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Original Research Article

Management of strangulated inguinal hernias: a comparison of the Désarda versus Bassini procedure

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ABSTRACT

Background: The unsatisfactory results of suture repair (high incidence of recurrence and chronic postoperative pain) mean that practitioners are constantly seeking techniques that offer the best outcomes. Consequently, the Désarda technique warrants testing in the management of strangulated inguinal hernias. The aim of this study was to compare the Désarda technique with tissue raphia (Bassini) in the treatment of strangulated inguinal hernias
Methods: This was a prospective, randomised, single-centre, controlled study conducted from December 2013 to December 2019 at the La Renaissance University Hospital Centre in N'Djamena.
Results: A total of 133 patients were recruited, comprising 109 men and 24 women, with a mean age of 29.5 years±5 years and a range of 18 to 61 years. There were no intraoperative or early postoperative complications in either group. Nor were there any deaths. The 7-year recurrence rate was significantly lower in the Désarda group (1.8% vs 12.2%; the odds ratio was 0.07 with a 95% confidence interval ranging from 0.01 to 0.55), p=0.02. The result is statistically significant because p<0.05. The risk of developing chronic post-operative pain was one-tenth as high in the Desarda group compared with the Raphie group. The odds ratio was 0.1 with a 95% confidence interval ranging from (0.01 to 0.8). The Desarda procedure statistically significantly reduces the rate of dissatisfaction among patients who have undergone surgery. The odds ratio was 0.07, with a 95% confidence interval ranging from 0.01 to 0.55; this association was statistically significant.
Conclusions: The Desarda technique is a safe and effective method as it reduces the incidence of recurrence and postoperative pain. The majority of patients who underwent surgery were satisfied.

Keywords: Strangulated hernia, Desarda, Surgical emergency, Recurrence, Chronic postoperative pain

INTRODUCTION

A strangulated inguinal hernia refers to a tight and permanent constriction of the organs contained within the hernial sac, through a narrow, inextensible and constricted inguinal orifice.[1] It requires emergency management, and its treatment comprises a visceral phase involving the release of the herniated organ, assessment of its viability and, where necessary, resection in the event of necrosis and a parietal repair phase, which usually consists of herniorrhaphy, due to the risk of infection associated with prosthetic devices.[2] However, the unsatisfactory results of herniorrhaphy in terms of post-operative pain (10-15 percent of cases) and recurrence (6-21 percent of cases) also do not support the use of herniorrhaphy in the management of strangulated inguinal hernias.[3,4]

In this context, the Desarda technique which involves closing the posterior wall of the inguinal canal using a flap of the aponeurosis of the rectus abdominis major is worth investigating for the management of strangulated

inguinal hernias, given the satisfactory results reported by authors from the sub-region.[5]

Our study was conducted to test the hypothesis that the Désarda technique resulted in fewer recurrences and less post-operative pain than suture repair.

The aim of this study was to compare the Désarda technique with tissue suture repair (Bassini) in the treatment of strangulated inguinal hernias.

METHODS

Study type and design

This was a prospective, randomised, single-centre, controlled study conducted from December 2013 to December 2019 in the Department of Visceral Surgery at the La Renaissance University Hospital in Ndjamena.

Following the patients' informed consent regarding the choice of technique, two groups were formed: Group A, in whom closure of the posterior wall of the inguinal canal was performed using a flap of the aponeurosis of the rectus abdominis muscle according to Desarda; and Group B, in whom parietal repair was performed by aponeuroplasty according to Bassini. Selection was carried out at random.

The study population consisted of all patients aged over 17 years admitted for strangulated inguinal hernia.

Patients who refused to participate in the study, those lost to follow-up and those who had undergone the surgery using the Lichtenstein technique were excluded from the study.

The variables studied were: age, duration of hernia strangulation, mean length of hospital stay, intraoperative data and postoperative follow-up data.

The primary outcome measure was the 7-year recurrence rate.

The secondary endpoints were the incidence of chronic post-operative pain (pain persisting for more than 3 months after hernia repair, assessed using the Visual Analogue Scale (VAS)) and the satisfaction rate among patients who underwent surgery. In our study, pain was defined as a VAS score >3.

Data were collected using pre-designed questionnaires completed for each patient. Patients were followed up four times in both groups, specifically at 3 months, 1 year, 5 years and 7 years.

All procedures were performed under general anaesthesia and all patients were operated on by two senior surgeons. Antibiotic prophylaxis was routinely administered at induction via 2 g of ceftriaxone.

