# Ultrasound- Penile

**PURPOSE:**

To evaluate for priapism in sickle cell patient (ischemic); trauma.

To evaluate for rupture of the corpus cavernosum, identify a retained foreign body, or characterize other focal abnormalities or collections of the penis and surrounding soft tissues.

**SCOPE:**

Applies to all ultrasound Penile evaluation studies performed at Imaging Services / Radiology

**INDICATIONS:**

- Priapism in sickle cell patient (ischemic); trauma.
- History, clinical signs (examples: ecchymosis, swelling), or symptoms (example; pain) associated with penile trauma; penile pain

**CONTRAINDICATIONS:**

No absolute contraindications.

**EQUIPMENT:**

Linear array transducers:

EPIQ 7G L12-5.

EPIQ 5G eL18-4.

GE LOGIC E9 ML6-15.

IU22 L12-5.

**PATIENT PREPARATION:**

- Anatomical position with penis held lying on the abdominal wall = ventral approach (preferred).

**EXAMINATION:**

**GENERAL GUIDELINES:**

- Use minimal pressure with dorsal approach.
- Transverse views from the proximal (base), mid-portion and distal (tip) portions. Start at the proximal region (as close to penoscrotal junction as possible) towards the glans.

- The size and echogenicity of each corpus cavernosum should be compared to the contralateral side.
- Note: If a palpable abnormality is the indication, this area should be imaged directly and documented.

**EXAM INITIATION:**

- Introduce yourself to the patient (AIDET)
- Verify patient identify using patient name and DOB
- Explain Test
- Obtain patient history including symptoms.
- Enter and store data page
- Place patient in supine position.

**DOCUMENTATION:**

Standard Images: Evaluation in two planes. Label dorsal or ventral.

1. Trans prox bilat (gray and color)
2. Trans mid bilat (gray and color)
3. Trans distal bilat (gray and color)
4. Long proximal right cc (gray and color and spectral of the cavernosal artery with RI)
5. Long mid right cc(gray and color and spectral with RI)
6. Long distal right cc (gray and color and spectral with RI)
7. Long proximal left cc (gray and color and spectral with RI)
8. Long mid left cc (gray and color and spectral with RI)
9. Long distal left cc (gray and color and spectral with RI)

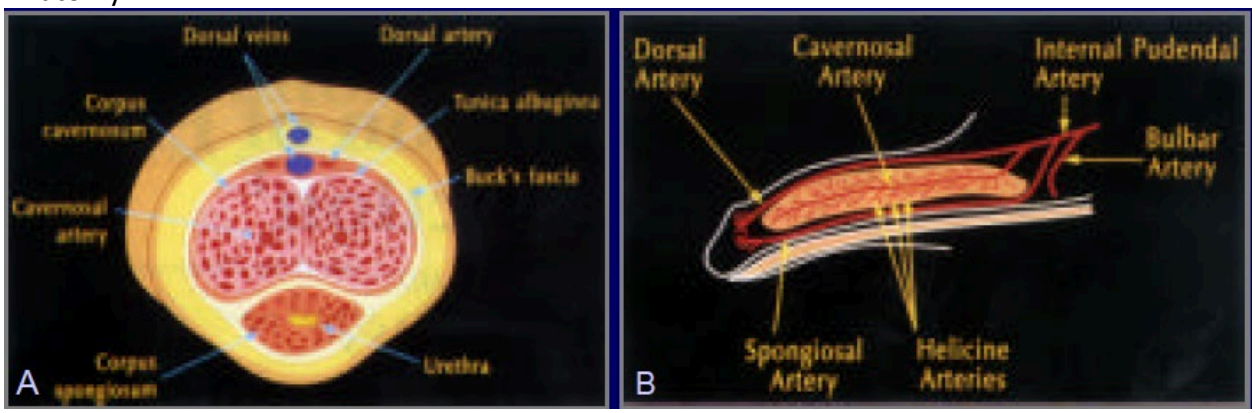
* cc=corpus cavernosum

**TECHNIQUE CONSIDERATIONS:**

- Review any prior imaging that could confirm appendix presence and localize its position.
- It is important to document presence/duration of priapism. In the normal penis Doppler evaluation, there is a spectrum of normal Doppler findings dependent on state of tumescence.
- Ischemic priapism (veno-occlusive, low-flow (<10 cm/s range), such as due to sickle cell disease, drugs) is normally associated with low or absent arterial flow and low/absent EDV, secondary to venous occlusion. (These findings are also seen in the unerect state, but pathognomonic of ischemic priapism in prolonged erection.)
- Non-ischemic (post-traumatic, high-flow state) priapism is normally associated with high PSV, low-resistance flow and the presence of turbulent flow from fistula.

