
BILATERAL GIANT INGUINOSCROTAL HERNIA ON A 5 YEAR OLD CHILD

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Abstract: Bilateral giant inguinoscrotal hernia is a rare condition requiring surgical repair in the pediatric age group. Among a lot of techniques for hernia repair with high ligation of sac, in this case presentation we choose to follow up the outcome of Ferguson’s procedure where herniotomy was done after opening the external oblique aponeurosis and this was the aim of the study. On March 2019 a 5 year old child was reported with swelling in the bilateral inguinoscrotal region which is very rare condition in our region. Parents have noticed swelling just after the 8 months from birth. There was also a complaint of sometime penile shortening as far as its size is concerned. The swelling occasionally was associated with pain or discomfort. Very often the swellings were changing in size ie shrinking and sometimes they had disappear completely. The parents declared no history of fever, nausea, vomiting or constipation. No other complaints were present. The vitals were stable. On local examination, bilateral inguinoscrotal swelling was present of a size about 9 x 5 cm on right side and 8 x 4 cm on the left side, firm in consistency, non-tender and the skin was normal in appearance, showed no warmth or erythema bilaterally. The swellings were reducible, positive for cough impulse, negative for transillumination test. The penis sometimes was buried inside and the testis was felt separately. After obtaining the history and examination of the inguinal and the groin regions with the scrotum and its contents, the respiratory system, the cardiovascular system and the abdomen were examined for any associated congenital anomalies. The child was also subjected to routine investigations of the haemoglobin levels, total leukocyte count, differential count, bleeding time, clotting time, the routine urine examination and abdominal ultrasound. Ultrasonography confirmed a bilateral inguinal hernia with contents of the sac identified to be bowel and the presence of the testis in the scrotal sac were noted. After the pre-operative assessment the child was checked out by the anesthesiologist. First we decided to manage the right side which was bigger and the left side we delayed it to manage after few months. We performed the Ferguson’s technique, where herniotomy was done after opening the external oblique aponeurosis. The incision was made over the skin crease, opened in layers and the cord was identified. Then sac was identified and separated from the cord. Contents were small bowel loops, which were reduced and the sac was transfixed with Vicryl 3-0. Herniotomy was done. Operation time was >40 min. The child was discharged in a satisfactory condition on the third day without complications (post-operative pain, scrotal edema or hematoma, wound infection). After 6 months we managed and we used the same procedure for the left side. The child is doing well in the follow up period of 12 months and he has no complications.

Keywords: bilateral inguinoscrotal hernia, rare condition, surgical treatment

1. INTRODUCTION

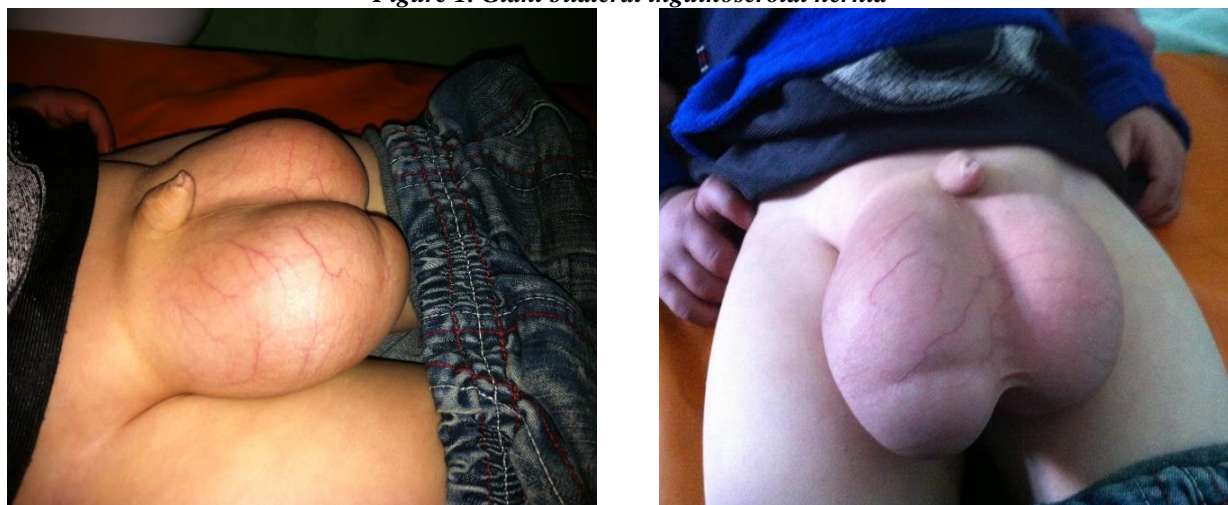
The term hernia is derived from the Greek hernios (meaning budding). A hernia is defined as weakness of the fibromuscular tissues of the wall from which contents of the cavity underlying it arise from the wall (Al-Shemy, G., et al. 2018). Inguino-scrotal swellings are one of the commonest anomalies in paediatric age groups. Most of them are related to the abnormalities of descent of testis and failure of obliteration of processus vaginalis. It can be defined as a “protrusion of a viscus or part of a viscus through a normal or an abnormal opening in the wall of its containing cavity” (Kumar, R. & Prasad, V. S. (2018). Inguinal hernias may appear immediately after birth. As a congenital dysplasia, an inguinal hernia is mainly caused by failure of the peritoneum to close, with a prominent clinical manifestation of protrusion of abdominal tissues or organs through the abdominal wall to form a palpable mass (Zhao, Z., et al.2019). The reason for the processus vaginalis’ failure to close in some individuals is largely unknown. Some evidence suggests that smooth muscle cells involved in the descent of the testis may abnormally fail to undergo apoptosis in inguinal hernias (Yeap, E., et al. 2020). Congenital inguinal hernias are common in infants and children, for which surgery constitutes the most frequent method of treatment in the paediatric age-group. The difficulties which are encountered in paediatric inguinal hernia are operative difficulties which are connected with a

