

Original Article

Posterior wall repair by continues suturing in inguinal hernia meshplasty

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ABSTRACT

Background: The conventional method of suturing mesh to posterior wall in inguinal meshplasty is by interrupted sutures. Technique of suturing mesh by continues sutures is a new concept and requires surveillance.

Aims: To observe and scrutinize the technique in the form of simplicity, post-operative complication and anatomical reconstruction.

Material & Methods: Patients having inguinal hernia were operated upon by present technique of posterior wall repair with continuous suturing in inguinal hernia meshplasty were selected for the study. Patients were observed in pre operative, intra operative and post-operative period & when they attend out-patient clinics. Data was collected in prescribed format& statistically analyzed to draw the conclusion.

Result: Out of 20 patients, 19 patients are male and 1 patient is female. The highest incidence was in the 5th& 6th decade of life. No patients were found having major wound infection, seroma formation, or recurrence of hernia. 20 patients (100%) attended our follow up which ranged from 3 months to 6 months. 15 patients (75%) attended the OPD personally for follow up. Remaining 5 patients (25%) were questioned over the telephone and their response recorded. The average hospital stay recorded was 5-6 days. No recurrence was encountered in the follow up group.

Conclusion: This technique of suturing of posterior wall repair with continuous suturing in inguinal hernia meshplasty was found to be technically simple, leading to least post op complications and attaining its goal of curing the inguinal hernia by good anatomical reconstruction.

Key words: Inguinal hernia, Use of continues sutures for mesh fixation.

INTRODUCTION

“Groin hernia repair does not have the glamour of a Whipple or of a heart transplant, but in terms of preserving years of useful life, in sheer volume, is one of the most important surgical procedures.” Dr. Jonathan E. Rhoades

Repair of inguinal hernia is one of the commonest surgical procedures worldwide, irrespective of country, race or socio-economic status and constitutes a major health-care drain in every country.

There are three landmarks in the history of repair of inguinal hernia.

1. Tissue repair	Eduardo Bassini [1]	1888
2. Onlay mesh (tension-free) repair	Irving Lichtenstein [2,3]	1984
3. Laparoscopic hernia repair	Ger, Shultz, Corbitt etc [4]	1990

Bassini in 1988 posted a milestone in the history of not only hernia surgery but of all surgery when he reported a reduction in the recurrence rate from 100 to 10% with his operation which was a unique combination of understanding of anatomy and application of surgical thinking and technique [5]. This 10% recurrence rate was achieved at a period without antibiotics, primitive anaesthesia and when patients suffered their hernia to giant size before submitting to surgery. Over nine decades Bassini's tissue repair procedures – with several modifications (Halsted[6,7], McVay[8,9], Tanner, Shouldice[10]) has helped preserve useful life in hundreds of thousands cases. While most “herniologists” view tissue repair as a method in disrepute to be discarded, it's very economical cost structure makes it even today the commonest form of hernia repair in most part of the developing world and even in Canada tissue repair (Shouldice) accounts for 25% of all inguinal hernia repair. The posterior wall repair was done by interrupted sutures.

It is worth recording that the first mesh plasty in clinical work was reported by Usher in 1958 when he used mesh with elasticized nylon on humans with no prior experimental work. The tension-free onlay mesh repair is invariably linked to Lichtenstein whose work and progress over two decades culminated in the final Lichtenstein repair. The mesh was fixed by interrupted sutures to the posterior wall of inguinal canal.

Aware that Bassini's original article was open to misinterpretation and modification, Lichtenstein crystallized his procedure to a few simple essentials - local anaesthesia, adequate mesh size, inferomedial corner to overlap the pubic tubercle, overlap of the mesh lateral to the cord, loose sutures between mesh and tissue and early if not immediate mobilization. Tension-free mesh hernia repair by virtue of low degree and duration of pain, early return to normal activity, low recurrence rate is the accepted method of choice even in the developing world, whenever economics permit the cost of the mesh.

PATIENTS AND METHODS

A prospective study was conducted on 20 hernia patients from June to November 2014 in surgery department of L.G. hospital, Maninagar, Ahmedabad. Patient presented with inguinal hernia was selected, investigated and operated after pre operative medical fitness. For follow up study self addressed response, and personal questionnaires were used. Pre operatively all patients were shaved from nipple to knee on previous day. One dose of injection Ceftriaxone given to all patients before 1 hour of surgery. All patients were given spinal anaesthesia.

