

Study to Compare Classical Herniotomy versus Newer Method of Non Ligation Herniotomy: Our Institutional Experience

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Abstract

Objective: To compare outcome in terms of recurrence and complications in children operated by classical method of herniotomy with sac ligation versus newer method of non ligation of sac. **Material and method:** 100 children birth to 14 years of age with inguinal hernia were included in study conducted for 1 year. Exclusion criteria were children with high chances of recurrence like complicated hernia, incarcerated hernia. Total of 82 patients gave consent to participate in study. The total children were divided into 2 groups randomly and operated by classical and newer method of herniotomy. The children were followed up for a time span of 1 year for any complications. **Results:** There was only 3 case of recurrent hernia in the control group, and none in the study group. There was no statistically significant difference of complications in study and control group. **Conclusions:** This study showed that hernial sac ligation after its transection is not necessary in pediatric herniotomy. Omitting ligation did not result in any significant complications in children.

Keywords: Herniotomy; Inguinal hernia

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Introduction

Inguinal hernia is one of the common surgical problems seen in Paediatric age group. The incidence of inguinal hernia is found to be about

4-5% in Paediatrics age group. The underlying etiology in Inguinal hernia is abnormality in processus vaginalis. Processus vaginalis arises from the peritoneum as an outpouching. It plays a role in descent of testis from the abdominal position to the scrotal position. The testis are descended along the path of processus vaginalis to the bottom of scrotum [1]. At birth or within 3 to 4 weeks after birth the patent processus vaginalis is obliterated. Any persistence of the processus vaginalis leads to hernia. Not all cases of congenital hernia are due to patent processus vaginalis but it is an important contributing factor putting the child at risk for developing hernia. It is more common on right side as compared to left side [2].

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In females the persistence of processus vaginalis is rare and it is referred to as Hernia of canal of Nuck. The inguinal hernia may be either direct or indirect, though indirect seems to be more frequently encountered. Surgical repair is the treatment of choice for these cases. Non operation or delayed operation can lead to serious life threatening complications like strangulation, incarceration of hernia. The steps in classical method include, dissection of hernia sac, transection with high cord ligation done with non absorbable suture materials. As the hernial sac is the continuation of the peritoneum, just the transection without ligation of sac would fix the underlying cause [3]. As the peritoneum heals it self after cut or laceration the peritoneum could be left without ligation after herniotomy. This was the rationale used in newer method of nonligation of sac. Besides, performing an extra step may predispose to complications, and more time and cost spending [4]. Hence this study was conducted to compare classical and newer method of herniotomy.

Materials and Methods

Approval of the institutional ethical committee was taken up before starting. This was a randomised controlled study in which 82 children were operated and followed up for 1 year time span between march 2016 to march 2017. The study was conducted at tertiary care centre in western part of Maharashtra. A total of 100 children were selected initially but after ruling out children with high recurrence risk and those not giving consent, 82 children were taken up for the study. The children were randomly allotted into two study groups. Pre operative consent was taken. Investigations and pre anaesthetic fitness was done. The cases included 25 left sided hernia, 38 right sided hernia and rest were bilateral cases. The ratio of boys to girl in control group was 6.1 to 1 and in study group 4.8 to 1. The elective herniotomy was performed by equally experienced Paediatric surgeons. In the study group (non ligation of hernial sac), the hernial sac was dissected and separated from the spermatic cord and simply transected and excised at the internal ring level, without ligation. After excision, proximal end of hernial sac retracted into peritoneal cavity without closing it by suture. Final step was only skin suturing. While in the control group (ligation of hernial sac) the hernial sac after its dissection and separation from spermatic cord was ligated and transfixed by nonabsorbable suture (silk3-0) material and excised at the internal ring level (classic method). In both groups, in

few cases, if internal ring was large and patent and it approximated with one or two absorbable (vicryl 3-0) suture.

Both group evaluated for early complications which included bleeding, wound infection, discharge etc. And then all the patients were periodically followed up for long term complications like recurrence. On follow up the patients were evaluated by through history, Physical examination, ultrasonography. Data collected was analysed by chi square test and t test.

