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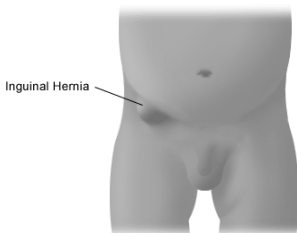
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We at Pediatric Surgical Associates have greatly appreciated our collegial relationship with our referring pediatricians and family practitioners over the past many decades, and we plan to continue to serve you and the children of Tarrant and surrounding counties for decades to come. As a friendly assistance to your assessment of surgical conditions in the children you treat, we are initiating a monthly informational newsletter. The purpose of this newsletter is to give you a glimpse into our approach to various surgical conditions so you can better decide who should be referred, who does not need to be referred, and what is appropriate regarding the timing of the referral. Each issue of this newsletter will contain a brief article explaining our approach to a particular common surgical condition in children. Each one-page newsletter is designed to fit into a loose-leaf binder, and we sincerely hope that you will save each copy and keep the collection in a handy location for future reference. Our hope is, of course, that the ultimate result will be even more satisfied families and even healthier children.

INGUINAL HERNIAS and HYDROCELES

One of the most frequent complaints pediatric surgeons hear from parents who have brought a child in to see us is, "I think my child might have a hernia." Of course, there are many types of hernias, but quite often they mean an 'inguinal' or groin hernia. Parents often equate any enlargement in the genital area with a hernia, but the child might in reality have either a hernia or a hydrocele, or rarely, even an enlarged lymph node. With just a few questions and a brief examination, the surgeon must decide which it is.

Both conditions result from the fact that during development there is a weak area in the musculature of each groin. The testicle in boys and the round ligament in girls pass through this area which should then close. When it doesn't, one of these two conditions develops. A large opening results in a loop of intestine passing through the opening creating a hernia, while a small opening allows only passage of fluid resulting in a hydrocele.



Hernia. The hallmark of a hernia is a bulging in the groin area itself (see drawing), regardless of the presence of any swelling in the scrotal area. There **MUST** be a bulge in the inguinal area, even a subtle one, because that is

where the opening is located which leads into the abdominal cavity; bowel must pass through that area before it can move downward into and distend the scrotal area.

Frequently, a hernia is not obvious at the time of the child's visit to our office. We surgeons are sometimes unwilling to plan surgery based solely on the parent's statement regarding the presence of the bulge, but knowing that other physicians such as yourselves or the emergency room staff have seen the bulge as well is generally sufficient evidence.

A mass in the inguinal area which comes and goes is an inguinal hernia until proven otherwise. Inguinal hernias are rarely uncomfortable to the child, even if the hernia is the inguinoscrotal type which extends from the inguinal area all the way into the scrotum. When a hernia is observed, it is critical to determine that the hernia can be 'reduced' or the contents placed back into the abdominal cavity; whether it recurs immediately is unimportant. Any child with a hernia which has become painful, red, firm, or irreducible must be sent to see us immediately.

When the diagnosis of a hernia has been confirmed, timing of repair is the next concern. In general, children less than six months of age are at a greater risk for developing complications from their hernia than are children older than six months. Consequently, we recommend that children younger than six months should undergo repair within two

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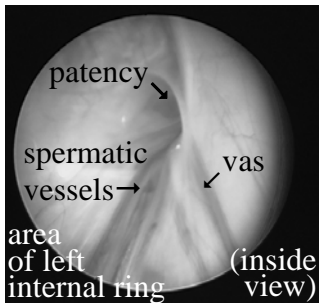
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weeks whereas older children may wait up to six weeks, although the sooner the better. Strenuous activities should be curtailed until repair has taken place. Statistically, only about 4% of the older children will ever develop a complication, so waiting a longer period of time will subject them to little risk.

Occasionally an inguinal hernia becomes incarcerated and is reduced only with great difficulty, some-times requiring sedation. When this occurs, expeditious repair is advisable. Because of the manipulation, the hernia sac becomes quite edematous and will not hold sutures well. Therefore the risk of recurrence increases as much as ten-fold under such circumstances. Most surgeons advise waiting at least 72 hours before repair is carried out to reduce this risk.