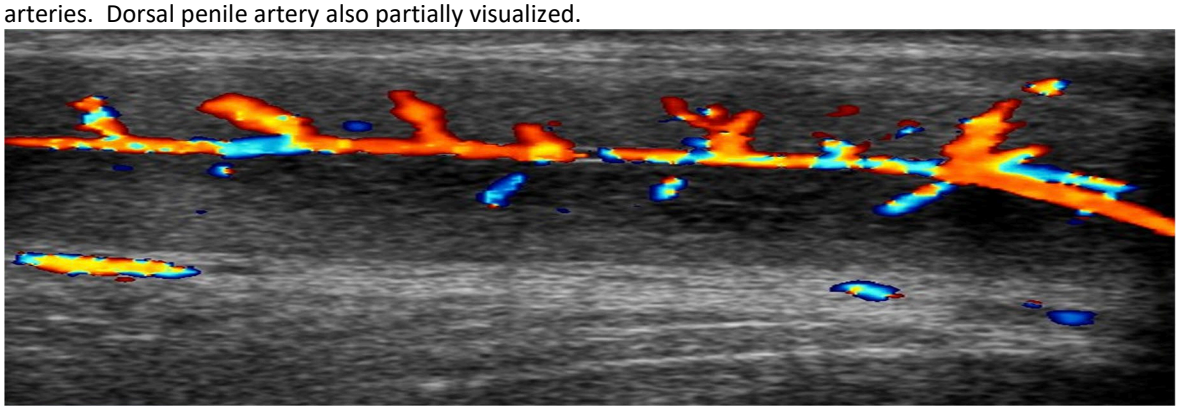
- In some cases of ischemic priapism, high arterial flow (100 cm/s range) is still present but the reversal of diastolic flow (indicative of high-resistance) and the absence of fistula can differentiate these cases from non-ischemic priapism.

Anatomy:

