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To study the differential diagnosis of inguino-scrotal swelling in children

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Abstract

Background: Inguinal and scrotal swellings are frequently encountered in the surgical practice, especially in children. It is also important to study the factors which are associated with inguinal hernia, especially in children, for its effective management.

Objective: To study the factors which are associated with inguinal hernia in children.

Setting and Design: A prospective hospital-based study was undertaken in the Department of Surgery for a period of one year. Children who were aged one day to 12 years were selected for the study. Out of 1000 children who were admitted to the surgical ward, 50 children had inguinal hernia and they constituted the sample.

Methodology: The details regarding the clinical history and the examination details were collected by using a pre-designed pro-forma. The data which was thus collected was analyzed by using the appropriate statistical tests.

Results: The inguinal hernia in the study group was common in the 1-5 years age group. 90% of the study group was males; a swelling in the inguinal region was the commonest symptom. 70% of the study group was term deliveries; the swelling of the inguinal hernia was elastic in consistency in 35 cases. The swelling of the inguinal hernia was irreducible in two cases. The testis was palpable in 48 cases; a cough impulse was seen and felt in 48 cases. Tenderness of the swelling was present in 2 cases.

Conclusions: Inguinal hernia is a common congenital condition in children. Difficulties are commonly encountered by the surgeons to identify and to confirm the presence of inguinal hernia. This study will help in a better management of hernia in the paediatric age group by understanding the features of inguinal hernia.

Keywords: Differential diagnosis inguino-scrotal swelling inguinal hernia

Introduction

Hernias and hydroceles are common findings in infancy. Male hydrocele, most commonly non-communicating hydrocele, accounts for 1–2% a male-to-female ratio of 5:1. Most inguinal hernias are unilateral, but 10% of the patients present with bilateral inguinal hernias. The incidence of inguinal hernia in premature infants has been reported to be about 5–30% with about two thirds being bilateral cases. Inguinal hernia repair is considered the most common surgical procedure in children. Other causes of inguinoscrotal swelling include testicular torsion, undescended testis, retractile testis, epididymo-orchitis, inguinal lymphadenitis, paratesticular tumors and tumors of the inguinal region such as lipoma and liposarcoma. Although paratesticular tumors are uncommon, they should be taken into consideration in the differential diagnosis, while the reported incidence of inguinal hernia, most commonly indirect inguinal hernia, is 5–50/1000 with Causes of inguinolabial swelling include hydrocele of the canal of Nuck, hernias and inguinal lymphadenitis. The complete androgen insensitivity syndrome is an androgen receptor defect seen in patients with female external genitalia and 46, XY karyotype showing uterine vaginal agenesis. Such patients commonly present with inguinal hernias. In many of these cases, clinical examination may suffice to obtain a definite diagnosis, but when the diagnosis is inconclusive, ultrasonography can play an important role. This study was carried out to assess the role of color Doppler ultrasonography in the identification of the different etiologies of inguinoscrotal and inguinolabial swelling, thus helping to decide on the optimal management.

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Aim

To study the different types of inguino-scrotal swellings and their management in the tertiary care referral centre.

Objectives**Primary objective**

1. To study the differential diagnosis of inguino-scrotal swelling in children

Secondary objectives**The secondary objectives are as follows**

1. To study the age, sex and sidewise distribution of inguinoscrotal swellings in children.
2. To study the various management options for various types of inguinoscrotal swelling open as well as minimal invasive surgery.
3. To study the associated anomalies like undescended testis, hypospadias and patency of processus vaginalis.
4. To study the postoperative complications such as wound infection, haematoma, recurrence etc.
5. To study complications like incarceration, strangulation and gonadal infarction.



Right Inguinal swelling



Left Inguinal swelling

Discussion

Inguinal and scrotal swellings in children form a majority of the surgical conditions which require treatment. Inguinal hernia repair is the most frequently performed operation in the paediatric age group. Studies from various centres have reported an incidence of 3.5 to 5.0% for the inguinal hernias in full term infants and an incidence of 44 to 55% in premature and LBW babies. In our study, a 30% and a 32% incidence were seen in premature babies and in low birth weight babies respectively. The studies of Rowe *et al.*, and Grosfeld *et al.*, reported an incidence of 55%-60% of the inguinal hernias on the right side, that of 25% on the left side and that of 15% bilaterally. In this study, among the 50 cases, congenital inguinal hernias accounted for 54% of the hernias on the right side and for 42% on the left side and for 4% which occurred bilaterally. Most often the herniae are asymptomatic, which are detected during the first few years of life and at birth in premature babies. In this study, the commonest age of presentation was between 1-5 years (42%), the youngest baby being 1.5 months old.

