

The Place of Spermatic Fascia Closure During Open Herniotomy in Male Children

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ABSTRACT

Introduction: There is currently no consensus about closing or otherwise of the spermatic fascia at herniotomy in children. This stems from lack of evidence to justify either stand, and most literatures are silent on this. This study is an effort to evaluate the place of closure of the spermatic fascia at hernia repair. **Aim:** To determine if there is advantage in closing the spermatic fascia over leaving it open during herniotomy in children. **Materials and Methods:** Cases of inguinoscrotal hernia repaired by the same surgeon between July 2009 and June 2011 were randomly grouped into two; spermatic fascia closed (SC) and spermatic fascia open (SO) groups. They were assessed for operation duration, wound infection, scrotal hematoma, and scrotal edema post repair. The Data obtained was collated and analyzed using the SPSS 17.0. **Results:** Seventy-six male children with unilateral complete inguinoscrotal hernia were included in this study. The overall mean duration of operation was 32.9 min (SD = 5.7); range 21-52 min. There was hematoma formation in 7 (17.9%) of the SC group and 9 (24.3%) of the SO group ($P = 0.5$). Scrotal edema occurred in 24 (64.8%) of the SO and 18 (46.2%) of the SC group ($P = 0.3$). No other complications were recorded during the period of study. **Conclusion:** There is no demonstrable advantage or disadvantage in closing the spermatic fascia at herniotomy for children. We conclude that the choice to close or not to close the spermatic fascia at herniotomy for children should be at the discretion of the individual surgeon.

KEYWORDS: Children, closure, fascia, herniotomy, spermatic

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spermatic fascia could tamponade any oozes from the veins and so reduces the risk of hematoma formation and, scrotal edema. It will also prevent the vas and the vessels from lying loosely in the inguinal canal, and probably protect these structures from injury should there be need for another surgery in that region. On the other hand, it could be argued that closing the spermatic fascia may add to the duration of surgery and could potentially cause a compartment syndrome within the cord. Though, these speculations sound plausible there is currently no scientific evidence to support or refute them. In view of the fact that herniotomies are among the commonest surgical procedures performed in children, it is imperative that the best techniques to give optimum results are adopted.

INTRODUCTION

The spermatic fascia is the three layered covering of the contents of the spermatic cord.^[1-3] It is therefore closely applied to the sac in indirect inguinal hernias. In all cases of open herniotomy, the spermatic fascia is split open during the procedure. Various techniques have been described for herniotomy in children.^[4-6] Despite the increasing use of laparoscopic techniques in herniotomy for children, the majority of the herniotomies are still performed by the open (conventional) technique.^[7] There is currently no consensus on whether to close the spermatic fascia after removal of the hernia sac or not.^[6,8] Identification, isolation, transfixion, and removal of the hernia sac are attended with breaches of the tributaries of the pampiniform plexus of veins with consequent risk of hematoma formation. A closed

AIMS AND OBJECTIVES

To determine if there is advantage in closing the spermatic fascia over leaving it open during herniotomy in children.

MATERIALS AND METHODS

This is a prospective study carried out between July 2009 and June 2011. Alternate cases of inguinoscrotal hernia repaired by the same surgeon were grouped into either; spermatic fascia closed (SC) or spermatic fascia open (SO) groups. The selection criterion was unilateral complete inguinoscrotal hernia in a patient 10 years of age or less. The exclusion criteria were bilateral hernia, associated hydrocele or undescended testis, recurrent or direct hernia, bleeding disorder, need for herniorrhaphy and loss to

follow-up. In all cases, herniotomy was performed and the whole sac including the fundus was removed after transfixing the neck. Interrupted stitches of Vicryl 3-0 suture were used to close the spermatic fascia giving a gap of 1 cm between stitches in the SC group [Figure 1]. Wound closed in layers with subcuticular skin suturing using vicryl 3.0. The duration of surgery was taken as the interval between incision and the last stitch. Patients were seen 24 h, one week, two weeks, one month and three months post repair. They were assessed for wound infection, scrotal hematoma, and scrotal edema. A firm or soft tender fusiform or ovoid swelling in groin wound or scrotum separate or close to the testis was considered a hematoma, while diffuse soft swelling of the scrotum which resolves in a week post repair was considered scrotal edema. The data obtained was collated and analyzed using the SPSS 17.0. Test of significance was done using the Chi-square; significant level taken at $P < 0.05$.

