



ORIGINAL ARTICLE

Post-Operative Outcome of Desarda Repair of Inguinal Hernia in Emergency Case in Bangladesh

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Abstract

Background: Desarda hernia repair has emerged as a recognized operative method for inguinal hernia repair. **Objective:** The purpose of the present study was to see the outcome of emergency inguinal hernia repair by Desarda technique. **Methodology:** This was an observational study was carried out in the Department of Surgery at Sher-E-Bangla Medical College Hospital, Barisal, Bangladesh and Private Hospital, Narayanganj, Bangladesh from August 2015 to January 2017. Twenty patient was operated by Desarda technique. Variables includes age, operating time, post-operative complications, post-operative hospital stay, cost of the procedure, chronic groin pain and any early recurrence. **Result:** Mean age of patient 50.25±18.9, Mean operating time was 78.4±9.64 mins. Majority 16 patient experienced mild post-operative pain measured in VAS score. Mean with SD of hospital stay was 5.05±2.16 days. Patient had developed different post-operative complications like wound infection in 2(10.0%) cases, scrotal edema in 5(25.0%) cases, seroma formation in 1(5.0%) case and no early recurrence and. **Conclusion:** In this study, it revealed that Desarda repair was associated with less post-operative complications, less post-operative pain, zero recurrence rate, no chronic groin pain and performed in emergency cases. So it is safe and most reliable technique for complicated (Incarcerated, Obstructed, Strangulated) inguinal hernia. [*Journal of Current and Advance Medical Research, January 2020;7(1):44-48*]

Keywords: Desarda hernia repair; Emergency (incarcerated; obstructed; strangulated) inguinal hernia

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Introduction

Inguinal hernia is a very common surgical problem throughout the world. It is estimated that 7% of the population will develop an inguinal hernia worldwide. As there is risk of obstruction or strangulation, inguinal hernia should always be repaired unless there are specific contraindications¹. Between 600,000 and 800,000 hernias are repaired annually in the United States, making hernia repair one of the most common operations performed by general surgeons². Many surgical techniques or methods have been developed in the past. In 1880, Bassini published his original description of inguinal hernia repair. Since then many modern modifications such as the Shouldice repair, Lichtenstein's tension free mesh repair and the recent innovation laparoscopic mesh repair of inguinal hernia have originated from it³. Lichtenstein and laparoscopic repair has been the standard technique in inguinal hernia surgery in routine cases. But Lichtenstein's repair and laparoscopic repair have some limitations and not recommended in emergency cases as there is high risk of mesh infection. It is unphysiological as mesh is used and have some complications like chronic inguinal pain, seroma formation, foreign body sensation, risk of mesh infection and extra cost involved by the mesh itself⁴. In emergency cases like incarcerated, obstructed, strangulated inguinal hernia Modified Bassini is still performing though having high recurrence rate.

In current times a new procedure has been described by Dr. Mohan Desarda, from Poona hospital and research center, India. It involves use of undetached strip of external oblique aponeurosis to strengthen the posterior wall of the inguinal canal which is based on the physiological principles. Several randomized controlled trials and systemic reviews which compared Lichtenstein tension free mesh repair and no mesh Desarda repair and showed that Desarda method have some distinct benefits. This is a physiological repair and is tension free⁵, can be used in strangulated hernia^{4,5}, recurrence and complication rates equal to or less than Lichtenstein's repair⁴, simple procedure with equal or less operating time than Lichtenstein's repair⁴, early ambulation and less time of hospital stay⁵, low cost for the patient as mesh is not used⁴, no question of mesh related complications as mesh rejection, infection, migration and foreign body sensation and chronic groin pain is comparatively lower in this procedure. This operation is based on the physiological principles. It involves use of an undetached strip of external oblique aponeurosis to strengthen the posterior wall of the inguinal canal. Considering these advantages of Desarda repair, the

study was done at Sher-e-Bangla Medical College Hospital, Barisal and Private hospital in Narayanganj to see the outcome of Desarda repair.

Methodology

This observational study was done at Sher-e-Bangla Medical College Hospital, Barisal and Private hospital in Narayanganj to see the outcome of Desarda repair in emergency hernia from August 2015 to January 2017. Study population was patients presenting with emergency (Incarcerated, Obstructed, Strangulated) inguinal hernia. Sample size was 20. Sampling technique was convenient sampling technique. Inclusion criteria was all cases of emergency (Incarcerated, Obstructed, Strangulated) inguinal hernia admitted for surgery and patient who consented for the study. Exclusion criteria were patient who does not consented for the study and very thin external oblique aponeurosis found during operation. Outcome variables were Age, operating time, Hospital stay, early recurrence and chronic groin pain. Pain was recorded using a visual analog scale (VAS 0-10). All patients received same analgesic protocol and prophylactic antibiotics.

