernia and 33.3% had direct hernia. 12.7% had complete hernia and 87.3% had incomplete hernia. Table 1 shows the general profile of participants. Mean duration of surgery was 44.63±7.76 mins. Majority of the subjects required 45 minutes for surgery (27.3%). Figure 1 shows duration of surgery among study subjects. In the study cost of surgery in 99.4% was Rs. 1000 to 2000 and in 0.6% cost was >Rs. 2000.

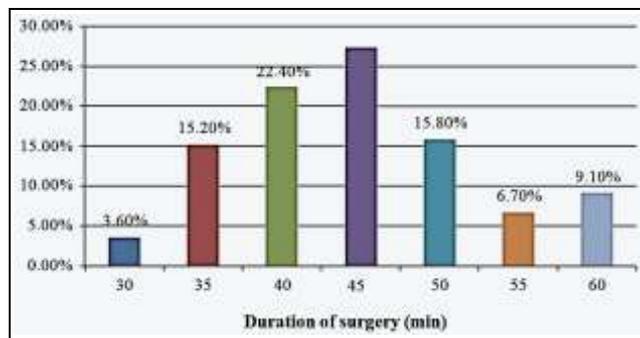


Figure 1. Duration of Surgery among Subjects

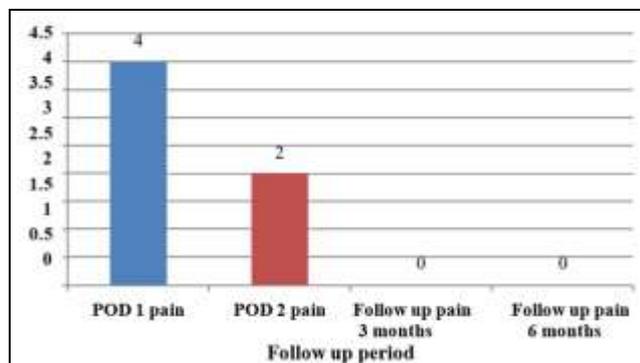


Figure 2. Mean Pain Score Comparison on Different Periods of Follow Up

Parameter	n (%)	
Age (yrs.)	<20	2.4
	21-40	23
	41- 60	41.8
	>60	32.8
	Duration of Complaints	< 1 yr.
	1-3 yrs.	46.1
	>3 yrs.	31.5
Risk Factors	Smoking	7.3
	Alcohol	29.7
	Smoking & Alcohol	9.7
Side of Hernia	Right	62.4
	Left	37.6
Type of Hernia	Direct	33.3
	Indirect	66.7
	Complete hernia	12.7
	Incomplete hernia	87.3

Table 1. General Profile of Participants

Complication	n (%)
Seroma	2.4
Hematoma	0.6
Infection	0

Table 2. Incidence of Complications in the Study Subjects

Parameter	n (%)	
Recurrence	0%	
Chronic groin pain	0%	
Foreign body sensation	0%	
Mean operative time	44.63 ± 7.76 mins	
Mean post op pain score	Day 1	4
	Day 2	2
	Day 90	0
	Day 180	0
	Mean duration of hospital stay	4.9 ± 0.99 days
Time taken to return to daily activities	18.58 ± 3.43 days	

Table 3. Post-Operative Outcome in the Study Subjects

In the study 2.4% had Seroma, 0.6% had hematoma while none of the patients had Infection or recurrence. Table 2 shows complications in study participants on post-operative Day 1, 1.2% had pain score of 3, 77.6% had pain score of 4, 20% had pain score of 5 and 1.2% had pain score of 6. On Day 2, 1.2% had pain score of 1, 96.4% had Pain score 2 and 2.4% had pain score 3. In the study 98.2% had

pain score of 0 and 1.8% had pain score of 1 at 3 months. Pain score was 0 at 6 months in all the subjects. Figure 2 shows pain score comparison on different duration of follow up. In the study 46.1% stayed for 4 days, 25.5% for 5 days, 21.2% for 6 days, 6.7% for 7 days and 0.6% for 8 days. Mean duration of hospital stay was 4.9±0.99 days. Mean duration of resuming duty was 18.58±3.43 days. 0.6% resumed duty on 10 days, 30.3% resumed b/w 11 to 15 days, 49.1% resumed b/w 16 to 20 days and 20% resumed >20 days. Table 3 shows post-operative outcomes in study subjects.

