

A Major Attack on the Scrotal Sac

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Chief Complaint Left testicular pain

HPI

A 49 y/o male with PMH of HTN, previous perineal abscess s/p I&D (2 years ago), & chronic lumbar radiculopathy s/p left endoscopic laminectomy at L5/S1 (2 weeks ago), presents with left testicular and perineal pain of 1-week duration. He also has subjective fever, chills, generalized weakness, and decreased appetite. The patient was seen at an outside hospital 3-days prior and was discharged home on cephalexin for presumed scrotal cellulitis. The patient was compliant with medication, now experiencing nausea and emesis. He denies saddle anesthesia, urinary incontinence, dysuria, hematuria, dyschezia, hematochezia, or penile discharge.

Physical Exam

VITALS: T- 36.8 °C, HR- 101, BP- 97/65, RR- 16, SpO2- 96%
GEN: Alert and oriented, not toxic-appearing, NAD
CV: Mild regular tachycardia, S1 & S2, no murmurs, cap refill < 2 seconds
GI: Soft, non-tender, and non-distended abdomen
GU: **Left scrotal swelling with erythema tracking to the perineum. 4-cm indurated area with punctate lesion draining purulent, foul-smelling discharge. Exquisite tenderness to light touch with palpable crepitus**

Laboratory Findings

Positives:

WBC: 16.57 x 10³ WBC/μL (3.98 - 10.04 x 10³ WBC/μL)
Bands: 16% (0 - 6%)
Hemoglobin: 11.6 g/dL (13.7 - 17.5 g/dL)
Creatinine: 1.89 mg/dL (0.67 - 1.17 mg/dL)
Blood Urea Nitrogen: 28 mg/dL (7 - 18 mg/dL)
C-Reactive Protein: 254 mg/L (< 3 mg/L)
Na+: 134 mmol/L (136 - 145 mmol/L)
Lactate: 1.82 mmol/L (0.36 - 1.25 mmol/L)

Negative:

Glucose 120 mg/dL (74 - 106 mg/dL)

Questions & Answers

1. What scrotal ultrasound findings can you see with Fournier's gangrene?

2. What is the LRINEC score and what factors into the score?

3. What can scrotal ultrasound additionally evaluate that requires acute management?

References

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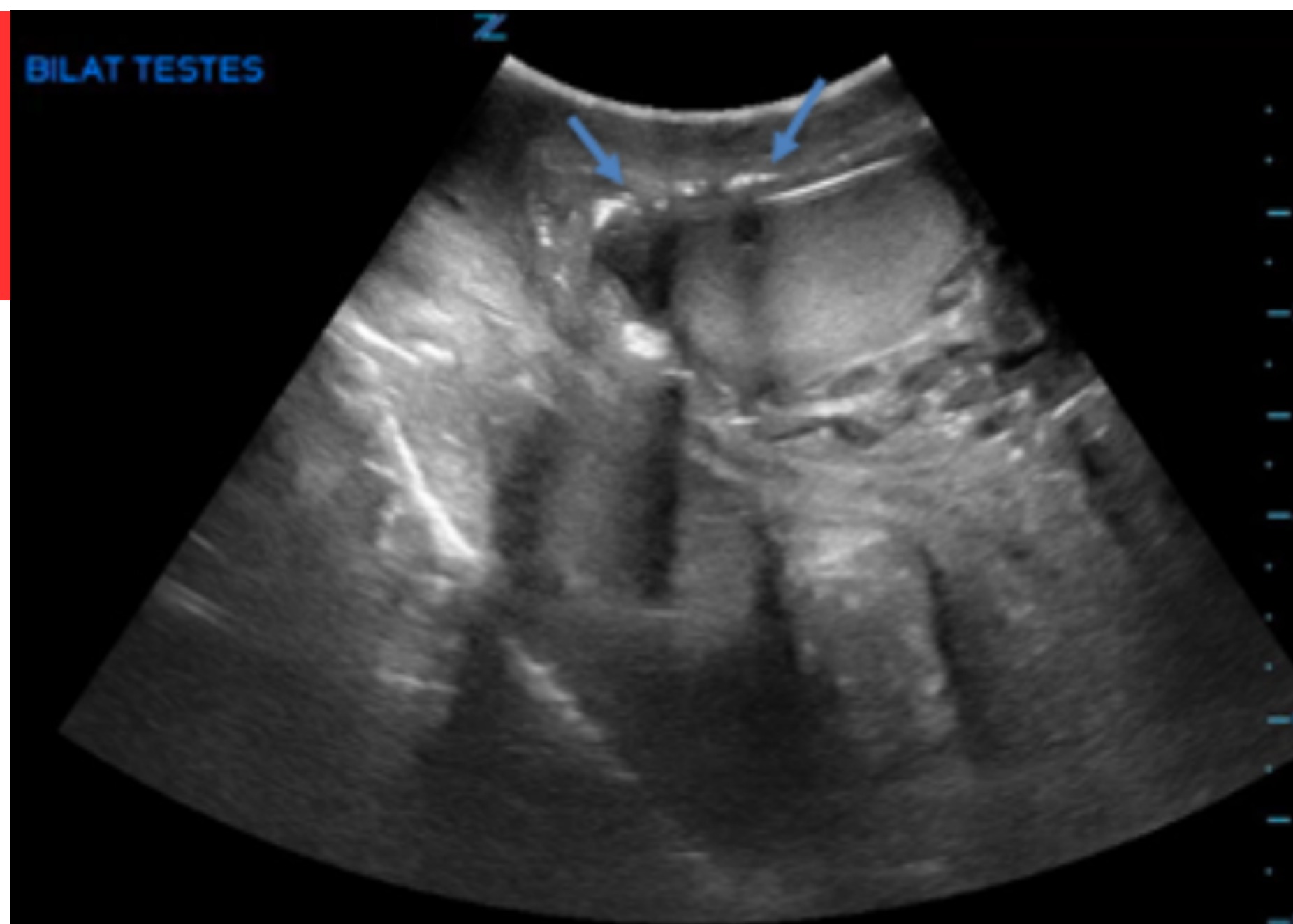


