

Place of plasties in inguinal hernias repair : alloplasty or autoplasty?

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Abstract

Plasties are treatments without tension, given the low rate of recurrence and chronic pain they cause. The aim of this study is to discuss the techniques and results of two types of plasty surgery in inguinal hernias in adults: the prosthetic plasty and fascial plasty. **Patients and methods:** this is a double study (Study A and Study B) made the General Surgery Service of the University Hospital Aristide Le Dantec. A The study is a prospective descriptive study of 7 years (March 2009-March 2016), involving 115 cases of treatment of uncomplicated inguinal hernia plasty of fascial oblique. They were 100 men (94.8%) and 6 women (5.2%) with a mean age of 42.7 years. Study B was a retrospective study of 11 years (from December 2003 to December 2013). They were 76 men and 3 women, average age 57.2 years. Results: In study A, the average operative time was 34.8 minutes. Morbidity was 8.5%. Chronic postoperative pain was noted in 11.3% of cases. Two cases of recurrence (1.7%) were observed with a mean of 73.08 months. In study B, morbidity was 12.6%. The rate of chronic pain and recurrence was similar (0.9%), with a mean of 76 months. **Conclusion:** plasty is in the treatment of inguinal hernias, the best surgical approach. The choice between autoplasty and alloplasty based on the ratio between the results of each techniques.

Keywords: inguinal hernia; prosthesis; recurrence; Chronic Pain

Introduction

Problem of inguinal hernias has almost crossed all the time. Since the Middle Ages and the Renaissance, where we have witnessed the Stammering of hernia surgery, up to modern surgery, treatment of inguinal hernias has undergone deep changes. Yet, in the nineteenth century, raphies were a real revolution in hernia surgery and things could have stopped there, had it not been for their high rate of recurrence and chronic pain. All this has led to the advent of prosthetic techniques which remain the "gold standard", even though autoplasty is the ideal in all surgery [1]. The aim of our study is to discuss the operative data and the results between two techniques of plasty, aponeurotic and prosthetic.

Patients and methods

It is a double and monocentric study A and B on the inguinal hernias repair by plasty at the Department of General Surgery of the University Hospital Center Aristide Le Dantec of Dakar.

Study A

It is a prospective study of 7 years (March 2009 to March 2016), with 115 inguinal hernias repair (106 patients), by technique DESARDA. It included 100 men (94.8%) and 6 women (5.2%) with a sex ratio of 1 :16.6. The mean of age was 42.7 years with extremes of 18 years and 78 years. Hernia was unilateral in 97 cases (91.5%) and bilateral in 9 cases (8.5%).

Surgical technique

After installation of the patient on an ordinary operating table, general or locoregional anesthesia and cutaneous incision, the technique begins with an opening of the aponeurosis of the external oblique muscle, parallel to the inguinal ligament. This opening creates 2 lips, medial lip

(ML) and lateral lip (LL). Second operative time is a suture of the medial lip of the aponeurosis of the external oblique muscle on the inguinal ligament (IL), by a continuous nonabsorbable suture (Figure 1). The third time is an incision of the aponeurosis sutured to 1 or 1,5 cm of the first line of suture, which creates an aponeurotic flap and a new medial lip (Figure 2). The fourth time is a suture of the free edge of the flap on the joint tendon or internal oblique muscle (Figure 3). The last time is a suture of the lateral lip and the new medial lip of the aponeurosis of the external oblique muscle in front of the spermatic cord, by nonabsorbable suture (Figure 4). The mean duration of intervention was 34.8 minutes with extremes of 10 minutes and 95 minutes.

