

THE CUTTING  
EDGE  
OF PEDIATRICS



# 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 midscrotum

## 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

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

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

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

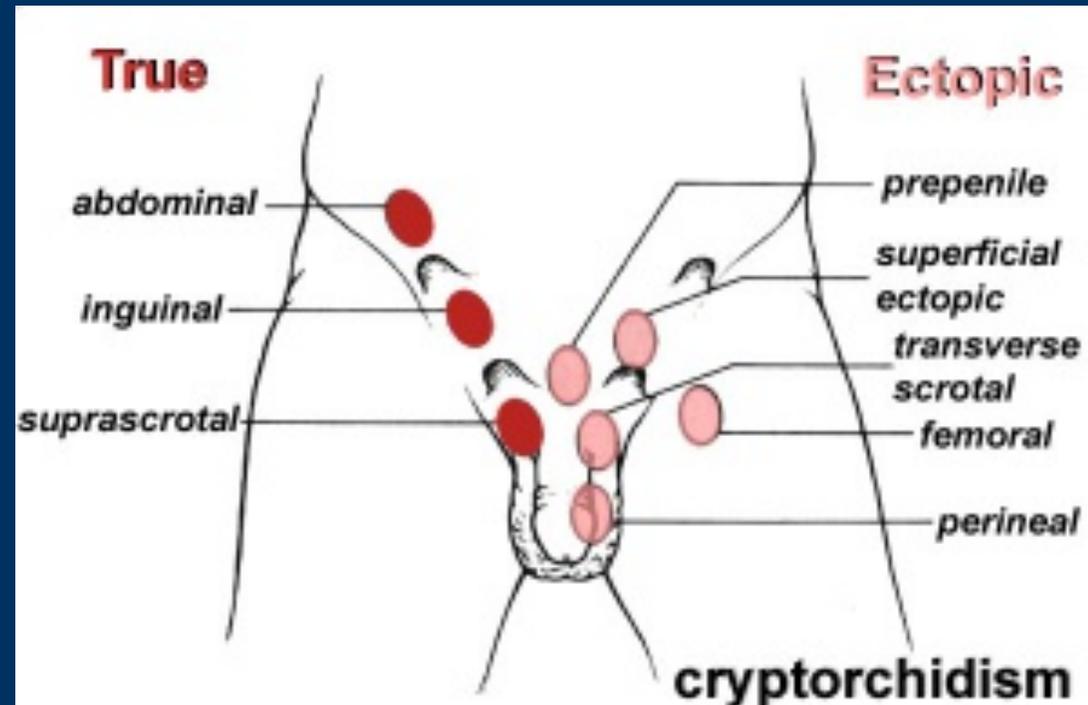
**Retractile Testes:** scrotal testes that  
retract out of scrotum easily but can be  
brought down to the scrotum

# 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

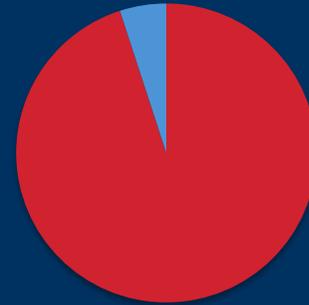
- Diagnosis at 8 or 9 years of age
- Documented descended testicle previously
- Pathophysiology is not well understood
  - Fibrous remnant of processus vaginalis that foreshortens the cord
  - Incompletely descended since birth and sits in a superficial inguinal pouch – present as undescended once somatic 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