thin transparent sac, which is the association with the undescended testis and the different opinions on the timing of the operation when the two conditions co-exist. The swelling in the inguinal region is described by the parent but the surgeon is unable to confirm its presence. Once the diagnosis is definite, the rule is to repair. The other difficulty is whether a contra-lateral exploration should be performed or not, and if so, whether the decision should be based on the site, age or sex (Ravikumar, V., et al. 2013). Giant inguinoscrotal hernias are typically defined as those extending below the midpoint of the inner thigh, in the standing (Menekos, C., et al. 2020). Herniorrhaphy becomes the choice and standard treatment for inguinal hernia and is estimated as used in more than 20 million cases per year worldwide position (Chen, N. H., et al. 2018). Laparoscopy appears to be beneficial in bilateral hernia of girls, giant hernia, recurrence following failed open repair and in hernia associated with undescended testis or ambiguous genitalia. On the other hand, open herniotomy appears to be advantageous in male inguinal hernia, unilateral female hernia, premature newborns, failed laparoscopic repair and in hernia associated with serious comorbidity (Raveenthiran, V. & Agarwal, P., 2017). In the current state of pediatric inguinal hernia repair, the high ligation of the patent processus vaginalis (PPV) at the internal inguinal ring (IIR) via a groin incision has been established as a proven procedure with a high success rate and a low rate of complications (Endo, M. 2018). The incidence of inguinal hernia is highest in children under 1 year of age and thereafter decreases. In premature babies, the incidence is even higher with babies born less than 32 weeks of gestation having a reported incidence of 9.34%. Right-sided hernias are more common (ratios of right, left, and bilateral hernia are approximately 59%, 29%, and 12%, respectively). Boys are affected around 10 times more often than girls; 99% of inguinal hernias in children are of the indirect type (Chan, I.H. & Wong, K. K., 2017). It's known that the main cause to hernia recurrence is an inadequate sac closure in upper area. According to literature, incising external oblique aponeurosis is most recommended (Askarpour, S., et al. 2017). The European Hernia Society (EHS) proposed the tip of the index finger as the reference for the size of the internal inguinal ring in open surgery since the usual size of the tip of the index finger is mostly around 1.5 cm (Abdelmohsen, S. M. & Osman, M. A., 2017).

2. CASE REPORT

On March 2019 a 5 year old child was reported with swelling in the bilateral inguinoscrotal region which is very rare condition in our region. Parents have noticed swelling just after the 8 months from birth. There was also a complaint of sometime penile shortening as far as its size is concerned. The swelling occasionally was associated with pain or discomfort. Very often the swellings were changing in size ie shrinking and sometimes they had disappear completely. The parents declared no history of fever, nausea, vomiting or constipation. No other complaints were present. The vitals were stable. On local examination, bilateral inguino-scrotal swelling was present of a size about 9 x 5 cm on right side and 8 x 4 on the left side, firm in consistency, non-tender and the skin was normal in appearance, showed no warmth or erythema bilaterally. The swellings were reducible, positive for cough impulse, negative for transillumination test. The penis sometimes was buried inside and the testis was felt separately (Figure 1).

