

ORIGINAL ARTICLE

Survey of presence of Hernia and Hydrocele among school children in Nasik

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Abstract

Background: Inguinal hernia repair in infants is a routine surgical procedure. However, numerous issues, including timing of the repair, the need to explore the contralateral groin, use of laparoscopy, and anesthetic approach, remain unsettled. Given the lack of compelling data, consideration should be given to large, prospective, randomized controlled trials to determine best practices for the management of inguinal hernias in infants. **Methods** Total 1000 children of age between 7 to 12 years were examined for presence of inguinal hernia and hydrocele. **Results:** Inguinal hernia was found in 29 (2.9%) children and hydrocele was detected in 12 (1.2%) children. **Conclusion:** Since these abnormalities are most common disorder in children, education of the public and medical staff about these abnormalities and screening system are needed to improve the outcome.

Key words: Inguinal hernia, Hydrocele, Children

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Introduction

Inguinal hernia, hydrocele and other inguino-scrotal abnormalities are the most common congenital disorders in children. Abnormalities of external genitalia in male elementary students have a prevalence rate between 6.6 to 18.7%. The most common disorders of external genitalia include inguinal hernia, varicocele, undescended testis, hydrocele, hypospadias, epispadias, and micropenis. Prevalence of inguinal hernia is about 1-5% in general population. Approximately 3% to 5% of term infants may be born with an inguinal hernia.^{1,2,3} Inguinal hernias present with a lump in the groin that goes away with minimal pressure or when the patient is lying down. Most cause mild to moderate discomfort that increases with activity.⁴ Inguinal hernias are at risk of irreducibility or incarceration, which may result in strangulation and obstruction; however, unlike with femoral hernias, strangulation is rare.⁴ Approximately 80% to 90% of inguinal

hernias appear in boys. Male to female ratio of inguinal hernia varies from 4:1 in infants to 12-25:1 in adults. If strangulated, inguinal hernia may lead to loss of testis and life threatening situations.³ Hydrocele is a limited collection of fluid in tunica vaginalis of testis or along spermatic cord which lead to swelling and blood supply obstruction of testis resulting in destruction of testicular tissue. Hydrocele and inguinal hernia in children occur from the incomplete or abnormal closure of processus vaginalis and are the most common surgery requiring condition.^{3,5} Therefore, regarding to high prevalence of these disorders in children, physical and psychological complications associated with these disorders, lack of adequate parental attention to these anatomic abnormalities, importance of early diagnosis and treatment of genital disorders and inguinal hernia in preventing their complications, and the fact that genital examination for screening is not done before school age, we studied on children

to determine prevalence rate of inguinal hernia and other genital abnormalities.

Materials and Methods

Physical examination of the children was performed in presence of a parent in a warm room in supine and upright position with and without valsalva maneuver. A written consent was obtained from parents before examination. Past medical history and history of surgery on inguinal and genital area was taken.

Examination was performed with the help of 2 interns who were trained about genital system examination. For cases with by positive or suspicious findings, further examinations and evaluation was done by specialists. Data was collected according to study variables and recorded in questionnaire.

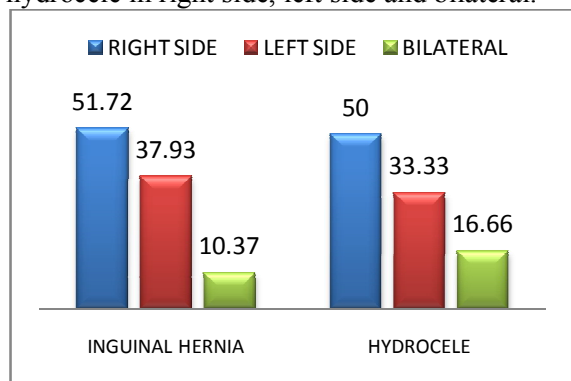
Results

Total 1000 children of age between 7 to 12 years were examined for presence of inguinal hernia and hydrocele. Inguinal hernia was found in 29 (2.9%) children and hydrocele was detected in 12 (1.2%) children.

Table 1: Table showing the presence of inguinal hernia and hydrocele among children.

Abnormality	Right side	Left side	Bilateral	Total
Inguinal hernia	15 (51.72%)	11 (37.93%)	03 (10.37%)	29
Hydrocele	06 (50.00%)	04 (33.33%)	02 (16.66%)	12

Graph 1: Incidence of the inguinal hernia and hydrocele in right side, left side and bilateral.