Figure 1. Bilateral longitudinal testicular view ("buddy view") across the median raphe. Dirty shadowing (air) is represented by blue arrows.

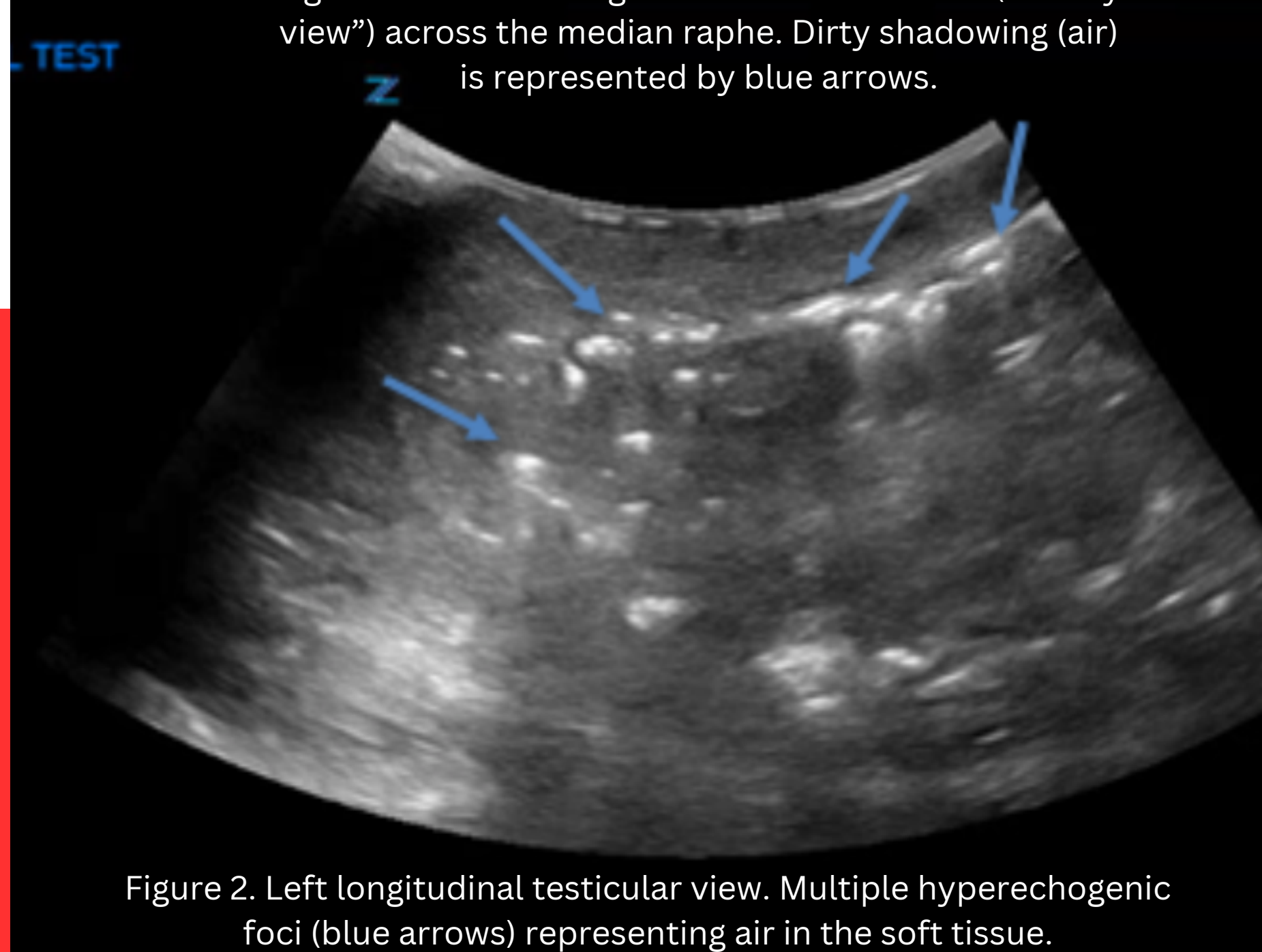


Figure 2. Left longitudinal testicular view. Multiple hyperechogenic foci (blue arrows) representing air in the soft tissue.



Figure 3. Transverse View, CT abdomen & pelvis with extension to scrotum. Multiple foci of air (blue arrows) within the left hemiscrotum extending into the lower perineum.

- Scrotal and fascial wall thickening
- Peritesticular fluid
- Free air in soft tissue
- "Dirty" shadowing

- Screen for necrotizing soft tissue infections:
 - CRP, WBC, Hgb, Na+, Cr, Glucose
 - "Concerning history or physical exam"

- Testicular torsion with infarction
- Blunt or penetrating testicular trauma
- Epididymitis or orchitis
- Scrotal hernia with incarceration/strangulation

Case Discussion

Strong clinical suspicion led the team to perform an ultrasound evaluation on previously presumed scrotal cellulitis. Figure 1 shows a hallmark ultrasound feature of Fournier's gangrene that distinguishes it from cellulitis.

"Dirty" shadowing is a form of shadowing artifact seen in musculoskeletal ultrasound that indicates the presence of a soft tissue-gas interface. This is seen as non-uniform, moving shadows. This contrasts to "clean" shadowing, which indicates the presence of a soft tissue-solid structure interface. In Figure 2, free air in soft tissue was visualized directly.

The ultrasound images showing "dirty" shadowing and free air in this patient led the emergency physician to confirm his suspected diagnosis of Fournier's Gangrene with CT scan, seen on Figure 3.

