Technical Innovation

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Orchidopexy san ligation technique of orchidopexy

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ABSTRACT

Pediatric hernia surgery is the most common operation done by pediatric general surgeons and it is a core competency for general surgeons in the developing world. Herniotomy is performed for the surgical repair of hernia and along with orchiopexy for the closure of associated patent processus vaginalis. Traditionally, ligation of hernial sac during orchiopexy is considered mandatory to prevent postoperative development of hernia. The present report was designed to study the results of non-ligation of the hernial sac during orchiopexy. It was found that non-ligation has no untoward effect on early complications and recurrence rate on long-term follow-up. It is suggested that it is not necessary to ligate the hernial sac during orchiopexy in children.

Key words: Hernia, nonligation, orchidopexy, undescended testis

Undesended testis surgery is one of the commoner operations done by pediatric surgeons throughout the world. Herniotomy is performed along with orchidopexy for the closure of associated patent processus vaginalis. Traditionally, ligation of hernial sac during orchidopexy is considered mandatory to prevent postoperative development of hernia. The present report is designed to study the results of nonligation of the hernial sac during orchidopexy. It is found that nonligation has no untoward effect like appearance of hernia on long-term follow-up. Study concludes that it is not necessary to ligate the hernial sac during orchidopexy in children. Traditionally the recommended technique dealing with undesended testis is high ligation of the hernial sac after proper dissection upto the deep ring. In cases of inguinal hernia in children, Mohta *et al.*[1] suggested that nonligation of hernia sac during herniotomy in children has no untoward effect on the early complications and recurrence rate. Shulman *et al.*[2] showed that ligation of hernia sac in adult herniorrhaphy is a needless step. A prospective study of laparoscopic inguinal hernia repair in children by Schier[3] showed that there is no difference to simple suturing when peritoneum was incised and hernia sac resected. He stressed that an open internal inguinal ring is not an inguinal hernia.[4] During laparoscopic orchiopexy, Handa *et al.*[5] showed that closure of the internal ring is not necessary. It was observed during laparoscopic orchidopexy performed for contralateral testicle that despite nonligation, the previous de peritonalized site got reperitonalized by itself and the sac which is dissected and left open deep to deep ring is not having hernia later in life. In this study, we studied 450 cases where the orchidopexy was done without ligation of sac with excellent results. Between January 2003 and September 2009, we evaluated 450 cases of orchidopexy in boys whose age ranged from 6 months to 10 years. We have selected the cases where the testes were palpable. None of them had demonstrable hernias. All the children underwent orchidopexy san ligation (OSL) technique. The sac was opened directly while keeping testis down, [Figure 1] and from cord structures separated up to the deep ring. This was done to bring down the testis to its normal position as it results in achievement of adequate length of the cord. In our technique the sac was left without ligation and pushed deep to deep ring. [Figure 2] All the patients were followed up regularly up to a period ranging from 9 months to 24 months. None of them developed Inguinal hernias in the follow up period [Table 1].

DISCUSSION

Bevan in 1899 gave the initial basic principles of orchiopexy with adequate mobilization of testis and spermatic vessels, ligation of the hernial sac and

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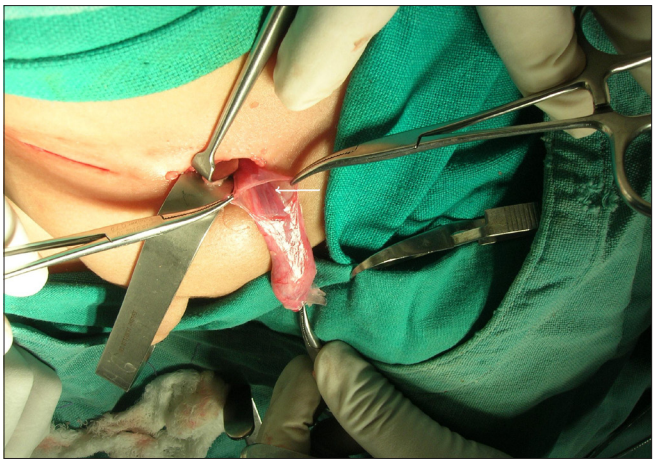


Figure 1: Arrow showing opened hernial sac.

