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Omitting ligation of the hernia sac during herniotomy and orchiopexy in children

ABSTRACT

Background

Inguinal hernia is one of the commonest conditions in pediatric surgical practice requiring surgical intervention. Herniotomy after high ligation of the peritoneal hernial sac is the standard procedure performed to prevent recurrence. The conventional and accepted technique of orchiopexy recommends that ligation of the hernial sac is mandatory for prevention of postoperative development of hernia.

Objectives of the study

This study was planned to study the effects of non-ligation of the sac on the results of herniotomy in the pediatric age group.

Patient and method

This is a prospective study of 140 patients under the age of 6 years undergoing surgeries for indirect inguinal hernias (90 patients, all males) and orchiopexy surgeries (50 patients) over a period of two years (October 2008-october 2010) in Baquba teaching hospital. The age range of the patients was 4 months up to 6 years.

The hernia sac wasn't ligated but it is merely amputated and left to be retracted out of the sight. All patients were followed for 2-2.5 year

Results

For patients operated on for *undescended testicle*, no single patient developed inguinal hernia.

For the patients operated on for indirect inguinal hernia 2 patients (2.22%) developed recurrence of their hernia.

Conclusion

We conclude that ligation of hernia sac is not necessary in achieving surgeries for indirect inguinal hernias and during inguinal orchiopexy. Cancelling ligation of the sac will save time and gives extra length for the cord in orchiopexy surgeries.

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Introduction:

Inguinal hernia is one of the commonest conditions in pediatric surgical practice requiring surgical intervention. Herniotomy after high ligation of the peritoneal hernial sac is the standard procedure performed to prevent recurrence. The conventional and accepted technique of orchiopexy recommends that ligation of the hernial sac is mandatory for prevention of postoperative development of hernia. However, it has been seen that during laparoscopic orchiopexy there is no difference to simple suturing when peritoneum is incised, hernia sac dissected and left alone. This may be due to the fact that any peritoneal defect closes within 24 hours by metamorphosis of the *in situ* mesodermal cells and also due to the fact that dissection deep in the deep ring will create a reacting inflammatory oedema that keep the ring closed till metamorphosis takes place. In their recent article Riquelme et al. state that with ‘‘an undescended testis an associated inguinal hernia is a frequent finding that must be treated at the same time’’ **[1]**.

During laparoscopies for undescended testicles they found an ‘‘inguinal hernia’’ in roughly 60% of cases. The authors then describe a technique of pulling the hernia sack back into the abdominal cavity and of merely resecting the sac without suturing the internal inguinal ring. No recurrences were noted with this technique. Laparoscopy has changed our perception of inguinal hernias. **Two facts should be noted:**

• An open internal inguinal ring (IIR), as found during laparoscopy (and also during laparotomy) is not unequivocally equivalent to an inguinal ‘‘hernia’’. Patients may have open IIRs for their whole life, and never have a clinically obvious inguinal hernia. In contrast, there are possibly even inguinal hernias without open IIRs. Obviously, open IIRs and inguinal hernias are not physically identical. The statement that‘‘ an associated inguinal hernia is a frequent finding that must be treated at

the same time'' is thus doubly doubtful. First, finding an open IIR is not 100%equivalent to finding an inguinal hernia, and second, that finding must not be treated necessarily. The authors' statement that any open IIR must be treated is unsubstantiated**.[2]**

• The authors have operated patients with open IIRs. In those patients, they observed no recurrences within an average of 21 months of follow up. It is not clear how many of the patients in fact really had inguinal hernias clinically. As a consequence, it is possibly not correct to assume that this technique would work equally well in true inguinal-hernia patients. Still, the technique described could work quite well in true inguinal hernias. One main constituent of any inguinal hernia repair technique seems to be the induction of local scarring, a goal more easily achieved with the open techniques and less easily with minimally invasive approaches—with the consequence of a higher recurrence rate in laparoscopy. In an earlier study, however, there was no difference to simple suturing when the peritoneum was incised and the hernial sac resected**.** Suturing of the IIR is possibly not really necessary if there is enough scarring produced by the dissection of the hernia sac. It has been increasingly accepted that closure of the peritoneum is not necessary after any surgical procedure **[3].**

Objectives of the study

This study was planned to study the effects of non-ligation of the sac on the results of herniotomy in the pediatric age group.