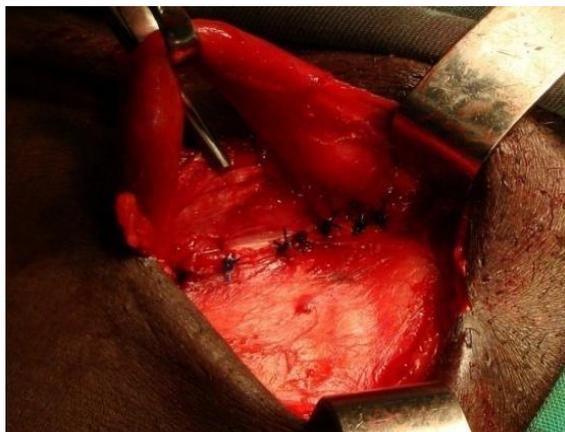


Figure 1 : Suture of the ML to IL [9] (ML : Medial Lip, IL : Inguinal Ligament)



Figure 2 : Incision of the aponeurosis sutured



Figure 3 : Suture of the free edge of the flap [9]



Figure 4 : Suture of the LL and the new ML [9] (LL : Lateral Lip, ML : Medial Lip)

Results

Early postoperative complications were noted in 9 cases (8.5%). There were 4 cases (3.8%) of wound infection, 2 cases (1.9%) of scrotal hematoma and 3 cases (2.8%) of acute urinary retention.

Chronic pain was noted in 12 cases with an Visual Analog Scale (VAS) between 0 and 2 (Table 1).

Two cases (1.7%) of recurrence were recorded with respective follow-up of 26 months and 34 months. The mean follow-up was 33.1 months (2.75 years).

Table 1 : Chronic postoperative pain

Follow-up (months)	VAS (≤2)	Number	Percentage (%)
11 à 48	1	9	8,5
33 à 55	2	3	2,8
6 à 48	0	94	88,7
Total	0 à 2	106	100

Study B

It is a retrospective study of 11 years (January 2003 to December 2013), with 109 surgical repair (79 patients) for uncomplicated inguinal hernia by LICHTENSTEIN technique. It had 76 men (96.2%) and three women (3.8%), with a mean of age of 57.2 years, with extremes of 26 years and 88 years. Hernia was unilateral in 49 cases (62%) and bilateral in 30 cases (38%).

Surgical technique

Installation, anesthesia and cutaneous incision are the same as in the previous technique. After opening of the aponeurosis of external oblique muscle and treatment of the hernial sac, the technique consists of to close the posterior wall of the inguinal canal by a prosthesis of Prolene or Mersuture. Prosthesis is pre-cut or cut by the surgeon, which gives it a semicircular shape, with a slit at the base allowing 2 straps, for cracking of the spermatic cord, at the level of the deep inguinal orifice (Figure 5). Lateral edge of the prosthesis is fixed to the inguinal ligament by a nonabsorbable suture and the first point is fixed on the spine of the pubis. Internal edge of the prosthesis is fixed to the joint tendon by separate points on the same suture. Final aspect shows a prosthesis which closes the posterior wall of the inguinal canal, with a cracking of the spermatic cord by the 2 straps of the slit (Figure 6).



Figure 5 : Cutting of the prosthesis

Results

Early postoperative complications were found in 8 cases (7.7%). There were 6 cases (5.7%) of parietal and scrotal hematoma and 2 cases (1.9%) of wound infection.

Chronic pain was found in 1 case (0.9%) with a follow-up of 120 months.

One case (0.9%) of recurrence was found with a follow-up of 120 months.

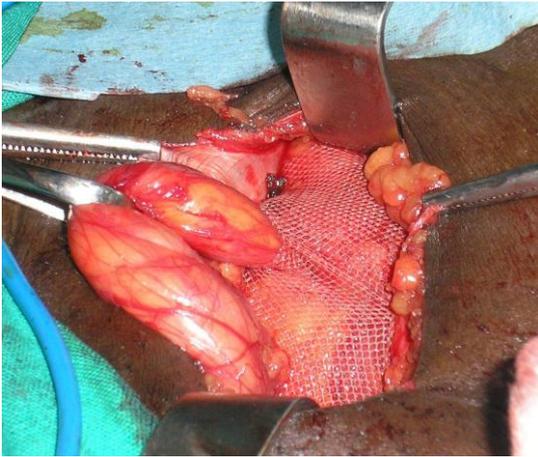


Figure 6 : Fixed prosthesis

Discussion

Technique

According to Huguier, the interpretation of the results of a surgical technique in the inguinal hernia repair is made difficult by two factors : the exact definition of the technique which is often different from that used and the level of experience of the surgeon [2].