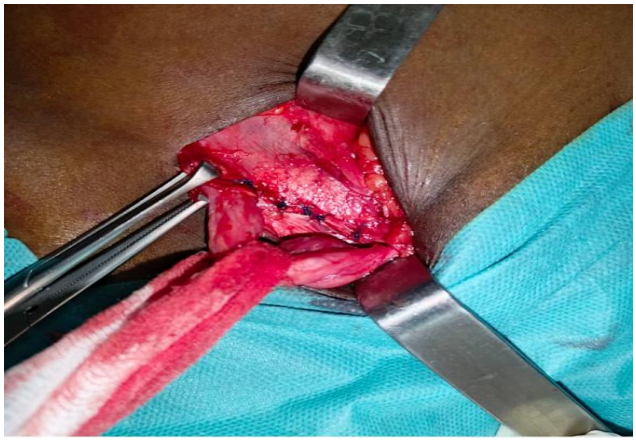

Figure 1: Suture of the medial lip of the aponeurosis of the obliquus magnus to the crural arch.

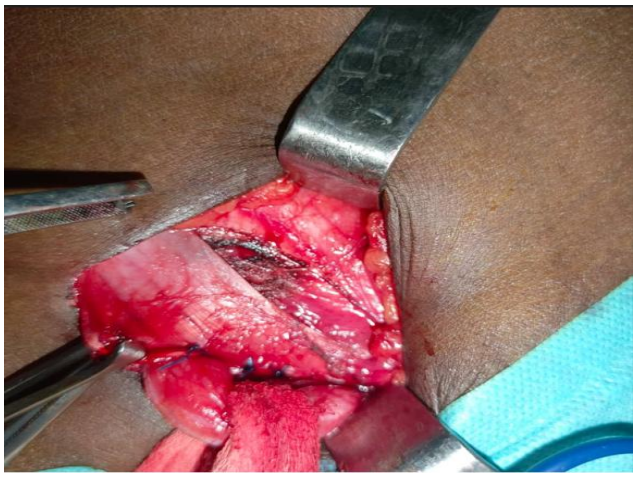

Figure 2: An incision made in the sutured fascia to create a fascial flap measuring 1 to 2 cm.

Figure 3: Aponeurotic closure.

The skin incision was identical for both procedures. The surgical approach consisted of an inguinal incision straddling the painful mass, most often extending from the pubic spine to the deep inguinal ring (5 to 6 cm).

RESULTS

A total of 133 patients were recruited,including 109 men and 24 women, with a mean age of 29.5 years ± 5 years and a range of 18 to 61 years.

Of the 133 patients, 84 underwent surgery using the Bassini technique.

The approach was inguinal in all our patients.

A total of 7 intestinal resections were performed, including 4 in the group in which repair of the posterior wall of the inguinal canal was carried out using a flap of the aponeurosis of the rectus abdominis major muscle according to Désarda, and 3 in the herniorrhaphy group.

The post-operative follow-up period was 84 months.

No intra-operative or early post-operative complications were observed in either group during this study. Nor were there any deaths.

Table 1: Breakdown of patients by occurrence of recurrence at 7 years.

Variables	Yes	No	Total
Désarda (Group A)	1 (1.8%)	53	54
Herniorrhaphy (Groupe B)	14 (12.2%)	55	69
Total	15	108	133

The odds ratio was 0.07, with a 95 percent confidence interval ranging from (0.01 to 0.55). P=0.03. The result is statistically significant because p<0.05.

The 7-year recurrence rate among patients operated on using the Desarda technique was 2.4 per cent, whilst that among patients operated on using the raphia technique was 12.8 per cent.

There is a reduced risk of recurrence in patients who have undergone repair of the posterior wall of the inguinal canal using a flap of the aponeurosis of the rectus abdominis muscle, as described by Desarda.

Table 2: Breakdown of patients by time to the recurrence.

Time to recurrence	0 to 1 year	2 to 5 years	6 to 7 years
Désarda (Group A)	0	0	1 (6.3%)
Herniorrhaphy (Group B)	2	2	10
Total	2	2	11

Most recurrences occur more than six years after the operation.

Table 3: Breakdown of patients according to the occurrence of chronic postoperative pain lasting longer than 3 months.

Variables	Yes	No	Total
Désarda (Group A)	1 (1.8%)	53	54
Herniorrhaphy (Group B)	11 (15.9%)	58	69
Total	12	111	133

The odds ratio was 0.1, with a 95 per cent confidence interval ranging from 0.01 to 0.8. The risk of developing chronic post-operative pain is one-tenth as high in the Desarda group as in the Raphie group.

Table 4: Breakdown of patients by satisfaction among those who have undergone surgery.