Patient and method

This is a prospective study of 140 patients under the age 6 years undergone surgeries for indirect inguinal hernias (90 patients, all males) and orchiopexy surgeries (50 patients) over a period of two years(October 2008-october 2010) in baquba teaching hospital. The age range of the patients was 4 months up to 6 years. **(Table 1)**

Table 1 distribution of the patients according to the surgical problem and their number in regard to the age range.

Type of surgical problem	Age range (years)					
	4 m-1 yr	1-2	2-3	3-4	4-5	5-6
Inguinal hernia	23	21	15	14	10	7
Undescended testicle	4	9	8	12	11	6

All of the patients were admitted electively. ***The plan of the study was as follow:***

For the patients presented with only indirect inguinal hernia, I merely after dissecting out the hernia sac amputate it and allow the cut edges to retract out of sight. If the internal inguinal ring is too stretched by a large hernia ,it is narrowed using one or two stiches in the transversalis fascia with a 2-0 vycril (polyglactine) ,narrowed to its normal diameter in regard to the age of the patient and in comparison with the bulk of the spermatic cord.

For patients presented with undescended testicles and after doing the inguinal incision and identification of the spermatic cord, every effort is made to isolate away the vas difference with its associated blood and lymphatic vessels neglecting keeping the hernia sac intact throughout the procedure. The dissection may need to go deep in the internal inguinal ring to give enough length for the spermatic cord and then for the testicle to reach the scrotum. After that, the hernia sac or its remnant is cut and left to be retracted out of sight. Again if the internal inguinal ring is too stretched by a large hernia, it is narrowed using a 2-0 vycril (polyglactine) placed in the transversalis fascia. Standard orchiopexy was then performed by making subdartos pouch.

All of the patients were dealt with as day case surgery. At the time of discharge, the patient parents given a discharging cart mentioned in it the

surgical problem for which the surgery done and the personal phone number. Also a schedule for follow up every 6 months is given and instructions were given about. A phone number of all the patients' parents was taken and called when they did not attend at the time for follow up. On follow up the patients examined for the development of recurrent hernia or the development of hernia in the orchiopexy group. All patients were followed for 1-1.5 year

Results

140 patients under the age 6 years undergone surgeries for inguinal hernias (90 patients, all males) and orchiopexy surgeries (50 patients) over a period of two years (october 2008-october 2010) in baquba teaching hospital. The age range of the patients was 4 months to 6 years. All patients were followed for 1-1.5 year

For patients operated on for *undescended testicle*, no single patient developed inguinal hernia.

For the patients operated on for *indirect inguinal hernia 2 patients (2.22%) developed recurrence of their hernia. The ages of those two patients were (5 years and 6 months) and (5 years* and 8 months) respectively and were having large hernias at the time of surgery.

Discussion

For patients operated on for *undescended testicle*, no single patient developed inguinal hernia. These results are in accordance with those of Mohta A, Jain N, Irniraya KP, Saluja SS, Sharma S, Gupta A.**(4)**, Smedberg SG, Broome AE, Gullmo A.**(5)** ,Shulman AG,Amid PK, Lichtenstein IL**.(6)**,and those of Memon MA, Fitzgibbons RJ Jr.**(7)**.

For the patients operated on for *indirect inguinal hernia, 2 patients (2.22%) developed recurrence of their hernia.* May be explained by ineffective repair of the transversalis fascia at the internal ring.

These results are comparable with those of Gharaibeh KI, Matani YY**.(8)**,Smedberg SG, Broomé AE, Gullmo A**.(9)** and those of Jialin L, Hanxin Z, Xiaofang Y, Shiyun B**(10,11)**. They all showed a recurrence rate in the range 1.4-2.1%.

Conclusion

We conclude that ligation of hernia sac is not necessary in achieving surgeries for indirect inguinal hernias and during inguinal orhiopexy.

The advantages obtained from not to ligate the sac are:

1) Time saving (reducing the operative time): Several minutes of operating time are saved as we can avoid the very careful handling of the sac trying our best to keep it intact (not to lacerate it) and also save the time spent in holding of the proximal cut end of the hernial sac with multiple small haemostatic forceps and suture ligating it, especially when the sac is very thin and tends to tear very easily.

2) Length of testicular vessel: It is found that the most important criteria for bringing down the testes in the scrotum is the length of the testicular vessels; in our procedure extra length of the testicular vessel can be achieved by peeling off the peritoneum as high as possible (dissection deep in the deep ring).This extra length to the cord cannot be achieved if the peritoneal sac is ligated one centimeter above the ring.

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