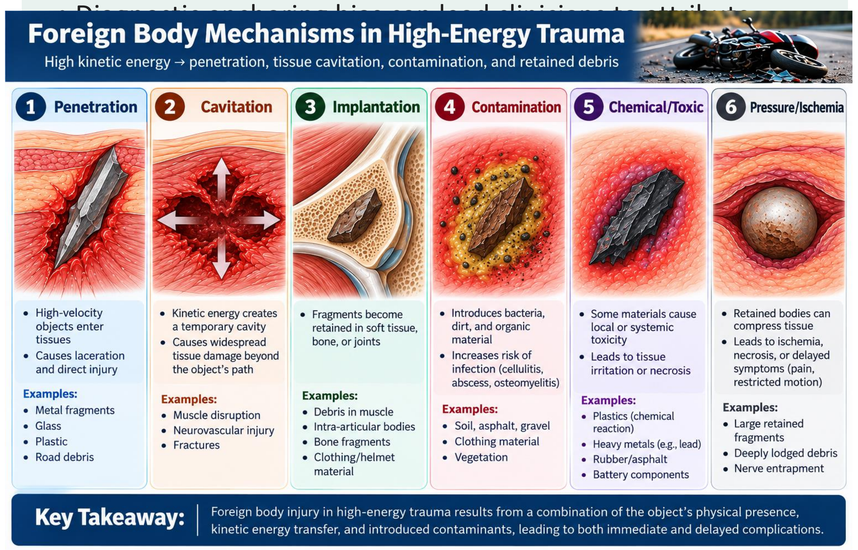
Retained Large Plastic Fragment: A Case Report

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BACKGROUND

- Retained foreign bodies following trauma are a diagnostic challenge, especially when the material is radiolucent (plastic, wood, organic); no standardized diagnostic algorithm exists for high-energy traumatic lacerations.[7]
- Missed foreign bodies can cause chronic pain, infection, abscess formation, osteomyelitis, neurovascular damage, and granulomatous reactions that mimic a soft-tissue neoplasm.[1,2]
- Ultrasound has moderate, operator-dependent sensitivity for radiolucent foreign bodies; MRI offers superior soft tissue characterization.[1,3,4,5,6]



CASE PRESENTATION

- A male patient in his mid-20s presented to a sports medicine clinic ~9 weeks after a motorcycle crash with persistent right forearm pain (8/10), swelling, and limited mobility.
- At the outside ED: primary wound closure with 10 sutures over a laceration from road rash; documentation of imaging at that visit is unavailable. Sutures were removed at 7 days.
- Plain radiography ~1 week post-injury (outside facility) showed no acute osseous abnormality.
- At the 9-week visit: mild swelling and a discrete, firm, mobile, tender subcutaneous fragment overlying the extensor muscle belly — clinically palpable and inconsistent with expected healing.

INTERVENTION

MRI With and Without Contrast — Fall 2025 at the sports medicine clinic

Findings:

Retained foreign body embedded within the extensor digitorum of the right proximal forearm, measuring 21 x 19 x 2.5 mm, with surrounding soft tissue edema and reactive changes consistent with a local inflammatory response. Not visible on prior plain radiography, consistent with radiolucent composition.

Surgical Excision — Winter 2025

- Open surgical excision was performed under direct visualization; thorough exploration confirmed no additional fragments, followed by irrigation, curettage, and debridement. The excised specimen was an intact, **clear plastic fragment measuring 30 x 27 x 4 mm** — notably larger than the 21 x 19 x 2.5 mm estimated on MRI, likely because MRI signal reflects the surrounding reactive tissue rather than the fragment's true extent.
- The patient achieved complete symptom resolution by postoperative day 7 and returned to resistance training without pain; he did not return for further follow-up.

CLINICAL & PATHOLOGIC IMAGES



Figure 1 — Gross photographs of the intact, transparent plastic foreign body following surgical excision from the patient's right forearm (A-B). The fragment measured 30 x 27 x 4 mm.

DISCUSSION

- Despite being clinically palpable, the fragment was missed at initial evaluation — reflecting inadequate wound exploration rather than an imaging failure alone.
- Negative plain radiography at ~1 week did not exclude a radiolucent foreign body and may have reinforced diagnostic anchoring bias, delaying reassessment.[8]
- Ultrasound offers improved but operator-dependent sensitivity for radiolucent material; MRI provides superior soft tissue characterization and guides surgical planning.[1,3,4,5,6]
- MRI signal reflects the surrounding reactive/inflammatory response rather than the foreign body's true size — likely why the MRI-estimated dimensions (21 x 19 x 2.5 mm) were smaller than the excised fragment (30 x 27 x 4 mm).[9]
- No standardized diagnostic algorithm exists for high-energy traumatic lacerations; thorough physical examination and systematic wound exploration remain the most reliable means of detecting retained radiolucent material.[2,7,10]
- Timely surgical excision yields excellent outcomes; this patient achieved complete resolution and returned to resistance training within 7 days.

CONCLUSION

Retained radiolucent foreign bodies may go undetected at initial evaluation and remain undetected on plain radiography, even when clinically palpable. Thorough physical examination and systematic wound exploration are the most reliable means of detection; MRI should be pursued when clinical suspicion persists despite negative radiographs.

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