Satisfaction	No	Yes	Total
Désarda (Group A)	1	53 (98.2%)	54
Herniorrhaphy (Group B)	14	55 (78.2%)	69
Total	15	108	133

The odds ratio was 0.07 with a 95% confidence interval ranging from (0.01 to 0.55), representing a statistically significant association.

The satisfaction rate amongst patients operated on using the Desarda technique was 98.2 per cent, whilst that amongst those operated on using the raphia technique was 78.2 percent.

The Desarda procedure statistically significantly reduces the dissatisfaction rate among patients who have undergone surgery.

DISCUSSION

An inguinal hernia is a benign surgical condition, the main complication of which is strangulation.[6]

This requires emergency surgical treatment to prevent the onset of visceral complications such as intestinal necrosis, which radically alters the prognosis of the hernia.[7] The inguinal approach, which was favoured in this study, avoids the need for a laparotomy, allows the hernial contents to be reduced prior to examination, and also offers the possibility of performing resection and anastomosis in the event of intestinal necrosis.[1]

However, regardless of the surgical technique used, hernia recurrence is the primary criterion for evaluating surgical repair of inguinal hernias in adults.[8] This is why the primary outcome measure in this study was the 7-year recurrence rate. Admittedly, the value of the 7-year follow-up period in this study for assessing the efficacy of the Desarda method for inguinal hernia repair is debatable. However, observations by Barrier et al in

France suggest that approximately two-thirds of recurrences occurred more than five years and a quarter more than fifteen years after the initial operation, and that most studies, due to an insufficient follow-up period, underestimated the actual recurrence rate of operated inguinal hernias.[9]

That is why, under these circumstances, a 7-year follow-up period seemed to us to be reasonable.

During this study, the 7-year recurrence rate among patients operated on using the Desarda technique was 1.8 per cent, whilst that among those operated on using the raphia technique was 12.8 percent. The calculated odds ratio, which was 0.07 (with a 95 per cent confidence interval ranging from 0.01 to 0.55), also favoured the use of the Desarda technique in the management of strangulated inguinal hernias, as, compared with raphia, it resulted in a significant reduction in the risk of recurrence. Similar results were reported by Ndong et al in Senegal, who recorded a recurrence rate of 2.10% (95% CI: 0.61-5.14).[10] Our results are also consistent with those of Dieng et al (Senegal) and Ouadraogo et al (Burkina Faso), who also obtained similar results and concluded that the Desarda technique was as reliable as prosthetic repair in terms of recurrence.[3,5]

Similar results have been reported by Dieng in Senegal and by several Western research teams.[7,10,11] The conclusion was that the Desarda technique was as reliable as prosthetic treatment in terms of recurrence

Randomised studies conducted in Europe, comparing the Désarda and Lichtenstein techniques, had also found that the recurrence rate was identical in both groups, specifically 3.4 percent.[11,12]

Chronic post-operative pain following inguinal hernia surgery remains, to this day, one of the main areas of concern for surgeons, as it has a significant socio-economic impact.[13] The incidence of chronic pain following surgical repair of a strangulated inguinal hernia during this study was 1.8 percent in the Desarda group and 15.9 per cent in the suture group. The calculated odds ratio was 0.1, with a 95% confidence interval ranging from 0.01 to 0.08, indicating a statistically significant association between a reduced incidence of postoperative pain and the Desarda technique.

Our results are consistent with those of Philip et al in whose study chronic post-operative pain was present in 1.7% of patients in the Desarda group.[14] In the literature, elective surgery using the Desarda technique has also been shown to result in a low rate of chronic pain.[15] Thus, chronic post-operative pain was present in 3.8% of patients in the study by Dieng et al in Senegal.[5]

The second secondary outcome measure in this study was the satisfaction rate among patients who had undergone surgery. This rate was 98.2 percent among patients operated on using the Desarda technique, compared with 78.2 per cent among those operated on using the raphia technique. The calculated odds ratio was 0.07 with a 95% confidence interval ranging from 0.01 to 0.55, indicating a statistically significant association. These findings indicate that patients in the Desarda group reported higher levels of satisfaction than those in the raphy group postoperatively. As observed in the study by Abou et al the rate of dissatisfaction during this period was directly correlated with the occurrence of a recurrence.[4] Our satisfaction rate in the Desarda group was similar to that reported by Marre et al who achieved an overall satisfaction rate of 97.6%.[16]

CONCLUSION

The Desarda technique is a safe and effective procedure as it reduces the incidence of recurrence and chronic postoperative pain. The majority of patients who undergo this operation are satisfied.

The monocentric nature of our study, its small sample size and the duration of post-operative follow-up required to assess recurrence could be considered limitations of our study.

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