DISCUSSION

Surgical repair of the inguinal hernia is the most common general surgery procedure performed today.⁵ The success of surgical repair depends on a tension free closure of hernia defect to attain the lowest possible recurrence rate. A successful hernia surgery is evaluated on the basis of recurrence rate, rate of complication and time taken to return to normal activities.⁶ The gold standard for hernia repair is considered to be Lichtenstein repair, which is a type of hernioplasty, using mesh. However, mesh has its own drawbacks. It increases the cost of the operation and is not available universally especially in the developing world. Mesh prosthesis is well known to shrink by 20-35% of its size, in vivo. As the groin is 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 leads to failure of mesh repair of inguinal hernias.⁷ Bassini's/Shouldice or similar open repairs use weak muscles for repair even if they are weak leading to failures. The new method of hernia repair described by Desarda is based on physiological principle. The strip of external oblique aponeurosis provides the aponeurotic element to the transversalis fascia of the posterior wall. Action like cough and straining causes contraction of the abdominal muscles. Contraction of external oblique muscle creates lateral tension in the strip while contraction of the internal oblique/conjoined muscle pulls this strip upwards and laterally, creating tension above and laterally, making the strip a shield to prevent any herniation. This helps to improve the muscle contraction of the internal oblique and transverses abdominis muscle. Thus a strong and physiologically dynamic posterior wall is prepared in this operation. Many studies have been conducted comparing different methods of hernia repair and showed Lichtenstein's repair to be more effective and superior to Bassini/ Shouldice.⁷⁻⁹ With the advent of Desarda repair, this technique is now studied widely in terms of effectiveness and comparison with Lichtenstein's repair. Mitura K, et al in Poland in 2008 conducted a comparative study among 121 patients undergoing surgery for inguinal hernia by Desarda procedure and Lichtenstein procedure and concluded that Desarda primary hernia repair is as effective as Lichtenstein procedure in all means.¹⁰ Manyilirah W, et al (Uganda, 2011) and Szopinski J, et al (Poland, 2012) conducted randomized control trial and found that the

results of inguinal hernia repair by Desarda is as effective as Lichtenstein repair.^{11,12} Similarly, Youssef T, et al in 2015 conducted a randomized control trial at Egypt on 168 patients, compared the outcomes between Desarda's technique and Lichtenstein repair with a follow up for 3 years and concluded that shorter operating time, early return to normal gait and lower cost (no mesh) are potential benefits of Desarda repair and that Desarda repair is as effective as Lichtenstein hernioplasty.¹³ Recent Indian study by Gedam BS, et al on 187 patients comparing the outcomes of the Desarda repair concluded that the results of inguinal hernia treatment with the Desarda technique are similar to the results after standard Lichtenstein operations. Patients undergoing Desarda's procedure get ambulatory sooner as compared to the standard Lichtenstein mesh repair. Desarda technique has less postoperative pain and complications are similar to standardised technique.⁴ Results of our study shows that Desarda technique is simple to perform, does not require foreign body like mesh or complicated dissection of the inguinal floor as in Bassini and Shouldice methods. It is cost effective, so can be done to patients in all socioeconomic classes. The mean hospital stay is 4.9 ± 0.99 days and mean duration of resuming duty was 18.58 ± 3.43 days for Desarda's repair. There is no recurrence of hernia seen following Desarda's repair during follow up period.

CONCLUSIONS

Our results in this study after Desarda repair are good and similar to the results after hernioplasty by Lichtenstein or Shouldice techniques. Hence, according to our experience Desarda method seems to be an attractive alternative to other methods widely adopted in the current practice, especially the mesh based Lichtenstein hernioplasty, in low socioeconomic countries. Desarda repair is attractive and has the potential to become the gold standard of hernia repair surgery in the near future, although, large-scale and long-term multi-centric trials are needed to evaluate this repair further and establish this repair among the surgical community.

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