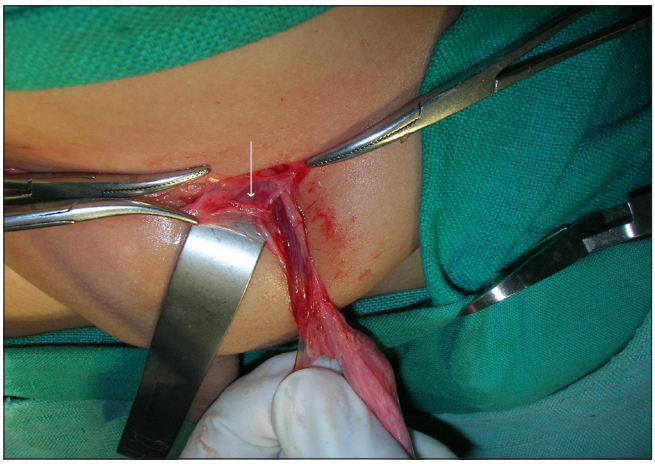


Figure 2: Arrow showing sac dissected upto deep ring and left open.

adequate fixation in the dependent portion of the scrotum as its basic tenets. These hold good now also, and have tided the tests of time and scientific advancements.

In 2003 Mohta *et al.*[1] in a prospective study advocated nonligation in the case of hernial sac during herniotomy based on the fact that the re peritonalization occurs by metamorphosis of the mesodermal cells within 24 hours. Tanyel *et al.*[6,7] reported that inguinal hernia during childhood seemed to be related to the presence of smooth muscle within the wall of the sac.

The smooth muscle bundles may have played a role both in prevention of obliteration and clinical outcome. The persistence of smooth muscle hinders the obliteration of the processus vaginalis; myofibroblasts are found in association with smooth muscle and thus such cells within the sac walls seem to originate from the smooth muscle, reflecting the dedifferentiation

Table 1: Patient results of orchidopexy san ligation

Parameter	Value
Total no. of cases	450
Unilateral	396
Bilateral	54
Side	
Right	226
Left	170
Age	
6 months–2 years	70%
2–5 years	25%
5–10 years	5%
Anesthesia	GA with caudal epidural
Time	
Unilateral	12–40 min (mean 16.45 min)
Bilateral	20–60 min (mean 30 min)
Recovery	2–10 h (mean 6 h)
Discharge	
24 h	85%
48 h	15%
Complications minor	<1%
Recurrence	Nil

of smooth muscle. This dedifferentiated state may represent attempted apoptosis, which usually causes the disappearance of the smooth muscle and obliteration of the processus vaginalis after the descent of the testis into the scrotum.

Because the sacs associated with undescended testis are without smooth muscles, and herniation is not a frequent association, they may not share the same etiologic basis with inguinal hernia. Handa *et al.*[5] deliberately did not close the internal ring around the pulled-through spermatic cord. This approach was prompted by the observation that the majority of the testes lie in the region of the internal ring. The mobilization of these testes by division of the gubernaculum and the dissection required to free a long loop vas deferens results in a large raw area at the internal ring. When the testis is pulled down into the scrotum, the mobilized surface of the spermatic cord is in apposition with the raw area at the internal ring.

Healing of the peritoneum occurs rapidly, resulting in a satisfactory closure of the internal ring. This is also supported by the fact that many surgeons feel that ligation of the hernial sac in herniotomy is not required.[1,2,8,9] All the above reports and also the recent laparoscopic experiences by Schier[3] advocated the use of a laparasocopic technique to completely resect the patent processus vaginalis and the parietal peritoneum surrounding the internal inguinal ring. This allowed the peritoneal scar tissue to close the area of the ring.

This scarring occurs in the extent of the inguinal canal where the dissection took place, thereby causing the same peritoneal scarring and sealing of the inguinal floor.

These evidences support nonligation of the hernia sac during inguinal orchidopexy. Apart from the fact that nonligation of the hernia sac in orchidopexy results in no untoward effect, the procedure is time efficient. This technique decreases the anesthetic complications and reduces the undue stress of drugs and surgery. It also avoids the tedious holding of thin sacs between hemostats, which tend to tear away easily using undue surgical time and expertise. Thus it also avoids any inadvertent trauma to surrounding structures and cord and spermatic vessels that may happen during ligation of the thin sacs. Recently a paper is published by Kumari *et al.*[10] using the similar technique. To conclude, routine ligation of the hernial sac is not mandatory during orchidopexy.

CONCLUSION

The OSL technique significantly reduces morbidity and operative time.

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