

# UNDESCENDED TESTIS (Cryptorchidism)

## What happens under normal conditions?

Normal testicles (pl. testes) arise early in a boy's development. Although they are located initially in the abdominal cavity, they gradually descend into the scrotal area during the latter part of pregnancy, in response to the baby's normal hormones. The testes in the infant make hormones primarily. After puberty, they produce both hormones and sperm.

In about 3% of full term and about 30% premature newborn boys, one or both testes fail to reach the normal position at the time of birth. This condition is obvious on routine examination in the newborn and infant. Fortunately, about two-thirds of these testes will descend spontaneously by four months of life in full-term and by six months in premature boys.

## What needs to be done if a testicle is not in normal position, and why?

Undescended testis is usually diagnosed on routine physical examination. Diagnostic studies such as scrotal ultrasound are not usually necessary but can be useful in select cases.

Treatment is recommended after six months of age if a testis is still not in normal position, as it is very unlikely to descend further. There are several reasons for treating undescended testis.

**1) To improve sperm producing function.** The testicle functions better within the scrotum, where the temperature is slightly lower than normal core body temperature. A testis that is not in the scrotum will develop and function abnormally. The longer a testis stays in the hotter-than-normal environment, the more abnormal it becomes. It may lose the ability to make sperm and hormone after puberty. This can be a cause of infertility, especially when both testes are affected.

**2) To potentially reduce the risk of testicular cancer.** An undescended testicle is associated with a higher risk of testicular cancer in adulthood, with a lifetime risk of about 1-5%. Although successful treatment does not eliminate this cancer risk, it allows one to detect abnormality earlier through regular self-examination and seek treatment at an early stage, when the cure rate is excellent.

**3) To repair the associated hernia/hydrocele.** In more than half of the testicles that do not descend normally, there is an associated hernia/hydrocele that needs to be repaired.

**4) To reduce the risk of testicular loss due to torsion.** An undescended testicle is more likely to twist on its own blood supply and strangulate itself (testicular torsion).

**5) To preserve self-image.** There may be adverse psychological effects on the boy with abnormal genitalia.

## What causes undescended testicles?

There are many potential causes for undescended testis. It may be the result of abnormal hormonal function, abnormal mechanical interference by other body parts, or a combination of both. There are some genetic causes, such that this condition is more common in some families.

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## **What treatments are available?**

Treatment should be considered after six months of age. The time between six and 18 months of age is generally considered best when taking into account surgical, anesthetic and psychological factors.

The two treatment options are **hormone** injection and **surgery**. In the United States the only option available for hormonal treatment is human chorionic gonadotropin injection. Hormonal treatment requires multiple injections over several weeks. It is safe but it is only curative in 10 to 15 % of truly undescended testes. Many parents therefore prefer surgical treatment.

The surgical operation is called **orchidopexy**. It requires general anesthesia, but the baby can almost always go home the same day and usually acts normal within one to two days. An incision about an inch long is made in the groin area. The testis is separated from all surrounding tissues so that it comes down easily into the scrotum where it is stitched in place. If there is a hernia, this is repaired at the same time. In some cases, the testis is too high for this simple operation and more complex procedures (and sometimes two planned operations) are needed.

## **What if the testicle cannot be felt on physical examination?**

A testis that cannot be felt on physical exam is called "**nonpalpable testis**". In this condition, a testis may be present but located in the abdomen, or it may be absent or atrophic (very small). It is important to determine which of these is true because a testicle left inside the abdomen could form a tumor later in life, generally as a young adult. Such a tumor may go undetected until it becomes quite large or spreads. Unfortunately, as no imaging study is completely reliable for this condition, this situation always requires surgical exploration. Potential findings include:

- Blind ending testicular blood vessels indicating an absent testis.
- Vessels exiting the abdomen indicating that there is no testicle within the abdominal cavity. A separate incision is then made in the groin to look for the testis. If it is atrophic, it is removed.
- A testicle in the abdomen. In this case, a first stage procedure is done, which still leaves the testis inside the abdomen. A planned second stage procedure is performed 6 months later. A planned staged approach increases the success rate from the 60% range to over 90% for this difficult condition.

In the case that the boy will be left with only one testis, it is recommended that the solitary testis be secured surgically to reduce the risk of testicular torsion, as this can result in the loss of the only testis. A testicular prosthesis can be placed in the empty side of the scrotum after puberty if desired.

## **What are the potential risks of surgery?**

The risks of significant bleeding, infection, or damage to important structures are expected to be less than 1% for orchidopexies. There is a 1-2% possibility of the testis moving back up with further growth of the child, which may require another surgery to bring it down.

## **What can be expected after treatment?**

After treatment, the testis usually develops to normal size in the scrotum. However, when a testis is very abnormal to start with, it may never grow properly. In other cases, even though it is of normal size, it does not produce sperm normally. In most cases, when only one testis is affected, the chances of ultimately fathering a child are very high—indeed, almost the same as normal. It is recommended that, as a teenager, these patients have regular examinations and be reminded to perform monthly testicular self-examinations.

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