Out of 29 patients of inguinal hernia, 15 (51.72%) patients having right sided inguinal

hernia, 11 (37.93%) were having left sided inguinal hernia and 03 (10.37%) were having bilateral inguinal hernia.

Among 12 patients of hydrocele, 06 (50.0%) had right sided, 04 (33.33%) had left sided, while 02 (16.66%) had bilateral presence of hydrocele. (Table 1, Graph 1)

Discussion

Inguinal hernia repair is one of the most common surgeries performed by pediatric surgeons and general surgeons. The incidence of a pediatric inguinal hernia reported throughout the literature has ranged between 0.8% and 4.4%.⁶ Throughout the pediatric inguinal hernia literature, the terms funicular process (blind peritoneal sac), patent processus vaginalis, and hernia sac are used interchangeably. For clarification: a funicular process is a tiny protrusion of peritoneum barely into the proximal inguinal canal only seen by opening up the internal ring and is not a hernia; a patent processus vaginalis is a small indirect inguinal hernia sac (some say it has to be >2 cm long, which is not clinically evident. An inguinal hernia appears as a bulge in the inguinal region that extends towards and often into the scrotum. It may be present at birth or may appear until weeks, months or years later. When the child relaxes, the hernia either reduces spontaneously or can be reduced by gentle pressure. The position of the testes must be determined before attempting to reduce the hernia to avoid mistaking the inguinal bulge for a retractile testes lying outside the external ring, the latter usually does not require treatment. However a true undescended testis may coexist with a hernia, in which case orchiopexy is required in addition to hernia repair. In girls the ovary may herniated and has a 27.0% risk of torsion and infarction.^{6,7} Inguinal hernia is the most common indication for surgery in the paediatric age group. It is believed that these hernias rarely go away, and therefore, virtually all should be repaired. Much has been written about this condition, but controversies on its different aspects still exist. The present study was done to convey the experiences of a pediatric surgeon on childhood inguinal hernia.^{8,9}

Hydrocele testis was described as early as the 15th century by ambroise Pare, and is defined as an abnormal collection of serous fluid in the

space between the parietal and visceral layers of the tunica vaginalis, termed the cavum peritoneum scroti.⁹

Hydrocele is the most common cause of painless nonacute scrotal swelling in men. The normal scrotum has been reported to contain 2–3 ml of fluid between the tunical layers. Inguinal hernias are often classified as direct or indirect, depending on whether the hernia sac bulges directly through the posterior wall of the inguinal canal (direct hernia) or passes through the internal inguinal ring alongside the spermatic cord, following the coursing of the inguinal canal (indirect hernia). However, there is no clinical merit in trying to differentiate between direct or indirect hernias.⁴ The development of an inguinal hernia is multifactorial. In case of a congenital pathogenesis a preformed opening is caused by incomplete closure of the abdominal wall or in case of acquired hernia it is caused by a dehiscence of the fascias accompanied by a loss of abdominal wall strength. Etiologic factors may be increased intra-abdominal pressure or changes in the connective tissue.¹⁰

Complete understanding of the issues related to surgical repair of an inguinal hernia requires an understanding of the embryology of descent of the testes and the formation of the processus vaginalis.¹¹ Inguinal hernia is the most common and prominent surgical entity among all congenital anomalies, constituting more than 15% of total pediatric surgical cases. Inguinal hernia is directly linked to the descent of the developing gonads in children.¹² In children, the bowel follows the course of the processus vaginalis through the internal ring, lateral to the inferior epigastric vessels forming an indirect inguinal hernia. The diagnosis of hernia can be made during physical examination when organs such as bowel or ovary protrude into the sac, or can be based on a classic description by the parents or a referring physician. On the other hand, a communicating hydrocele should also be considered as a hernia, and repair is indicated regardless of the age. Hydroceles that develop after birth are more likely to be associated with a patent processus vaginalis that is less likely to close.¹³

Hydroceles may differ in size but most of the cases are asymptomatic. Acquired hydroceles are usually developed gradually and are not that

much alarming. Larger hydroceles may result in chronic pain in the scrotum or lower back and can cause injury to the scrotal contents such as the testicle. Communicating hydrocele may be of small size each morning but grow bigger all over the day as the patient is upright. The marked feature on physical examination is a smooth, tense, scrotal mass that transilluminates easily. This can help distinguishing a hydrocele from a hernia or a mass, solid in nature. Communicating hydrocele might be present with indirect inguinal hernia. To assess the mass, the whole surface of testes should be palpated. If a thorough examination of the scrotal structures is prohibited by a size of the hydrocele or it does not transilluminate fully, then ultrasound can exclude testicular tumor as cause. If the patient is symptomatic or its history along with his physical check-up advocates a causative process, then imaging must be ordered too. The ultrasound can display an inguinal hernia, accompanied by a communicating hydrocele.¹⁴