Results

Data analysis was made after collection of all data by chi square and t test. One recurrent inguinal hernia was detected in control group only during the 1 year follow-up period. Short term complications were statistically indifferent in both the study groups. We had not any mortality and no case of testicular atrophy.

Table 1. Compare of complications in both groups study group (non ligation of hernia sac), control group (ligation of hernia sac)

Complication type	Study group	Control group	p-value
Recurrence	00	01	0.48
Hemorrhage and Hematoma	00	01	0.48
Swelling of spermatic cord	07	08	0.79
Post operative hydrocele	11	09	0.81
Wound infection	02	03	0.67

Control group had 1 case of short term complication like hematoma which was drained by reopening. Swelling of the spermatic cord was seen in 7 cases in study group and 8 cases in control group with p value of 0.79 making the difference statistically insignificant. Hydrocele was documented in 11 cases in control and 11 cases in study group with the results being statistically insignificant. The number of cases of wound infection were 2 in control and 3 in study group making the difference non significant.

Discussion

The classical method of herniotomy includes the ligation of sac after dissection but the newer method used in our study was of non ligation of the hernial sac. The outcome of study showed that there was no statistically significant difference in the outcome of the results in patients operated by

both the methods. In newer method the peritoneum was left unligated. We proved that sac ligation is not absolutely necessary [5,6]. Hernial sac after transection closes rapidly by metamorphosis of the in-situ mesodermal cells as a part of peritoneum thus there should not be any need to its ligation. Eliminating the passage of viscera into the inguinal canal and cut off the continuity of sac seems to be enough for indirect inguinal hernia treatment. In other hand, adhesion of sac remnant suture in front of internal ring makes a fix point between them and prevent its complete retraction into abdominal cavity, hence increase possibility of recurrence. But some authors were of the opinion that ligation of sac was an necessary step in surgical correction of the congenital hernia and omission of this step can lead to higher percentage of recurrence in children [7,8].

Numerous clinical trials have confirmed that it is unnecessary to close the hernial sac that is a part of peritoneum with Sutures. Shulman et al. [9] demonstrated Invagination and excision of the hernia sac do not have adverse effects on repair integrity. They limit the dissection and reduce the morbidity and risk of injury to the spermatic cord and surrounded structures. They are safer and more appropriate for repair of sliding hernia. Ligation of the hernia sac in inguinal hernia surgery is not only unnecessary and time consuming but also leads to increased postoperative pain. Recurrence rates are statistically unaffected by not ligating the sac, the absence of adverse effects on herniorrhaphy without sac ligation in adults [10,11]. A prospective study of laparoscopic inguinal hernia repair in children by Schier showed that there is no difference in suturing or not after the peritoneum was incised and the sac resected. Veena Kumari et al. [12] showed that closure of the hernial sac is not necessary in herniotomy associated with orchiopexy. Fifty cases of undescended testis, age ranging from eight months to 12 years were enrolled. All of them underwent standard orchiopexy without ligation of the hernial sac. Follow up of all cases ranged between 1.5 years to three years. Not a single case was reported with evidence of hernia. They concluded that, It is unnecessary to ligate the hernial sac during orchiopexy [13]. Thus non ligation of sac can be considered advantage over ligation of sac. It is a faster procedure and requiring less dissection of tissue. It also has the advantage of avoiding suturing of the spermatic cord accidentally [14]. Our institutional experience comparing both the studies supported the newer method of non ligation of sac as no statistically significant difference was seen in both study group. More studies on a larger scale need to be performed to support our study.

Conclusion

The study was conducted to compare the results and outcome post operatively in hernial sac ligation and newer method of herniotomy without sac ligation. The methods were performed by well experienced surgeons and both surgeries were compared on various basis and follow up was taken for time span of 1 year post operatively. Our study concluded that there was no statistically significant difference in outcomes of patients operated by classical method of sac ligation and newer method of non ligation of sac.

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