Operative time is almost similar between the two techniques. Manyilira's team reported mean operative time of 10 minutes and 15.9 minutes for both Desarda and Lichtenstein techniques [3]. On the other hand, in most studies, the time of prosthetic repair is comparable to that of Study A, but is considerably less than that of conventional techniques [4, 5, 6, 7].

Early postoperative complications

Wound infection

Wound infection was more frequent in Study A. A similar result was found in our first serie [8]. This can be explained by the antibioprophyllaxis which was systematic in prosthetic repair and absent in the repair without foreign bodies. This hypothesis can be corroborated by the low rate of wound infection in the two Desarda series where antibioprophyllaxis was systematic, which was not the case in our study [9, 10]. Infection may occur despite antibioprophyllaxis in the Lichtenstein technique, as is the case in Fawole, who reported prosthetic ablation in 14 cases [11]. Other factors seem to favor this complication : the anterior approach and the degree of dissection. Hay's team reported a higher rate in raphias that associate the three factors mentioned above [12]. The anterior approach seems more determinant, since infection is practically non-existent in laparoscopic techniques where extensive dissection is almost nonexistent [5, 13].

Hematoma

Rate of hematoma was higher in Study B. This rate, lower in Study A, was similar to that of Dieng, in our first series [8]. However, this rate was very low in both Desarda series, with 0.1% and 0.25%, respectively [9, 10]. Problem of hemostasis, following extensive dissection, is the main cause, which explains a greater prevalence in raphia [6, 12, 14]. Maggiore, in a comparative study reported, respective-

ly, rates of 14.69% and 8.69% for the Bassini and Lichtenstein techniques [6].

Chronic Pain

According to Cunningham, there are three types of chronic pain, with different mechanisms [15] :

- somatic pain related to the tension of the sutures,
- the neuralgic pain related to the injuries nerves,
- visceral pain associated with lesions of the vas deferens or peritoneum.

These three types of pain are usually associated in conventional techniques, which explains their higher chronic pain rate, up to 53% [16]. Prosthetic and aponeurotic plasties have very low chronic pain rates. Phe, in a study on plasty by the aponeurosis of right muscle, reported a rate of 3.7%, similar to that of Lerut et al, who reported a rate of 3.08% [17,18]. These results are mainly due to the absence of tension and therefore somatic pain [17, 18]. In laparoscopic techniques, these three mechanisms of pain are absent, which explains the low rate of chronic pain [19].

Recurrence

Recurrence of hernia would depend on the duration of follow-up. In a series of 1474 patients, Barrier et al, the peak of recurrence was 42% at 2 years. This rate was 34% at 5 years and 19% at 20 years [20]. Recurrence is mainly related to the tension of the sutures, which explains their greater prevalence in the repairs with tension. Hay's team reported high rates of 6.1 to 11.2% [12]. Recurrence rates are lower in plasties. In a study on the Lichtenstein technique, this rate was 0.2% [21]. This rate was comparable to that of the first serie of Desarda (0.25%) [9, 10]. Our results are comparable to this latter, with 1.8% recurrence for Study A and 0.9% recurrence for Study B. Similar results were found by the Phe's team, who reported a Rate of 1.2% [17].

Conclusion

Plasties represent inguinal hernias repair without tension, in view of their results in terms of chronic pain and recurrence. Although the Lichtenstein technique remains the « gold standard », autoplasties are a reliable alternative, especially in the absence of the use of foreign bodies.

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