

SPECIAL SONO-CASE

Ultrasound Evaluation of a Cutaneous Fistulous Tract

Mapping a postoperative abdominal-wall tract and identifying a retained foreign-body reaction

CLINICAL CHALLENGE A 58-year-old patient presents with intermittent drainage from a small opening near a prior abdominal incision. There is focal tenderness but no systemic toxicity.

Clinical context

Key element	Finding
Clinical detail 1	Prior abdominal surgery 18 months earlier
Clinical detail 2	Intermittent serous and purulent drainage
Clinical detail 3	Small erythematous skin opening with granulation tissue
Clinical detail 4	Normal temperature; mildly elevated inflammatory markers

Learning objectives

- Perform a safe, focused examination adapted to the altered anatomy or clinical context.
- Recognize the principal diagnostic pattern and its most important mimics.
- Document limitations and communicate a clinically actionable impression.

Scanning protocol

- Use a high-frequency linear transducer; add a small-footprint probe for narrow spaces.
- Survey the opening, subcutaneous tissues, fascia, muscle, and adjacent cavity in two orthogonal planes.
- Apply color/power Doppler at low PRF to assess hyperemia; avoid excessive pressure that collapses fluid channels.
- Use graded compression and dynamic cine clips; mark tract length, depth, branches, and relationship to fascia.

- Do not introduce a probe or inject material into an open tract unless specifically ordered and performed under an approved sterile protocol.

Sonographic findings

- A 2.8-cm hypoechoic tract extends from the skin opening through subcutaneous fat toward the anterior rectus sheath.
- A 6-mm echogenic linear focus with posterior dirty shadowing lies at the deep end, compatible with retained suture material.
- Peripheral hyperemia is present; no drainable collection or intraperitoneal extension is seen.

Diagnostic reasoning

The continuous superficial tract, deep echogenic focus, and surrounding hyperemia support a chronic postoperative sinus/fistulous tract with foreign-body reaction. Ultrasound maps superficial extent but CT or MRI may be required when deep extension is suspected.

Suggested report

IMPRESSION Superficial fistulous/sinus tract extends approximately 2.8 cm from the cutaneous opening to the anterior rectus sheath. Echogenic material at the deep margin may represent retained suture. Mild surrounding hyperemia is present. No drainable collection is identified. No sonographic evidence of intraperitoneal extension within the examined field.

Pitfalls and quality checks

- Confusing a vessel with a fluid tract—confirm with Doppler and compression.
- Missing branches by imaging in only one plane.
- Calling a tract “blind-ending” when the deep extent is outside the ultrasound field.

ARDMS-style review questions

Which setting best detects slow inflammatory flow?

- A. Low PRF with optimized color gain
- B. High wall filter
- C. High PRF
- D. No color Doppler

Answer: A

What feature suggests retained suture?

- A. Linear echogenic focus with shadowing
- B. Simple anechoic fluid
- C. Compressible vein
- D. Posterior enhancement only

Answer: A

Teaching takeaway

KEY POINT The continuous superficial tract, deep echogenic focus, and surrounding hyperemia support a chronic postoperative sinus/fistulous tract with foreign-body reaction. Ultrasound maps superficial extent but CT or MRI may be required when deep extension is suspected.

References and guidance

- ACR–SAR–SPR Practice Parameter for the Performance of Body MRI (fistula mapping principles).
- AIUM Practice Parameter for Documentation of an Ultrasound Examination.

This fictional, de-identified composite case is intended for professional education. It does not replace local protocols, qualified interpretation, specialist consultation, or patient-specific medical care. Rare procedures and research settings require institution-specific guidance.