Operative Technique^{5,6,7}: Skin and fascia are incised through a regular oblique inguinal incision to expose the external oblique aponeurosis. The external oblique is cut in line with the upper crux of the superficial ring, which leaves the thinned out portion in the lower leaf so a good strip can be taken from the upper leaf. The sac is excised in all cases except in small direct hernias where it is inverted. The medial leaf of the external oblique aponeurosis is sutured with the inguinal ligament from the pubic tubercle to the abdominal ring using 1/0 monofilament polyamide (Ethilon) or polypropylene (Prolene) interrupted 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. A splitting incision is made in this sutured medial leaf, partially separating a strip with a width equivalent to the gap between the muscle arch and the inguinal ligament but not more than 2 cm. This splitting incision is extended medially up to the pubic symphysis and laterally 1 to 2 cm beyond the abdominal ring. The medial insertion and lateral continuation of this strip is kept intact. A strip of the external oblique, is now available, the lower border of which is already sutured to the inguinal ligament. The upper free border of the strip is now sutured to the internal oblique or conjoined muscle lying close

to it with 1/0 monofilament polyamide or polypropylene interrupted sutures throughout its length. 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. 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. The first stitch is taken between the lateral corner of the splitting incision and lateral leaf of the external oblique. This is followed by closure of the superficial fascia and the skin as usual.

Ethical assurance for protection of human rights: Prior to the commencement of the study the research protocol will be approved by Institutional Ethical Committee (IEC) of SBMCH, Barisal. Written consent was taken from each patient after informing them the objective of the study, risks and benefits, confidential handling of personal information and the voluntary nature of participation and the rights to withdraw from the study.

Result

A total 20 cases of emergency (Incarcerated, Obstructed, Strangulated) inguinal hernia included in this study. All the patients were male, age of the patient ranges from 28 to 85 years. Maximum number of patients was in the age group 31-50 years (10, 50%). Mean age of patient was 50.25 with SD (± 18.9). Duration of operation was recorded from the time of skin incision to skin closure. Time ranges from 55 min to 105 min. Mean duration of operation was 78.4 min with SD (± 9.64). Total 8 patients suffered different post-operative complications. Wound infection was 2 (10%), scrotal edema 05 (25%), seroma formation 01 (05%) and no early recurrence and as no mesh was used there was no foreign body sensation. Content was intestine in 14, and 06 were omentum. All operations were done under spinal anesthesia. Mean hospital stay was 5.05 days SD: ± 2.16 . Most of the patients 17 (85%) was discharged on 5th post-operative day, 01 (5%) of patient was discharged in 7 days and 2 (2%) of patient need to stay in hospital more than 7 days, one for superficial wound infection and another for bowel resection (Table 1).

The entire patients were assessed for perception of post-operative pain, measured by VAS score. On day-1 majority of patient (16) experience mild pain in post-operative period, 3 patient experience moderate pain and 1 patient experience severe pain. On day 5, 18 patient experience mild pain and 2 patient experience moderate pain and none suffer severe pain (Table 2).

Table 1: Post-Operative Outcomes of Study Population

Variables	Value
Mean Age of patient (year)	50.25 \pm 18.9
Mean duration of operation (Min)	78.4 \pm 9.64
Mean hospital stay (Days)	5.05 \pm 2.16
<ul style="list-style-type: none"> • <5 days • 6-7 days • >7 days 	17 1 2
Post-Operative Complications	8 (40%)
<ul style="list-style-type: none"> • Wound infection • Scrotal edema • Seroma formation • Early Recurrence 	2 (10%) 5 (25%) 1 (5%) 0

All patients were followed up in the study period at 4th week, 6th month, 1st year and 2nd year. At 4th week all 20 (100%) patient was came follow up and found one had seroma formation another was suffering from groin pain. At 6th month, 1st year and 2nd year none patient did not suffer from chronic groin pain and recurrence. All the different data that were obtained in this series have been analyzed to observe the outcome of Desarda repair of inguinal hernia and compared this result with other result that was published in different journals.

Table 2: Post-operative pain

Post-Operative Pain	VAS		
	Mild (0-3)	Moderate (4-7)	Severe (8-10)
Day1	16	3	1
Day 5	18	2	0

Discussion

Emergency Inguinal hernia is a common problem and its repair is the most commonly performed procedure in general surgical practice. Several methods have been developed like Bassini, Shouldice repair, Lichtenstein’s and Laparoscopic repair. Among these Lichtenstein and Laparoscopic repair has been standard technique for last decades in routine operation and was not recommended in emergency cases due to risk of mesh infection. Modified Bassini is still performing though having high recurrence rate. In recent time a new procedure “no mesh Desarda hernia repair” has emerged as a recognized operative method for inguinal hernia repair. Open inguinal hernia repair is one of the most common operations that general surgeons perform. The recurrence rate in a number of specialized

centers is high, post operative pain and discomfort are common⁸.