Clinically, the patient also met 2/4 SIRS criteria including leukocytosis with bandemia and tachycardia. Two blood cultures were drawn and he was empirically started on IV vancomycin, clindamycin, and zosyn. He was given ketorolac, 2 L of lactate ringers, and zofran for pain and nausea control. Both urology and surgery were consulted for the patient. He ultimately had to undergo emergency surgical exploration, incision and drainage of abscess, and debridement by the urology team.

A tissue sample later grew Staphylococcus epidermidis and Enterococcus faecalis. The patient returned to the OR two days later for additional debridement and wound vac placement. Ultimately, he was discharged after six days of IV treatment on clindamycin and metronidazole. The patient was seen at a 6 week follow-up appointment with a well-healing hemi-scrotum.

Pearls

- Even non-diabetics can get Fournier's gangrene!
 - Alcohol, immunocompromise, obesity, HTN, end-stage renal/liver disease & smoking are all risk factors
 - Although less common, women can also get Fournier's gangrene
 - Patient history can include: recent urethral instrumentation, indwelling Foley catheter, or perirectal disease
- Have a low threshold of clinical suspicion for Fournier's gangrene and use LRINEC (Laboratory Risk Indicator for Necrotizing Fasciitis) criteria
 - A score that is 6 or over has a PPV of 92% and NPV of 96%
 - 10% of patients with necrotizing fasciitis will have a score of less than 6
- Ultrasound patients with concerning history and physical exam findings (i.e. necrotic-appearing wound and crepitus).
 - Air is usually a later finding, but when present is ominous.
 - If the ultrasound is inconclusive, perform a CT scan with IV contrast of the abdomen/pelvis with caudal extension to the scrotum.