In the study series of Grosfeld *et al.*, the male to female ratio was 9:1. The incidence was 7:1 in the present study and three female children presented with an inguinal hernia with ratio of 15:1.

Associated congenital anomalies have been described by Weber *et al.*, with hernias being present in over 90% of the babies with cryptorchidism. Grosfeld and Conney described a 16% incidence of the previously unrecognized inguinal hernias following VP shunts.

Rowe and Lloyd reported incarcerations of the congenital inguinal hernias in 17% of the right sided hernias and in 7% of the left sided hernias, the overall rate being 12%. In this study, 2 cases of incarcerations were present in right sided congenital hernias (4%) in 2 years and 1.5 years old children; they were treated by an emergency exploration and repair, since the attempts at a reduction had failed. Rowe *et al.*, recommends elective surgery after a reduction, since it has a lower rate of complications as compared to an emergency surgery (1.7% vs. 22.1%). But in our study, both the cases were operated as emergency explorations, as the reductions failed and no operative or post-operative morbidity was noticed.

Almost all the hernia patients who underwent herniotomy had small amounts of fluid in the hernial sacs. According to Mlay and Sayi, the commonest site for the undescended testis is the superficial inguinal pouch. In our study, in four patients, the undescended testes were seen in the superficial inguinal pouches and in one case, it was found in the inguinal canal. In this study, we noticed that the commonest site was the superficial inguinal pouch.

Result

Out of the 1000 cases who were admitted to the surgical ward, 50 had inguinal hernias. Most of the children belonged to the 1-5 years age group. About 94% of them were males and only 6% of them were females. Thirty-five cases in the study group were term deliveries and 15 cases were preterm deliveries with signs of obstruction. They were operated in view of the risk of incarcerations. A swelling in the inguinal region was the commonest symptom which was presented by the patient attenders. It was followed by the swelling and absence of the testes in five cases. One case had swelling with pain and fever and another had pain and inability in reducing the swelling. The swelling in the inguinal region was present for 1 to 2 years in 90% of the cases.

Among the study sample, the symptoms were studied and it was found that a majority of the cases (44) presented with swelling, and the next common presentation was the absence of the testes (6 cases). In the other cases, swelling, pain, fever, and irreducibility were the symptoms. The duration of the stay of the patients after the surgery was one day. In 47 cases, the post-operative follow up was uneventful and three cases did not return for follow up.

Three female children with hernias were operated and the sac contents were identified as fallopian tubes, ovaries and coils of intestines in one case; the sac contents were only coils of intestines in the other two cases.

Complications

The complication rate for repair of inguinal hernias and hydrocele in children ranges from 1.7 to 8%. The wound infection rate is 1% to 2% and recurrence rate is less than 1%. Most recurrences are associated with comorbid condition and occur within 2 years of the original operation. Other factors predisposing to inguinal hernia recurrence include failure to

ligate the sac high enough at the internal ring, Failure to repair the internal ring or canal floor injured at initial surgery, infection, incarceration requiring emergency surgery, and deferred Orchidopexy in infants with a concomitantly undescended testis.

Testicular complications associated with hernia and hydrocele repair may be more common than previously expected. Vas injury is recognized as a cause of subsequent infertility in the adult who underwent inguinal surgery as an infant or child. Testicular atrophy following hernia repair ranges from 0% to 19% and is much more common after emergency surgery for incarcerated hernia repair.^[4]

Inguinal hernia and hydrocele in pediatric age group has been studied worldwide. The present study has been contemplated to find out the age, sex, side wise distribution of inguinal hernia and hydrocele in children and also to document the patency of processus vaginalis, associated congenital anomalies and postoperative complications.

Conclusion

Inguinal hernia is a common congenital condition in children. The general surgeons often face difficulties in identifying and confirming the presence of the inguinal hernias. This study was an effort to identify such difficulties and also to find the clinical characteristics of the children with inguinal hernias. Most of the inguinal hernias in this study were congenital and they included the children who were between 1– 5 years, especially male children. A swelling in the inguinal region was the most common symptom. Most of the swellings were elastic in consistency and reducible, the testes were palpable, and a cough impulse was seen in a majority of the children. The inguinal hernias were common on the right side and the follow ups of the patients were uneventful

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