In this study 20 emergency (Incarcerated, Obstructed, Strangulated) inguinal hernias patient was operated. Age distribution of the patient ranges from 28 to 85 years. Maximum number of patient was in the age group 31-50 years (10, 50%). Mean age of patient was 50.25 with SD (± 18.9). Age distribution of my study is comparable to another study⁹. Duration of operation was ranges from 55 to 105 minutes. Mean operation time was 78.4 min with SD (± 9.64). Hospital stay of patient was 3-12 days. Mean hospital stay was 5.05 days SD: ± 2.16 . Most of the patients 17 (85%) was discharged on 5th post-operative day, 01 (5%) of patient was discharged in 6-7 days and 2 (2%) of patient need to stay in hospital more than 7 days, one for superficial wound infection and another for bowel resection. In this study mean operating time and hospital stay was high because only emergency case was included in this study. The results were comparable to other studies^{4,10,11,12}. However, Hussain et al⁹ in comparison of Desarda's versus Darning technique in emergency inguinal hernia showed Desarda group less operating time (61.6 ± 9.87). Tamer et al in randomized clinical trial of Desarda versus Lichtenstein repair showed significantly longer operating time in Lichtenstein group (72.36 ± 12.2 min) than in Desarda group (59.4 ± 6.3 min)¹². This finding goes in favor of this study.

The entire patients were assessed for perception of post-operative pain, measured by VAS score. On day-1 majority of patient (16) experience mild pain in post-operative period, 3 patient experience moderate pain and 1 patient experience severe pain. On day 5, 18 patient experience mild pain and 2 patient experience moderate pain and none suffer severe pain. Post-operative complications were also observed. 8(40%) patients were suffered different types of complication. Wound infection was 2 (10%), scrotal edema 5(25%), seroma formation 1(05%) and no early recurrence and as no mesh was used there was no foreign body sensation. Szopinski et al showed high incidence of seroma formation in Lichtenstein repair⁴. Incidence of post-operative complication in this study is also similar to those other studies^{10,11,13,14}.

At 6th month, 1st year and 2nd year none patient did not suffer from chronic groin pain and recurrence. This result is similar to other studies^{5,10,11}. However, Tamer et al¹² in randomized clinical trial of Desarda versus Lichtenstein repair showed there was one recurrence within two year follow up in both group. Bimal et al¹⁵ in Outcome of Desarda repair in

inguinal hernia: a study in northern part of Bangladesh showed 1.08% recurrence rate at 2 year. A very recent study by Emile and Elfeki¹⁶ showed in a meta-analysis no significant difference in the incidence of recurrence between both techniques (Lichtenstein vs. Desarda), (OR = 0.946; P = 0.91). Although the overall complication rate of LT (Lichtenstein technique) was significantly higher than DT (Desarda technique) (OR = 1.86; P < 0.001). LT had significantly higher rates of seroma formation and surgical site infection (OR = 2.17; P = 0.007) and (OR = 2.17; P = 0.029), respectively. Postoperative pain, operation time, and time to resume normal activities were comparable in both groups¹⁶. This portion of their findings goes in favour of us.

Chronic pain has been defined as pain lasting >3 months by the International Association for the Study of Pain¹⁷. It is influenced by age, weight, sex, preoperative pain level, operative technique, hernia anatomy, the extent of nerve entrapment or damage of the ilioinguinal, iliohypogastric, and genitofemoral nerves, and other postoperative complications^{18,19}. Some studies reported chronic groin pain following open mesh repair in 28.7% to 43.3% cases⁵. In contrast, this new technique being a pure tissue repair will not cause extensive fibrosis as seen in mesh repair. In this study no patient suffered from chronic groin pain in the new method as no mesh was used. Chronic groin pain adversely affects daily life for 5 to 10 percentage of patients^{5,20}. Moreover, one indisputable advantage of Desarda technique is its low cost as no mesh was used. Accessibility of mesh could be another important issue in developing countries like Bangladesh. Also, data are appearing about sexual impairment after mesh implantation in young patient. As Desarda is a tissue-based technique, can be used in a contaminated surgical field like strangulated hernias⁴.

Bassini/Shouldice or similar open repairs use muscles for repair even if they are weak leading to failures. In Desarda technique the strip of external oblique aponeurosis provides the aponeurotic element to the transversalis fascia of the posterior wall. Actions like coughing, crying and straining cause contraction of the abdominal muscles. Contraction of the external oblique muscle creates lateral tension in this 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. The strip provides a new insertion to the weak and flabby internal oblique and transversus abdominis. This helps to improve the muscle

contractions of the internal oblique and the transversus abdominis muscles^{6,7}. 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^{6,7}.

The study had some limitations. Sample size was relatively small. Study period was short so long term result like late recurrence rate could not be assessed.

Conclusion

Emergency hernia repair is still a matter of debate. Modified Bassini is still performed most of the center. Desarda repair is newly introduced but long term outcome is not evaluated. In the present study an attempt is made to evaluate the outcome of patients undergoing emergency inguinal hernia repair by Desarda repair. This new method of hernia repair is based on physiological principle where no mesh was used. The result reveals that Desarda repair for emergency inguinal hernia is safe and reliable with no or less recurrence rate. Patient compliance was good with minimum morbidity.

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