Maldescended testis in Adults

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Definitions

• Cryptorchid: testis neither resides nor can be manipulated into the scrotum
• Ectopic: aberrant course
• Retractile: can be manipulated into scrotum where it remains without tension
• Gliding: can be manipulated into upper scrotum but retracts when released
• Ascended: previously descended, then “ascends” spontaneously
Epidermiology

Cryptorchidism is the most common genital disorder encountered in paediatrics.

- 1% to 4% of full-term and
- 1% to 45% of preterm male neonates (Sijstermans et al, 2008)

Spontaneous descent is more likely and may occur later in premature infants.

Spontaneous descent after the first year of life is uncommon.
Is the incidence of cryptorchidism increasing?

• Literature controversial
  – Cryptorchidism, hypospadias, micropenis
  – Decreasing semen quality
  – Increasing testicular cancer
  – Increasing demand for assisted reproduction

• Impact of environmental xenoestrogens
  – Herbicides, pesticides, PCBs, polystyrenes

• Environmental antiandrogens
  – Linuron, vinclozolin, pp’DDE, polyaromatic hydrocarbons
Testicular development

- 6 wk primordial germ cells migrate to genital ridge
- 7 wk testicular differentiation
- 8 wk testis hormonally active
  - Sertolis secrete MIF
- 10-11 wk Leydig cells secrete T
- 10-15 wk external genital differentiation
Testicular descent

- 5-8 wk processus vaginalis
  - Gubernaculum attaches to lower epididymis
- 12 wk transabdominal descent to internal inguinal ring
- 26-28 wk gubernaculum swells to form inguinal canal, testis descends into scrotum
- Insulin-3 (INSL3) effects gubernacular growth
Genetic Susceptibility

- Genetic studies of cryptorchidism suggest that the disease is heritable but that susceptibility is likely polygenic and multifactorial.
- Autosomal dominance with reduced penetrance probable mode of inheritance.
- Recurrence risk ratio (RR) was 10.1 in twins, 3.5 in brothers, and 2.3 in offspring and were significantly higher in maternal than in paternal half-brothers. ([Schnack et al., 2008](#)).
• An adult is not a big child!
Presenting History

- Pain
- Hernia
- Testicular malignancy
- Infertility
- Micropenis
- Delayed puberty
Hypogonadism

- Loss of libido (desire)
- Fatigue / depression / loss of well-being
- ↓ Lean body muscle and mass
- ↑ Visceral fat / mass
- Sleep disturbances
- ↓ Virility
- ↑ Sweating / dry skin / anaemia
- Osteoporosis
An Adult with empty scrotum

**Congenital**
- Undescended
- Retractile
- Ectopic
- Vanished
- DSD
- Agenesis

**Acquired**
- Torsion
- Orchidectomy
Evaluation

- Role of Sonar
- Baseline investigations?
  - Testosterone
  - Semen analysis

- To do a biopsy or not
Age At Presentation!
Male infertility, Normal serum T, FSH, LH

Semen analysis

Oligozoospermia, asthenozoospermia or teratozoospermia

Positive sperm antibodies

Sperm autoimmunity

Idiopathic

Y chromosome microdeletions

Varicocele

Azoospermia

Examine post-ejaculation urine

Sperm absent

Sperm present

Assess semen fructose

Retrograde ejaculation

Negative

Ultrasound seminal vesicles

Dilated

Acquired obstruction of vas deferens at ejaculatory duct level

Congenital absence of vas deferens

Obstruction of ductal system at epididymis

Abnormal

Germ cell arrest or hypospermatogenesis

If spermatids present in testis biopsy, ICSI with testicular sperm

Normal

Microsurgical aspiration of epididymal sperm and ICSI
THE LINK BETWEEN ERECTILE DYSFUNCTION, TESTOSTERONE AND METABOLIC SYNDROME

Abdominal obesity represents a “vicious circle”: abdominal fat tissue reduces testosterone and testosterone reduces the fat tissues.

Testosterone deficiency syndrome is a proven risk factor for all the metabolic syndrome components.

All components of metabolic syndrome are underlying conditions for erectile dysfunction.
Increased risk of neoplasia

- Cortes 2001: 1638 testicular samples from 1335 patients (23% bilateral, 77% unilateral)
- Mean age @ surgery 11.7 yo (0.1-18.9 yr)
- 1 invasive germ cell tumor
- 6 carcinoma in situ
- 1 Sertoli cell tumor
Neoplasia & cryptorchidism

- 3 neoplasms in intra-abdominal testes
- 4 neoplasms in boys with abnormal external genitalia
- 2 neoplasms in boys with known abnormal karyotype
- Risk of neoplasia 5% with intraabdominal testes, abnormal external genitalia or abnormal karyotype  (Cortes 2001)
When to operate?

- Lee 2002
- Inverse correlation between age at surgery and T
- Inverse correlation between body wt and T
- Direct correlation between T and sperm density, motility, morphology
- Indicates direct relationship between spermiogenesis and T in cryptorchid men
Is further treatment after surgery indicated?

- Subfertility correlates with reduced total germ cell counts
- Defects in germ cell maturation associated with blunting of normal surges LH/FSH
- Prepubertal treatment with GnRH could theoretically trigger normal germ cell maturation & proliferation
Palpable UDT Orchiolysis pexy
LAPAROSCOPIC ORCHIOPEXY: PROCEDURE OF CHOICE FOR THE NONPALPABLE TESTIS?

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Laparoscopic findings

Unilateral
- Absent testis and cord structures
- Absent testis with cord structures exiting the inguinal canal
- High testis
- Testicular Nubbin
  – Orchidectomy

Bilateral
- Fowler Stephens
- Prentis Maneuvre
- Orchidectomy
Laparoscopy
INTRA ABDOMINAL TESTIS
Adults!

- Modifications have been discussed regarding orchiolysis
- Challenge on mobilization
- Adult with bilateral undescended testis!
  - Intra-abdominal testis
  - Fowler - Stevens
  - When to do orchidectomy?
  - When to do nothing?
Absent testis

• Treat the complications
• Hypogonadism
  – Testosterone supplement
• Family interest
• Self image
  – Testicular prosthesis