RESULTS

Seventy-six male children with unilateral complete inguinoscrotal hernia were included in this study. The SC group comprised 39 (51.3%) patients while the SO group comprised 37 (48.7%) patients. The overall mean age of patients was 3.1 (SD = 2.9) years; being similar in the two groups ($P = 0.8$); range 2 months to 10 years [Table 1]. Hernia was on the right side in 44 (57.9%) cases and on the left in 32 (42.1%). The overall mean duration of operation was 32.9 min (SD = 5.7); range 21-52 min. This was similar in the two groups [Table 2] ($P = 0.7$). There was hematoma formation in 7 (17.9%) of the SC group and 9 (24.3%) of the SO group [Table 3] ($P = 0.5$). Scrotal edema occurred in 18 (46.2%) of the SC group and 24 (64.8%) of the SO [Table 3] ($P = 0.3$). No other complications were recorded during a mean follow-up period of 2 months.

DISCUSSION

Inguinal hernias are among the commonest presenting complaint at the pediatric surgery outpatient clinic.^[9] It is more common in



Figure 1: Technique of closure of spermatic fascia after removal of hernia sac

males than in females with male female ratios as high as 9:1.^[10,11] Herniotomies are therefore, among the commonest elective pediatric surgery procedures.^[9,12] Unlike most other aspects of hernia surgery, not much has been said about what to do with the spermatic fascia after the hernia sac has been dealt with. This study strived to determine the usefulness or otherwise of closing the spermatic fascia at herniotomy. Though it demonstrated a higher incidence of hematoma and scrotal edema among patients whose spermatic fascia were left open after the herniotomy, the difference was not statistically significant. This result suggests that closure of the spermatic fascia does not necessarily protect from hematoma formation and scrotal edema. It is interesting, however, to note that there was no increase in the incidence of complications with closure of the spermatic fascia during the follow up period. It appears that it did not matter whether the spermatic fascia was left open or closed following herniotomy in children. However, a longer period of follow-up would be needed to assess for other outcome measures in order to compare with results of other researchers.^[9,13] The fact that there was no significant increase in the duration of the surgery with closure of the spermatic fascia indicates that it is not more technically demanding to close the spermatic fascia. A basic principle in surgery is to put structures back to the original anatomic state whenever possible. Closing the fascia is like reconstituting the anatomy of the spermatic cord. The spermatic fascia naturally invests the vas and vessels, and ostensibly plays a protective role. It may therefore reduce the risk of injury to the vas and the vessels should if there be need for a subsequent

Table 1: Age distribution of patients

Age (years)	Spermatic fascia	
	Closed (SC) (%)	Open (SO) (%)
<1	18 (46.2)	15 (40.5)
1-5	15 (38.5)	14 (37.8)
6-10	6 (15.4)	8 (21.6)
Total	39 (100.0)	37 (100.0)

$P=0.76$

Table 2: Duration of surgery

Duration of surgery (min)	Closed (%)	Open (%)
21-30	12 (30.8)	12 (32.4)
31-40	21 (53.8)	24 (64.9)
41-50	5 (12.8)	1 (2.7)
51-60	1 (2.6)	-

$P=0.28$

Table 3: Compares incidence of hematoma and scrotal edema between the two groups

Patient group	Scrotal edema ($P=0.3$)		Hematoma ($P=0.5$)	
	Present (%)	Absent (%)	Present (%)	Absent (%)
Spermatic fascia closed (SC) group	18 (46.2)	19 (53.8)	7 (17.7)	32 (82.1)
Spermatic fascia open (SO) group	24 (64.8)	15 (35.2)	9 (24.3)	28 (75.0)

surgery in that region. This study is still ongoing and we hope to have a larger series. Additionally, patients need to be followed up for longer periods to assess the incidence of long term complications. In view of our results, the decision to close the spermatic fascia or not remains at the discretion of the operating surgeon. Given the potential anatomic advantage however, we recommend closure of spermatic fascia after herniotomy in children whenever possible. We believe that this should also apply to other surgeries involving the opening of the spermatic fascia like hydrocelectomies and varicocelectomies.^[14]

CONCLUSION

Closure of the spermatic fascia at herniotomy for children has no demonstrable advantage over leaving the spermatic fascia open. However, there is no increase in incidence of complications and there is no significant increase in the duration of operation with closure of the spermatic fascia. We conclude that the choice to close or not to close the spermatic fascia at herniotomy for children should be at the discretion of the individual surgeon. We recommend closure whenever possible in view of the apparent protection of the cord contents by the fascia. However a longer period of follow-up in a larger study group may be required to further substantiate this result.

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