



# YOUR SURGICAL CONSULTANT

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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 have initiated 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 healthier children. **\*PLEASE NOTE WE HAVE ADDED A SOUTHWEST OFFICE.\***

## **THE UNDESCENDED TESTICLE (CRYPTORCHIDISM)**

There are many explanations for the mechanism of testicular descent, but none are fully satisfactory. The process of testicular descent begins in the fourth and fifth week of fetal life and is completed between the seventh month of gestation and one month after birth. Complete descent requires an intact hypothalamic-pituitary-gonadal axis. The responsible portions of the central nervous system and the end organ (the testicle) must be capable of producing and responding to the appropriate hormones within the appropriate time frame. The developing inguinal canal and gubernaculum must also permit testicular descent.

About 3% of term males and 30% of preterm males will have an undescended testicle (UDT) at birth, but about 80% of all UDTs will descend during the first 3 months of life. Descent after 3 months is rare. The incidence of testicular maldecensus is increasing, as evidenced by several studies from around the world. The reason for this rise is not clear, but it may be caused by environmental pollutants and estrogen-like chemicals.

The testicle develops ideally at 33°C, the normal temperature of the scrotum. Early surgical correction optimizes testicular development. Since damage to the UDT can be identified at an age as early as 6 months, current recommendations are that a child with an UDT should be referred to a pediatric surgeon by six months of age, and the repair

should be performed when the boy is between six months and two years of age.

The undescended testicle is also associated with an increased risk of an inguinal hernia, and parents should be advised of the symptoms of incarcerated hernia if repair of the UDT is to be delayed. The appearance of an inguinal hernia warrants immediate attention.

**The Impalpable Testicle.** An impalpable testicle may be intraabdominal or the testicle may be absent. An impalpable testicle should be investigated with ultrasonography to demonstrate that a testicle is present and to identify its location. Bilateral undescended testes may require an endocrine evaluation and if accompanied by a hypospadias, should be investigated for an intersex condition.

Occasionally the impalpable testicle will be tiny and atrophic. Generally this occurred because of vascular insufficiency *in utero*. Such testicular tissue is abnormal, will never become normal, and is prone to malignant degeneration; it is always removed when found.

**The Retractable Testicle.** The retractile testicle must be differentiated from the true UDT. The retractile testicle can be manipulated into a dependent scrotal position and remains there for at least a brief moment before returning to a higher location. A testicle that has been reliably seen within the scrotum by a parent or a caregiver—even once—is gen-

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erally not undescended and is probably retractile. Generally, the hemiscrotum on the side of a true UDT tends to be hypoplastic and smooth whereas the scrotum on the side of a normal or retractile testicle is similar in size and appearance to a hemiscrotum containing a normally descended testicle with normal appearing rugae of the skin.

The internal oblique muscle gives off fibers which attach to the tissue around the testicle and are collectively called the “cremaster muscle”. This muscle elevates the testicle as a result of several stimuli such as cold, nervousness, or fright—exactly those conditions generally present during an office examination! The differentiation between these conditions is important since the retractile testicle requires no surgical therapy and is not prone to infertility or testicular cancer, as a truly UDT is. Therefore, in questionable situations, the parents should be assigned the task of examining the boy under favorable conditions—when he is warm, calm, and relaxed, such as during a bath or while asleep. In extreme situations when the child is uncooperative in the office and the family is of little help, the boy may need to be examined under general anesthesia. If the testicle descends normally under full muscle relaxation, the procedure is cancelled and the testicle is called ‘retractile’. If it is found to be truly undescended, the orchiopexy is completed.

**The Ascending Testicle.** Occasionally a retractile testicle will later become truly “undescended”. Any boy with a retractile testicle should undergo annual re-examination until the testis remains in the scrotum spontaneously. Ascending and never-descended testes are treated similarly.

**Surgical Options.** Correction of an UDT is an outpatient procedure and is generally best carried out through an inguinal incision. Laparoscopic orchiopexy is an option but

is probably best suited to the relocation of intraabdominal or nonpalpable testicles since several tiny scars in visible locations are not necessarily better than one barely noticeable scar in a location which is not generally seen by the public.

Occasionally the testicle cannot be brought down to the proper location. This is generally due to the spermatic vessels being of inadequate length. One approach to this problem is to bring the testicle down as far as possible and then plan to bring it the remainder of the way, if possible, at a later procedure. If the testicle is known preoperatively to be “high” and at risk for not being able to be brought down completely, division of the vessels laparoscopically and later relocation of the testicle after collaterals have formed (the Fowler-Stephens procedure) is the best option. The alternative is orchiectomy.

Even after correction, the UDT is still at risk for malignancy, and the patient should be monitored with an annual genital examination. By puberty he should also be taught the technique and the importance of testicular self-examination. It is generally accepted that the risk of developing malignancy is elevated for the normally descended testicle as well. The risk of malignancy is probably reduced by early correction. High-risk patients are those with intra-abdominal testicles or testes that have been brought down after early childhood. Early correction appears to maximize the child's potential for fertility.

When an empty scrotum is the result after groin exploration, a silastic testicular prosthesis may be placed to allow a normal appearance. This prosthesis must, of course, be replaced a time or two before adulthood is reached to maintain parity in size with the normal side. Most young men won't bother with a prosthesis.

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## VARICOCELE

A varicocele is best understood as a varicosity of the pampiniform plexus of the spermatic vein due to increased intravenous pressure. There is not a single etiology for the increased pressure, but congenital absence of the valves within the spermatic vein is a frequent cause. The venous drainage differs between the right and left sides making the left side about ten times more susceptible to developing a varicocele than the right.

A varicocele increases the temperature of the affected testicle which can lead to progressive dysfunction of the testicle and epididymis. These changes may be significant in adulthood but may be noted even during adolescence. The overall incidence of varicocele is about 15% in all adult men with the condition rarely seen before age 10 and the incidence rising to the adult level by late adolescence.

A varicocele is frequently asymptomatic, but the most common symptom is a ‘dragging’ sensation or a feeling of ‘heaviness’. It is generally noted as a soft cystic mass in the upper scrotum and lower inguinal canal and is commonly described as feeling like a ‘bag of worms’. The testicle may be smaller on the affected side.

A varicocele should be repaired when it becomes symptomatic—including noting a size discrepancy. The re-

pair, ligation of the spermatic veins, reflects the understanding that the cause of the condition is increased venous pressure; ligation relieves that pressure. Collateral veins compensate for the loss of blood flow through the ligated veins.

The standard operative approach is through an inguinal incision similar to that for a hernia repair; however, we offer a laparoscopic approach which is equally effective.

The risk of recurrence or persistence of the varicocele is around 5%. The risk of a postoperative reactive hydrocele is similar, although this generally resolves spontaneously.

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## Yogiisms

(Attributed to Yogi Berra)

The future ain't what it used to be.

A nickel ain't worth a dime anymore.

In theory there is no difference between theory and practice, but in practice, there is.

You can observe a lot just by watchin'.

You give 100% in the first half of the game, and if that isn't enough, in the second half you give the rest.

I never said most of the things I said.

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**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.