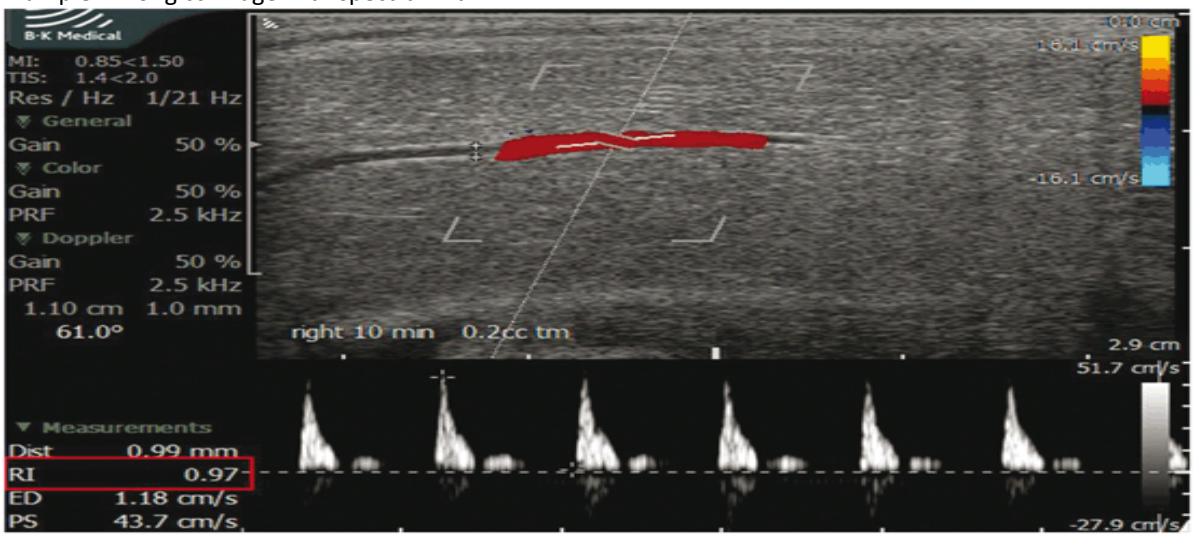



Color and Spectral Doppler Imaging of vascular integrity

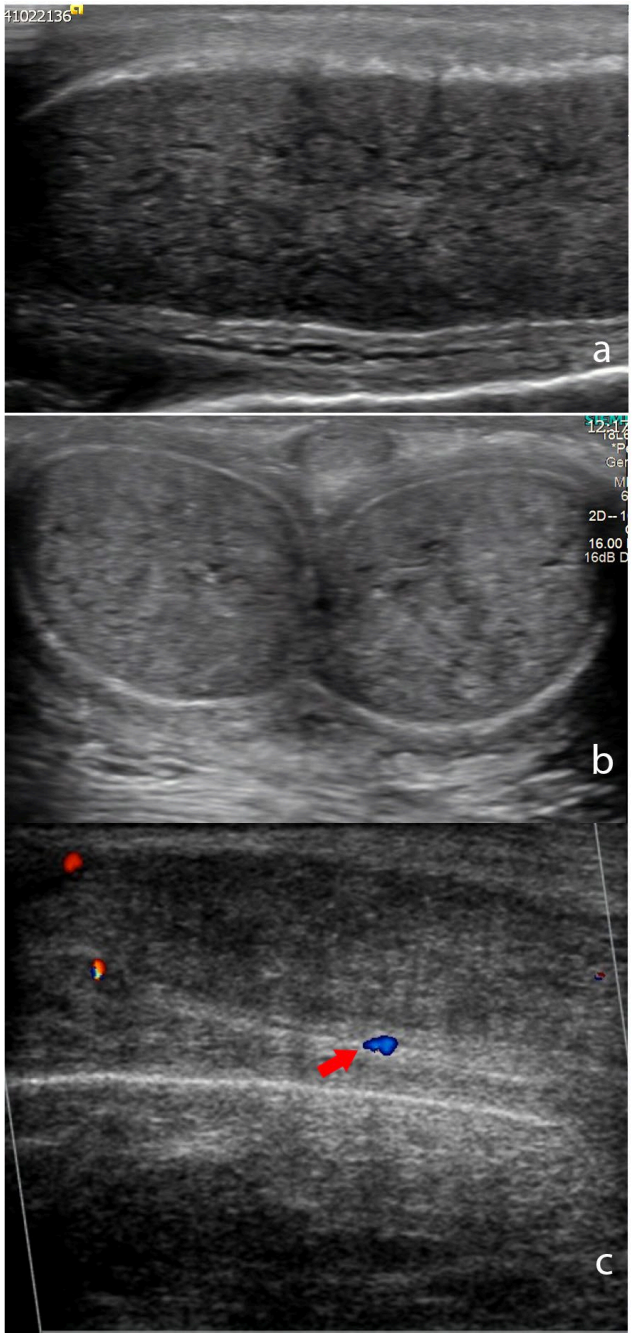
Example 1: Normal. Long image with color demonstrating cavernosal artery and branching helicine arteries. Dorsal penile artery also partially visualized.



Example 2: long cc image with spectral with RI



Example 3: Long image gray, trans image gray, long color (abnormal, heterogeneous echgenicity, decreased flow). Consistent with ischemic priapism.



**PROCESSING:**

- Review examination images and data
- Export all images to PACS
- Document relevant history and impressions in primordial.
- Present images to Radiologist

**REFERENCES:**

Siegel, Marilyn, (2002). Pediatric Sonography. Philadelphia, PA: Lippincott Williams and Wilkins.

**REVISION HISTORY:**

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|---|---|---|---|
| **SUBMITTED BY:** | **Samantha Lewis, B.S., RDMS** | **Title** | **Ultrasound Team Leader-Plano** |
| **APPROVED BY:** | **Jeannie Kwon, M.D.** | **Title** | **Director of Ultrasound** |
| **APPROVAL DATE:** | **9/25/2019** | | |
| **REVIEW DATE(S):** | **08/28/2019** | | |
| **REVISION DATE(S):** | | **Brief Summary** | |