Figure 1. Giant bilateral inguinoscrotal hernia



After obtaining the history and examination of the inguinal and the groin regions with the scrotum and its contents, the respiratory system, the cardiovascular system and the abdomen were examined for any associated congenital anomalies. The child was also subjected to routine investigations of the haemoglobin levels, total leucocyte count, differential count, bleeding time, clotting time, the routine urine examination and abdominal ultrasound.

Ultrasonography confirmed a bilateral inguinal hernia with contents of the sac identified to be bowel and the presence of the testis in the scrotal sac were noted. After the pre-operative assessment the child was checked out by the anesthesiologist. First we decided to manage the right side which was bigger and a left side we delayed to manage it after few months. We performed the Ferguson's technique, where herniotomy was done after opening the external oblique aponeurosis. The incision was made over the skin crease, opened in layers and the cord was identified. Then sac was identified and separated from the cord. Contents were small bowel loops, which were reduced and the sac was transfixed with Vicryl 3-0. Herniotomy was done. Operation time was >40 min. The child was discharged in a satisfactory condition on the third day without complications (post-operative pain, scrotal edema or hematoma, wound infection). After 6 months we managed and we used the same procedure for the left side. The child is doing well in the follow up period of 12 months and he has no complications.

3. DISCUSSION

There is considerable debate about the best technique used to repair inguinal hernias, especially for bilateral inguinoscrotal hernias. The main factor to take into consideration when comparing various surgical techniques in recurrent hernia cases is the rates of recurrence and anatomic basis of the hernia. There is a general consensus that one must try to avoid using the same technique on a patient that has failed before. In our case we choose high ligation of Ferguson's technique. Inguinal hernia is one of the most common general surgical operation world wide accounting for 10-15% of all surgical procedures (Lebeau, R., et al.2016). Inguinal hernia is a common cause of congenital inguino-scrotal swelling in paediatric age group, it is more commonly seen in male children and majority of children develop it between the ages of 1 to 5 years. Incidence is higher in premature and low birth weight neonate ((Kumar, R. & Prasad, V. S. (2018). Inguinal hernias are common in pediatric surgery. Most cases present as oblique hernias caused by congenital failure of the peritoneum to close. The incidence rate is 0.8%-4%. Males are affected approximately 10 times more than females and incidence is much higher in premature infants. Incidence of an occult patent processus vaginalis in inguinal hernias is 20%-40%, decreasing gradually with increasing age. Incidence at the ages of 1, 2, and 2-8 years are 40%, 35%, and 20%, respectively (Zhao, Z., et al.2019). Indirect inguinal hernias in children are caused by remaining of the processus vaginalis open. The extension of the intraabdominal organs from this opening to the scrotum is defined as inguinoscrotal hernia. However, there is no clear diagnostic criterion for giant inguinal hernia. In giant hernia, internal inguinal ring is wider than inguinoscrotal hernia. Dilated internal inguinal canal inlet does not allow permanent reduction of intestines. The fundamental principle guiding pediatric inguinal hernia repair is high ligation of the hernia sac (Anadolulu, A. I., et al. 2019). The incidence in full-term babies is estimated at 1–5%, and it is six times more common in boys. The small intestines are the most commonly herniated intra-abdominal content in boys. The incidence of right-sided hernias is more than three times that of left-sided hernias. Bilateral hernias are more common in premature infants. Over 99% of inguinal hernias in children are indirect (Yeap, E., et al. 2020). Most literature suggests that inguinal hernia repair in term or preterm babies is a technically demanding procedure with an incidence of postoperative and intraoperative complications that exceeds that of inguinal hernia repair in other pediatric age groups (wound infection, recurrence, bleeding or testicular atrophy is reported with an incidence up to 10%) (Disma, N. et al. 2018). Giant inguinal hernias present several specific problems. The massive size of the hernia can interfere with walking and doing routine work. Penis can be buried inside the scrotum causing urine to dribble over the scrotal skin and other complications include intestinal obstruction, incarceration and strangulation of the contents. Complications in giant inguinal hernias can even be fatal (Tahir, M. et al. 2006).

4. CONCLUSION

Giant inguinal hernia is a type of hernia with massive contents inside the hernia sac and limited domain of abdominal cavity. The surgeon's decision regarding the prevention of intraabdominal hypertension is a crucial stage of overall management. The Ferguson's procedure is safe and reliable. The open herniotomy through a lower skin crease incision is still the gold standard for inguinoscrotal hernia repair in children. It is very safe, well-tolerated, with low recurrence rate, leaving early invisible scar.

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