SONOGRAPHY OF THE VAS DEFERENS

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Vas Deferens Anatomy

- Mesonephric (Wolffian) duct origin
  - Epididymis
  - Seminal vesicles
  - Ejaculatory duct


- Divided into
  - Scrotal
  - Suprascrotal
  - Prepubic
  - Intrapelvic


- Prepubic segment
  - Difficult to visualize
- Suprascrotal seg.
  - Straight
  - Usually in lateral aspect of cord
- Scrotal segment
  - Convoluted
  - Posterior to epidid.


- Inner & outer longitudinal muscle layers and middle circular layer.
- Muscular wall very thick wrt the lumen
- Lumen pseudostratified columnar epithelium

http://www.siumed.edu/~dking/erg/RE2e2b.htm


Scrotal Segment

Epididymis
Vas

Epididymis
Vas

Compression + Doppler

Total thickness
1.5-2.7 mm (m=1.9mm)
Lumen
0.2-0.7 mm (m=0.43mm)

52-year-old man with painful mass on the right

36-year-old man with perineal pain

RIGHT
35-year-old man with a right epididymal mass

- Bilateral (CBAVD)
  - 1-2% of male infertility
  - 4-17% of azoospermic men
  - 25% of men with obstructive azoospermia
- Unilateral (CUAVD)
  - Usually detected incidentally
  - Present in 1% of men
**CABVD**

- 78-99% due to CF transmembrane regulator (CFTR) gene mutations
- Almost all men with CF have CBAVD
- Abnormally thick mucus may clog VD causing deterioration in embryo
- CBAVD with renal anom usually not assoc with CF

**Congenital Bilateral Absence of the Vas Deferens**

- Testes normal morph and function
- Associated with anomalies of:
  - Epididymis
  - Seminal vesicles (50%)
  - Ejaculatory ducts
  - Kidneys (10-20%)

**Congenital Unilateral Absence of the Vas Deferens**

- 1% of men
- Seen incidentally. Pts usually fertile
- Also associated with anomalies of:
  - Epididymis
  - Seminal vesicles
    - Ipsilateral 90%, Contralateral 20%
  - Kidneys
    - Up to 80% ipsilateral renal agenesis
    - Up to 33% contralateral renal anomalies

**Congenital Absence of the Vas Deferens**

- Can be detected on PE by experienced urologists
- Sonography used for confirmation, further eval, determine involvement of epi, search for assoc anomalies
- Sensitivity reduced by
  - Cremasteric contraction
  - Obesity

CUAVD #1

CUAVD #2
39-year-old with azoospermia.

CUAVD #2

CUAVD #3

SUMMARY
• Scrotal and suprascrotal segment of vas deferens reliably visualized with US
• Total thickness range 1.5 – 2.7 mm
• Lumen diameter range 0.2 – 0.7 mm
• Obstruction diagnosed when lumen dilated
• CBAVD relatively common cause of azoospermia & strongly associated with CF
• CAVD also associated with deformities of epididymis, seminal vesicles, ejac duct, & kidney