Abnormalities of the Scrotum

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UNDESCENDED TESTES
Testicular Positioning

**Normal Scrotal Position**
Positioning of the midpoint of the testis at or below the midschrotum

**Undescended Testis**
Absence of one or both testes in the normal scrotal position
- Palpable (cryptorchid)
- Nonpalpable (cryptorchid or absent)
Definitions

**Congenital cryptorchidism:** testis that is extrascrotal at birth

**Recurrent cryptorchidism:** testes descend *postnatally* but now in nonscrotal position

**Testicular ascent or acquired cryptorchidism:** testes previously in scrotum and now no longer in normal position

**Secondary cryptorchidism and testicular retraction:** suprascrotal after inguinal surgery (hernia or orchidopexy)

**Retractile Testes:** scrotal testes that retract out of scrotum easily but can be brought down to the scrotum
Cryptorchidism

- Common congenital anomaly
  - 1-4% of term infants
  - 1-45% of preterm neonates
  - Nonsyndromic to syndromic cryptorchidism 6:1

- Pathogenesis: unknown
  - Thought to be multifactorial – genetic and environmental factors
Congenital Cryptorchidism

- Palpable testes continue to descend to scrotum in 50% of children until 6 months
- Preterm infants have a higher chance of spontaneous descent
Acquired Cryptorchidism/Ascending Testis

- Diagnosis at 8 or 9 years of age
- Documented descended testicle previously
- Pathophysiology is not well understood
  - Fibrous remnant of processus vaginalis that foreshortens the cord
  - Incompletely descended since birth and sits in a superficial inguinal pouch – present as undescended once somatic growth occurs
- The lower the testicle starts out the higher the chance of the testicle to descend to the normal scrotal position
Retractile Testes

• Can be brought down to the scrotum manually
• Retrospectively, some studies suggest that up to 33% of these patients will eventually be diagnosed with undescended testis
  – Significantly retractile testis
  – Many factors may contribute to this
  – If easy to bring to dependent portion of scrotum without tightness of cord and no appreciable hernia
Nonpalpable Testes

- Abdominal or transinguinal testes (25-40%)
- Complete atrophy (15-40%)
- Extra-abdominal location (10-30%)
  - Body habitus
  - Testicular size

95% of nonpalpable testes in a genetic male are abdominal

- Very rarely can be both vanishing testes
  - Vanishing testis: blind ending spermatic vessels (abdomen, inguinal canal, or scrotum)
  - Ultrasonography and MRI are not useful in the diagnosis of testicular location
Germ Cell Development

- The number of spermatogonia per tubule ratio decreases significantly after infancy and fails to increase normally with age in the cryptorchid testis
  - May be some effect on the scrotal testis spermatogenesis
- Abnormal germ cell development occurs early in cryptorchid testes
AUA Guidelines: Standards

• Consult for congenital or acquired cryptorchidism at 6 months (corrected for gestational age)
• Immediate consultation for bilateral non-palpable testes or cryptorchidism-hypospadias for evaluation of possible disorder of sexual differentiation
• No imaging for cryptorchidism as it does not assist in treatment planning
• Boys with retractile testes, should have annual exams to assess for secondary ascent
VARICOCELE
Varicocele

• Abnormal dilation and tortuosity of the internal spermatic veins in the pampiniform plexus
• Appears in otherwise normal males
• Can contribute to subfertility in adulthood
• 85% of men with varicoceles have fathered children
  – True effect on fertility is unknown
Varicocele

• Appear after the age of 10 and risk increases with progression of puberty – peaking at Tanner stage 3
• Prevalence in this population is up to 16%
• Etiology not well understood
  – Genetic disposition
  – Body habitus
  – Abnormalities in the venous vasculature
• Left varicocele most commonly secondary to venous drainage
  – Right varicocele – screen for abdominal malignancy
Who Needs Treatment?

- Greater than a 20% discrepancy in testicular size difference (grade 3 or higher)
  - Physical exam more reliable than testicular ultrasound measurements
- Persistent pain (5%)
- Abnormal semen analysis in Tanner stage 5 and/or at least 18 years of age
HERNIAS AND HYDROCELES
**Cause and Definitions**

- **Patency of the processus vaginalis**
  - Indirect inguinal hernia: passage of abdominal viscera
  - Communicating hydrocele: passage only of fluid
- **Spermatic cord hydrocele**
  - Obliteration of processus distally and sometimes proximally
- **Scrotal hydrocele**
Inguinal Hernias and Communicating Hydroceles

- Incidence in childhood: 1-5%
- More common in premature infants (up to 30%)
- 1/3 of patients present in the first few months of life
- The average age of presentation is 3 to 4 years old
Presentation

• New onset Inguinal of inguinoscrotal swelling
• Otherwise asymptomatic
• Increase in size with crying or straining
• Communicating hydroceles – may be bigger at the end of the day or after exercise
• Incarcerated hernias present with abdominal pain, nausea, vomiting
  – Most common in infancy and rare above 5 years old
Imaging: Inguinoscrotal Ultrasonography

- Helps to distinguish between bowel loops and fluid
- Identify the testicle if not palpable
- Identify patent processus vaginalis
- Hernia sac
QUESTIONS?