Most hydroceles in newborns are harmless and will resolve on their own by 12 months of age. The causes of hydroceles that develop in children are different from those in adults. The testicles initially develop in the abdomen. In most boys, they move down into the scrotum before birth. As they do this, some of the lining of the abdomen comes down as a sack containing the testicle. In most boys, the sack's connection to the abdomen is closed at birth, but in some boys it remains open. When it is open fluid produced in the abdomen can then freely move into the scrotum and back.¹⁴

A hernia is reducible if it occurs intermittently (such as on straining or standing) and can be pushed back into the abdominal cavity, and irreducible if it remains permanently outside the abdominal cavity. A reducible hernia is usually a long-standing condition, and diagnosis is made clinically, on the basis of typical symptoms and signs. The condition may be unilateral or bilateral and may recur after treatment (recurrent hernia).⁴ Non-communicating hydroceles are often resolved by two years of age in infants while it is resolved within six months in boys in approximately 75% cases. Alert wait is suitable for this population. In adults, hydroceles do not need treatment, if there is normal testicle or the patient remains

asymptomatic. Conversely symptomatic or communicating hydroceles require proper treatment. Non-communicating hydroceles can be treated through surgical resection through an inguinal method or through aspiration and sclerotherapy. Sclerotherapy along with various agents such as polidocanol, phenol and thanolamine oleate, and aspiration is well documented. Communicating hydroceles are treated surgically through resection and correction of the anatomic defect, which cause insistent association with the peritoneal cavity.¹⁴

Conclusion

Therefore, regarding to relatively high prevalence rate of these abnormalities and their irreversible complications and low level of people knowledge, public and health staff education and screening systems for diagnosis and appropriate treatment of these abnormalities seem to be necessary.

Conflict of Interest: None declared

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Ethical Permission: Obtained

References

1. Al-Shawawreh A, Abu Mayyaleh IS. Abnormalities of external genitalia and groin hernias in the city of Karak in the south of Jordan. *Acta Medica Medianae* 2010; 49(4): 5-9.
2. Lugo-Vicente H. Recurrent inguinal hernias. *Pediatric Surgery Update* 2003; 21(6): 27-33.
3. Gooran S, Fazeli F, Asghari-Sheikhi M, Askar-Nooghani A, Dashipour A, Rajabnia-Chenari M. Prevalence of inguinal hernias and genital abnormalities among elementary school boys. *Zahedan J Res Med Sci (ZJRMS)* 2014; 16(1): 28-31.
4. Jenkins JT, O'Dwyer PJ. Inguinal hernias. *BMJ* 2008;336:269-72
5. Diniz G, Barutcuoglu M, Unalp A, et al. Evaluation of the relationship between urogenital abnormalities and neuromuscular disorders. *East J Med* 2008; 13(1-2): 19-24.
6. Kapur P, Caty M, Glick P. Pediatric hernias and hydroceles. *Pediatr Clin North Am* 1998; 45: 773-89.
7. Harper R, Garcia A, Sia C. Inguinal hernia: a common problem of premature infants weighing 1000 gms or less at birth. *Pediatr* 1975; 56:112-5.
8. Ein SH, Njere I, Ein A. Six thousand three hundred sixty-one pediatric inguinal hernias: a 35-year review. *J Pediatr Surg* 2006;41:980-6.
9. Karbulut B. One surgeon experiences in childhood inguinal hernias. *J Korean Surg Soc* 2011;81:50-53.
10. Holzheimer RG. Inguinal hernia: classification, diagnosis and treatment. *Eur J Med Res* (2005) 10: 121-134.
11. Wang KS. Assessment and Management of Inguinal Hernia in Infants. *Pediatrics* 2012;130(4).
12. Guvenc BH. Laparoscopic Approach as an Alternative Option in Treatment of Pediatric Inguinal Hernia. *Advances in Laparoscopic Surgery*;119-140.
13. Brandt ML. Pediatric Hernias. *Surg Clin N Am* 2008; 88: 27-43.
14. Dave J. Cause and Management of Hydrocele: A Review Article. *Indian J Applied Sciences* 2015;5(10):117-8.