Fig. 1: Cord dissection and posterior wall ready for meshplasty



Fig. 2: 1st stitch over pubic tubercle



Fig. 3: Continuous stitches over inguinal ligaments



Fig. 4: Continuous stitches over conjoint tendon



A Langer's line was used for skin incision. Skin, subcutaneous and external oblique-aponeurosis were cut. With peanut swab and finger plane dissection was made above conjoint tendon and inguinal ligament. The cremasteric fascia incised which helped to easy mobilization of cord structures. A direct sac pushed back and an indirect sac was opened and transected at its neck after ligation with chromic 2-0 suture transfixation (figure 1). In meshplasty, a trimmed polypropylene mesh (3 x 6inch) was used. Mesh was fixed first pubic tubercle including the periosteum with Prolene 1-0 stitch in the middle of suture material length (figure 2). One end of prolene was continued inferiority over incurved part of inguinal ligament with the use of continuous suture of Prolene (1-0) (figure 3). Other end from pubic tubercle was continued over the conjoint tendon and over the transverses abdomens muscles laterally and tied laterally (figure 4). The lateral slit looks like "fish - mouth" which encircled cord structures at internal ring and this mouth is sutured with interrupted prolene(1-0) making sure that the cord was not constricted and thus we made a new internal ring. External oblique muscle was closed with continuous suture of catgut 2-0. Subcutaneous tissue was closed with catgut 2-0 intermittent sutures and skin was closed with Ethilon 2-0 vertical mattress sutures. All patients were given post operative intravenous fluid till the evening in the form of DNS/RL. Injectable antibiotics Cetriaxone 1 gm, Dynapar, Pantoprazole, Emeset were given to each patients.

Patients were observed 3 times a day for duration for which remained admitted and watched for

clinical improvement, symptom like post operative nausea and vomiting , pain , retention of urine.

RESULTS

Table – 1 shows age-wise distribution of patients enrolled in the study. Maximum number of patients were above 50 years of age, whereas equal number of patients (15% each) were in 20-30 and 31-40 years of age group.

Table 1: Age-wise distribution of Patients

Age group (Years)	No. of patients	Percentage (%)
20-30	3	15
31-40	3	15
41-50	1	5
51-60	7	35
≥61	6	30
Total	20	100

Table 2: Distribution of patients as per operating time

Operating time (in minutes)	No. of patients	Percentage (%)
31-60	16	80
61-90	4	20

As shown in table – 2, 80 percent of patients were operated within half an hour to an hour. And only 20 percent patients required more than one hour for an operation.

Table 3: Distribution of patients according to post-operative pain

P/O Pain	No. of patients	Percentage (%)
Mild	8	40
No	12	60
Total	20	100

As demonstrated in table – 3, two-fifth of patients had complained about pain post-operatively whereas three-fifth of the post-operative patients felt comfortable.

Table 4: Distribution of patients according to condition of wound

Wound	No. of patients	Percentage (%)
Clean	18	90
Seroma present	2	10
Total	20	100

Table – 4 depicts the condition of wound after operation. In 90 percent cases, wound was clean and seroma was found in only about 10 percent of cases.

DISCUSSION

Inguinal hernia is most common in male. 65% patients are above the age of 50 year as inguinal hernia is more common in older age group.

The time taken for unilateral inguinal hernia is 30 to 60 minutes in sixteen patients in our study which is lesser than the time taken for the conventional technique [3]. For bilateral inguinal hernia it takes 80- 90 minutes to complete the surgery.

12(60%) patient having no pain after the surgery in post operative ward and in follow up. 8 patients having mild pain post operatively which can be easily manage with oral analgesics which was comparable to study conducted by Inaba T et al[16].

18(90%) patients discharged with clear wound and without any complication. Only 2(10%) patients developed wound seroma which is managed with daily wound care and oral antibiotics which was comparable to study conducted in Nyhus hernia repair [11].

The fixation of mesh with continues suturing over posterior wall with prolene suture took less time. While in study conducted by Amid P and Shulman AG Open “tension-free” repair of inguinal hernias, the time taken for mesh fixation was longer than continues suturing of mesh [12]. The procedure is easier to perform than original meshplasty.

The time taken was lesser because there were no interrupted sutures which require every time knot tying and cutting. In continues suturing we had started suture at pubic tubercle and finished it laterally and tied. Again suture line start above and tied laterally. So in our study only 2 or 3 knots were taken. So it was easier and less time consuming.

The amount of knots decreases that's why post operative pain would be lesser as chances of nerve irritation would be less because there were fewer amounts of knots in continues suturing technique while in interrupted stitches there were multiple knots. The cut ends of the prolene sutures irritated the nerve fibers in interrupted sutures while in other study pain was more because there was continues irritation of nerve fiber of ileoinguinal nerve [14,16].

Also in our study due to continue suturing of mesh there was closure of canal occur because of even

placement of mesh which was haphazard in intermittent suturing of mesh [15].

CONCLUSION

The posterior wall repair by continues suturing technique was easy to perform, less time consuming, minimum or absent post operative complication than conventional method of interrupted suturing.

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