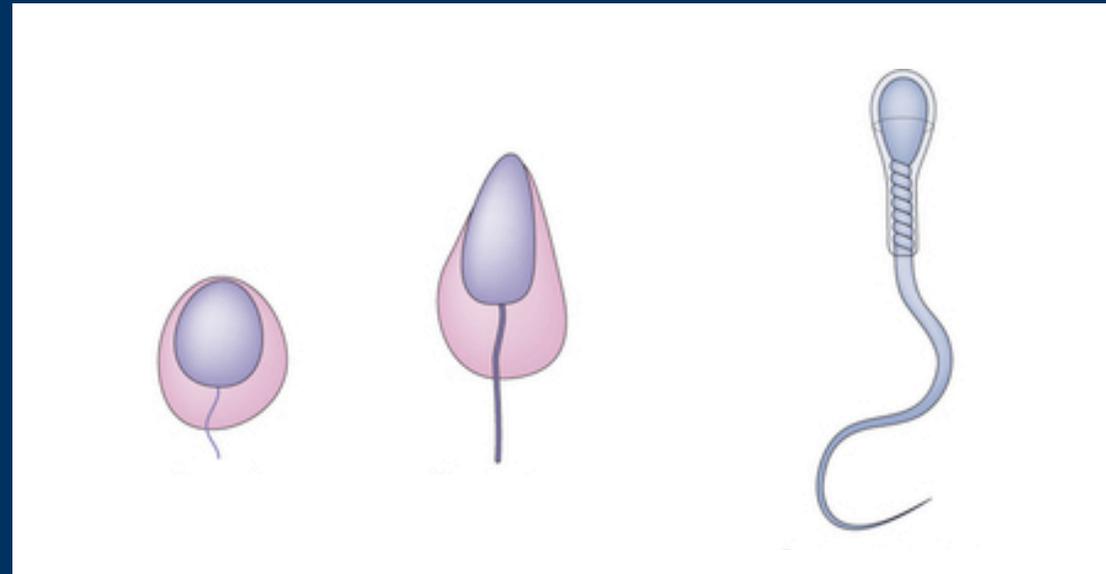


95% of nonpalpable testes in a genetic male are abdominal

- 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



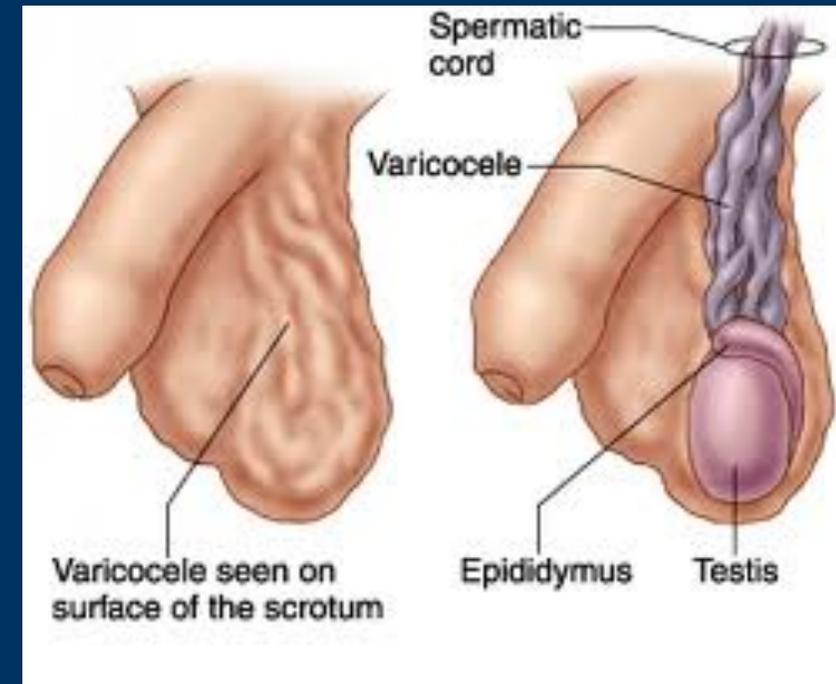
# AUA Guidelines: Standards

- 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

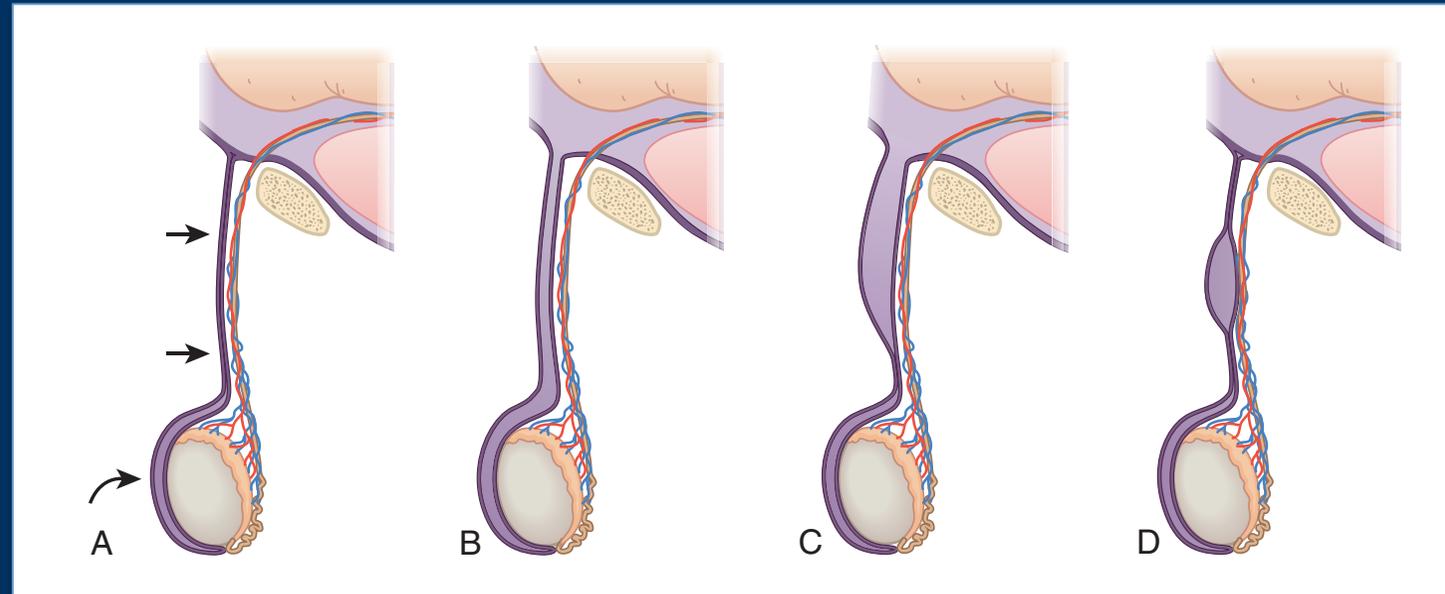
# Who Needs Treatment?

- 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

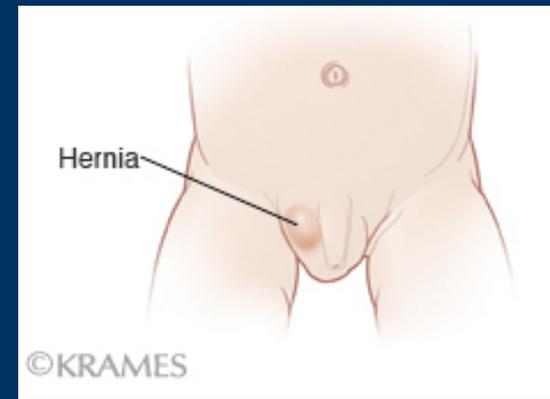


# Inguinal Hernias and Communicating Hydroceles

- 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 or 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?