Original Article

Non-mesh repair of adult inguinal hernia: a simple solution

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ABSTRACT

Objective

To describe our experience with a simple technique of inguinal hernia repair in which the weak posterior wall of the inguinal canal is strengthened by continuous suturing of External Oblique Aponeurosis (EOA) behind the cord structures.

Patients and Methods

The study was carried out at PESSI Hospital and rural community hospitals Islamabad from March 2003 to September 2010. During this period, 162 patients between 18-70 years underwent repair of inguinal hernia with this technique. Post operative assessment included analgesia requirement; early and late complications.

Results

Early postoperative course was uneventful. The majority of patients were discharged on day of operation and 1st post operative day (87%) with percentage of recurrence of 1.85%.

Conclusion

Our operation technique is easy to perform, does not require mesh and gives results equivalent to those reported for mesh repair. It can be performed electively as well as in emergency situation. It is suggested that this technique should be adopted in areas having low budget health facilities. (Rawal Med J 2011;36:10-13).

Keyword

Inguinal hernia, herniorrhaphy, mesh.

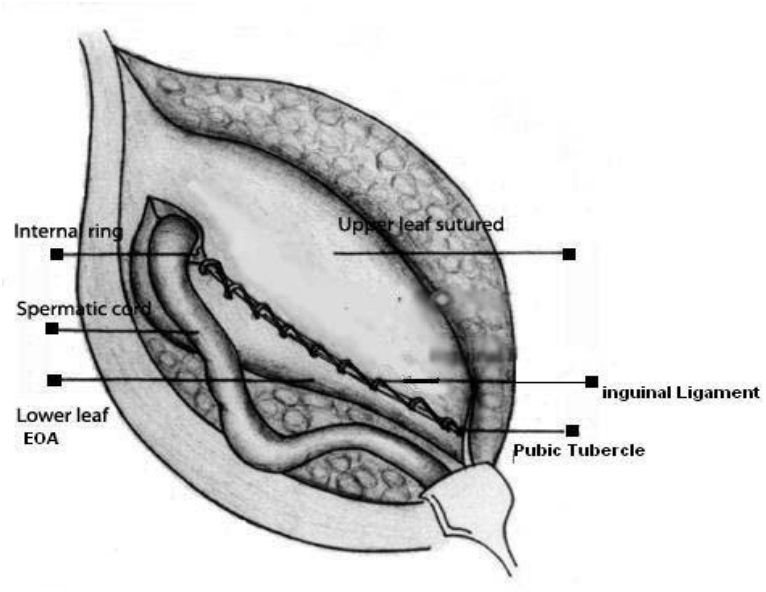
INTRODUCTION

Inguinal hernia repair remains the commonest operation performed by general surgeons all over the world.[1,2] Despite of the promising results in Mesh Repair claimed by many authors[3-5] the non mesh repair is still commonly performed surgical procedure at international level.[4] The underlying reasons are cost effectiveness, non-availability of quality mesh, and infection of mesh requiring its complete removal. The Mesh repair carries additional risks of seroma formation, ischemic orchitis, testicular

infarction, spermatic cord and nerve entrapment due to extensive fibrosis.[4-6] The Laparoscopic Repair of inguinal hernia has emerged as an additional option in the recent years.[5] However, it is usually much expensive, needs general anesthesia, skilled operating team and more operative time.[6-8] Our operation technique is taking the benefits of various suture techniques, so is more suitable and feasible under our circumstances; cost effective, operator friendly and associated with fewer complications. It provides opportunity of immediate ambulation and rapid recovery. This technique be named as "Non-Mesh Repair of inguinal hernia-with Anterior Cord Placement (ACP - Technique)''.

Operation technique: After incision and herniotomy, loose transversalis fascia is plicated with continuous polypropylene (prolin 2/0) to the shelving edge of the inguinal ligament, starting from the pubic tubercle up to the internal ring; with maximum possible lateral displacement of cord. The External oblique Aponeurosis (EOA) is sutured behind the cord structured in a tension free-double breasting fashion or in a simple way (Fig 1). The Scarpa's fascia is sutured over the cord structures with continuous PGA – 2/0 and then the skin incision is sutured to complete the operation.

Fig 1. Anterior cord placement technique.



PATIENTS AND METHODS

This study was conducted at the surgical unit of Islamabad Medical and Dental College, PESSI hospital and in various community hospitals in the suburbs region of Islamabad and Rawalpindi over a period of seven years. 162 patients presenting electively as well as in emergency department with obstructed inguinal hernia were included in the study which lasted from March 2003 to October 2010. Patients were operated under local, spinal or general anesthesia. Outpatient follow-up was performed on 7^{th}, 21^{st}, 60^{th} day and annually. All data were recorded which includes age, gender, type of hernia, type of anesthesia, duration of hospital stay, cost of surgery and complications. It was analyzed using SPSS Version 16.0.

RESULTS

Out of 162 patients, 60 patients were operated in PESSI hospital and 102 were treated in the community hospitals in suburbs of Islamabad. Minimum age was 18 years and maximum 70 years (Mean 39.5±3.73 years). All patients were male. Most patients had no associated conditions (Table 1).