Although the age criteria differ from surgeon to surgeon, we believe that children under the age of two years who have a unilateral inguinal hernia should be investigated for the presence of a contralateral internal ring patency



which would indicate the tendency toward developing a second hernia in the future. Most pediatric surgeons still incise the opposite groin and inspect the canal visually. Years ago, a member of our group helped to pioneer the practice of selective intraoperative laparoscopic examination of the opposite internal ring.

A small telescope is placed through the open hernia sac and if an opening is seen at the contralateral internal ring (see photo), the other side is then repaired. This spares the child additional surgery, both immediately and in the future.

In the absence of co-morbid medical conditions, unilateral and bilateral inguinal hernia repair are both outpatient procedures and result in only the smallest amount of morbidity. Most children are back to school by the next day or two and back to physical activities in one to three weeks. The need for post-operative pain medication is minimal.

Girls develop inguinal hernias as well, although about 9 times less frequently than do boys. Of particular concern in a girl is the appearance of a small, hard, movable mass in the groin area which will not reduce with pressure. This may represent an incarcerated ovary, and current recommendation is for urgent repair since interruption of blood supply and loss of the ovary is possible under these conditions.

Hernia repair in those adolescent boys who have nearly reached their adult stature may require placement of a small piece of plastic mesh. No other children will need any plastic implanted. Although laparoscopic techniques for hernia repair in small children have been reported, none are yet advisable for routine use.

The risk of hernia repair is an injury to the vas deferens or to the testicular vessels. This risk is related to the experience of the surgeon in performing this procedure. Repair by a board-certified pediatric surgeon is therefore advisable.

Hydroceles. A soft cystic swelling around the testicle without any inguinal swelling is generally a hydrocele. These may also be very tense and firm. They may have a

dark bluish discoloration which is often alarming to the parents who mistake it for blood. But it is just clear colorless fluid which looks dark because of decreased light penetration into the cavity.

There are two types of hydroceles and neither is a medical urgency. The important question to be asked when a hydrocele is discovered is, "Does this swelling ever change in size—sometimes large and sometimes small?" If the answer is "No, the size always stays the same," this is likely to be a non-communicating or 'simple hydrocele' which is like a small water balloon and is of no importance except for cosmetic reasons. If, however, the answer is 'Yes', the family will often have noticed the classic picture of the size being smaller in the morning and larger in the evening. This identifies the hydrocele as a 'communicating hydrocele', meaning that the area around the testicle communicates with the abdominal cavity through a small passageway—the patent processus vaginalis. This may be thought of as a 'hernia in the making' since the only difference between a patent processus vaginalis and a true hernia sac is the width of the opening, which may well increase with growth and time. When a communicating hydrocele is found, we will generally recommend surgical repair, although the timing is of less concern. We generally suggest that surgery be carried out at the parents' convenience as soon as their schedule will comfortably allow. Presumed 'simple' hydroceles persisting beyond 1 year of age are usually the communicating type instead and should be repaired.

Transillumination is an unreliable method of differentiating an inguinal hernia from a hydrocele. These days, ultrasonography is painless and accurate insofar as detecting even a small herniation when present. However, even ultrasonography can not see an empty hernia.

Hernias and hydroceles are common and are commonly confused. With an understanding of the anatomy, and a few simple questions, the diagnosis becomes clear.

Just for Fun Trivia Quiz!

- Children at increased risk for developing an inguinal hernia include all those listed below except those
 - with a parent who had a hernia as an infant.
 - who have cystic fibrosis.
 - with urethral abnormalities.
 - who were formula rather than breast fed.
 - with a mucopolysaccharidosis disorder.
 - who have developmental dysplasia of the hip.
- In a normal child, the risk of recurrence after inguinal hernia repair is approximately
 - 1 in 50.
 - 1 in 200.
 - 1 in 10.
 - 1 in 100.
- An inguinal hernia most commonly occurs on the
 - right side.
 - left side.
 - both sides with equal frequency.

Disclaimer: All material is intended for informational purposes only and is not intended, and should not be used, to replace medical advice offered by a qualified physician. We are always available and willing to discuss questionable conditions with you and we invite your request for our assistance.

Answers to trivia questions: 1-D, 2-B, 3-A