Table 1. Associated medical conditions.

Disease	Number	Percentage
Hypertension	5	3%
Diabetes Mellitus	7	4%
Liver Cirrhosis	1	1%
Cough Asthma	15	9%
Constipation	11	7%
No Associated disease	123	76%

Patients having indirect hernia were 83.95% (136) and direct hernias were 16.05% (26). Out of 162 patients, 81.48% (132) were operated electively while 18.52% (30) were operated on emergency basis. The patients operated under local, spinal and general anesthesia were 81.48% (132), 12.34% (20), 6.17% (10) respectively. Most patients were discharge on the same day (67.9%, n=110) while 19.75%

(32) were discharged on 1st post operative day and remaining 12.34% (20) 2nd post operative day. Operative cost of patients using local, spinal and general anesthesia were 835, 1210 and 1525 rupees respectively.

Table 2. Post Operative Complications.

Complication	Number	Percent
Stitch Infection	12	7.4%
Wound Infection	1	0.6%
Scrotal Swelling	10	6.1%
Urinary Retention	6	3.7%
Seroma	1	0.6%
True Recurrence	2	1.85%
No Complications		80.24%
Total	162	100%

Most frequent complication was stitch infection (Table 2). The recurrence occurred in 1.85 %.

DISCUSSION

Up-till now many surgical methods of inguinal hernia repair have been evolved but the optimal method for inguinal hernia repair has not yet been determined and is still a topic of discordance among surgeons. The surgical techniques have been categorized as pure tissue approximation techniques like Bassini, Shouldice and prosthetic material repair like Lichenstein's repair using Mesh. In the 21st century, though laparoscopic repair is introduced with much surgical glamour, it is much laborious, time consuming and need trained surgical team. Unfortunately, Lichtenstein-method and laparoscopic hernia repair are not applicable and feasible in emergency presentation of inguinal hernia. Under emergencies and in most of community hospitals, laparoscopic surgery is not available.

An ideal procedure for simple inguinal hernia as well as for obstructed strangulating hernia should meet the criteria of being operator friendly with less operating time, cost effective, low rate of pain and discomfort with early return to normal activity. Our experience in rural community hospitals of

Rawalpindi and Islamabad for more than ten years shows that quality mesh is not easily available in rural setting. The prevailing circumstances provided us the opportunity of applying a simple new surgical repair of adult inguinal hernia to suburban population at reduced and affordable cost with equal effectiveness and low recurrence rate. This technique can be named as "Non- mesh repair of inguinal hernia - with anterior cord placement (ACP)''. It is simple to perform without any extensive dissection and has produced excellent results; therefore, it could be considered a good alternative and cost effective method to mesh repair or laparoscopic repair. We had done this ACP non Mesh repair in elective as well as emergency cases and postoperative results are comparable to any mesh or non mesh repairs but the advantage lies in cost effectiveness, less operative time, easy to perform and shorter duration of hospital stay.

By comparing with international studies, a similar type of No-Mesh inguinal hernia repair placing a strip of External Oblique Aponeurosis (EOA) behind the cord to strengthen the posterior inguinal wall with almost zero recurrence rates was reported.[4] We had less than 2% of recurrence after five years of follow-up. Regarding the hospital stay, that study mentioned that 92% of patient had a one night hospital stay, while we had 87% patients with 24 hours stay. Another study published in 2005 mentioned a new technique for inguinal hernia repair by plication of fascia transversalis.[7] This had 1.6% recurrence which is comparable to our study, most important consideration regarding hernia repair. Although fascia transversalis is mentioned in lot of international studies these methods required cutting of fascia transversalis,[8,9] which is very difficult some times and related to lot of serious complications, while our repair is based on simple plication of fascia transversalis that is easy and quick to perform.

Forehand concept is that the fundamental cause of all inguinal hernia is failure of transversalis fascia to retain the peritoneum. Other's concept is the "shutter mechanism" of conjoined tendon being the protective element against herniation.[2] Our repair does not disturb the "shutter mechanism" of hernia protection and at the same time restores the integrity of transversalis fascia by plication. The lateral

placement of cord structures augments the pinch-cock act of deep ring which is an additional benefit to the repair. It is accepted that The ACP- repair technique disturbs the anatomy and physiology of the inguinal region; but, hopefully without any risk. It is an attempt to add further to the existing knowledge for hernia repair techniques. However, a continuous clinical trial and long-term follow-up has to be undertaken to find out the true effectiveness of this type of non mesh surgical repair for direct as well as indirect; simple as well as complicated adult inguinal hernias.

CONCLUSION

We conclude that the new ACP repair technique for inguinal hernia is as effective as the other recommended techniques. Our operation technique is easy to perform, cost effective, needs less operative time and has minimal complications. It is also recommended that in remote areas with economic constrains, ACP repair technique may be adopted as a primary procedure for inguinal hernia repair.

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Received: October 10, 2010 Accepted: December 19, 2010

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