

Atraumatic *Clostridium septicum* Myonecrosis with Humeral Osteomyelitis in Metastatic Colorectal Cancer: A Rare and Life-Threatening Presentation

A Case Report

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Background

- Clostridial myonecrosis is rare in modern practice, with an incidence of approximately 0.4 per 100,000 annually.
- *Clostridium septicum* accounts for approximately 20% of cases, with atraumatic infection being less common.
- It is strongly associated with colorectal malignancy due to haematogenous spread from disrupted mucosa.
- Musculoskeletal involvement due to *C. septicum*, particularly with concurrent osteomyelitis, is exceptionally uncommon and represents a diagnostic and management challenge.

Images

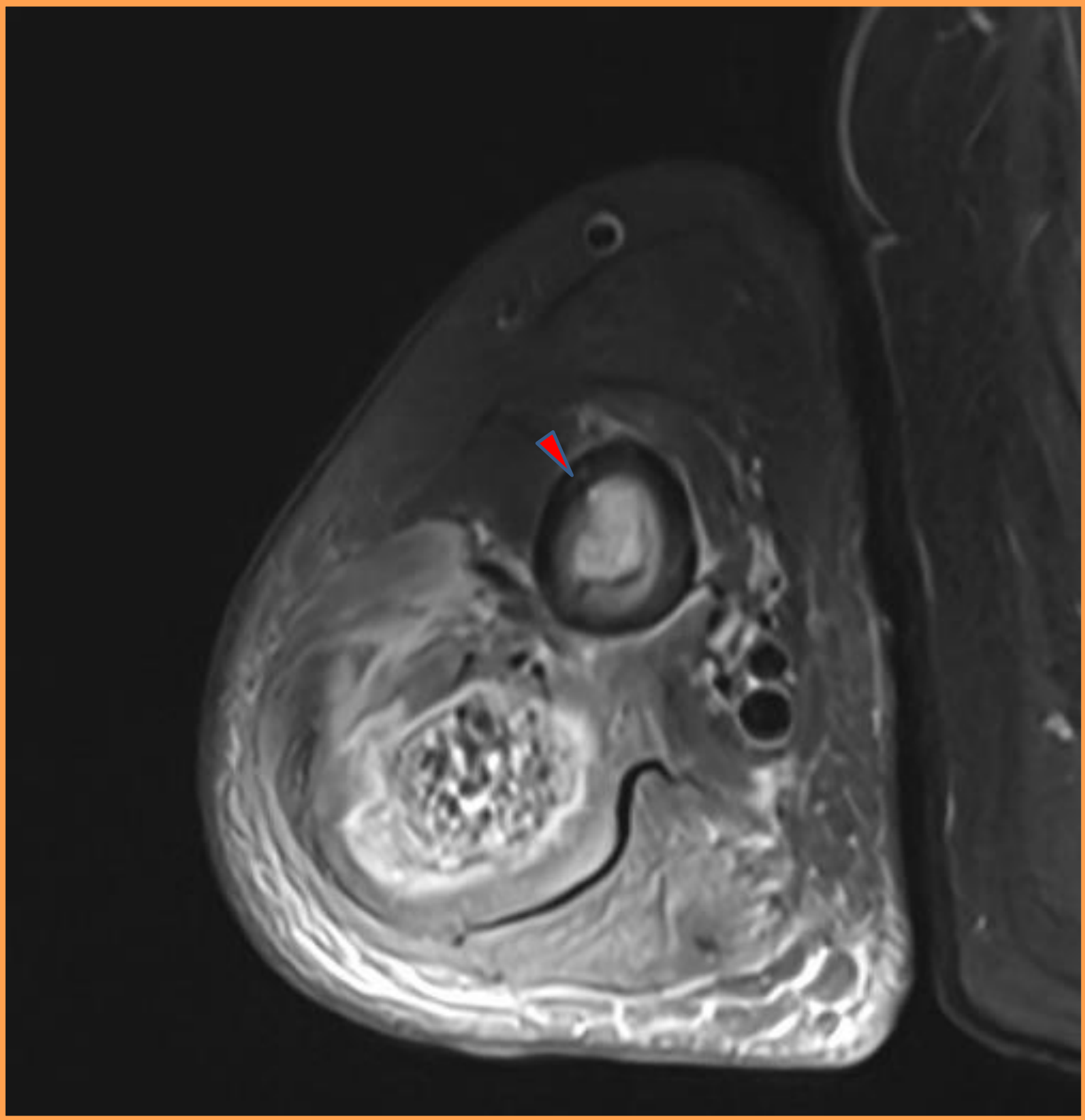
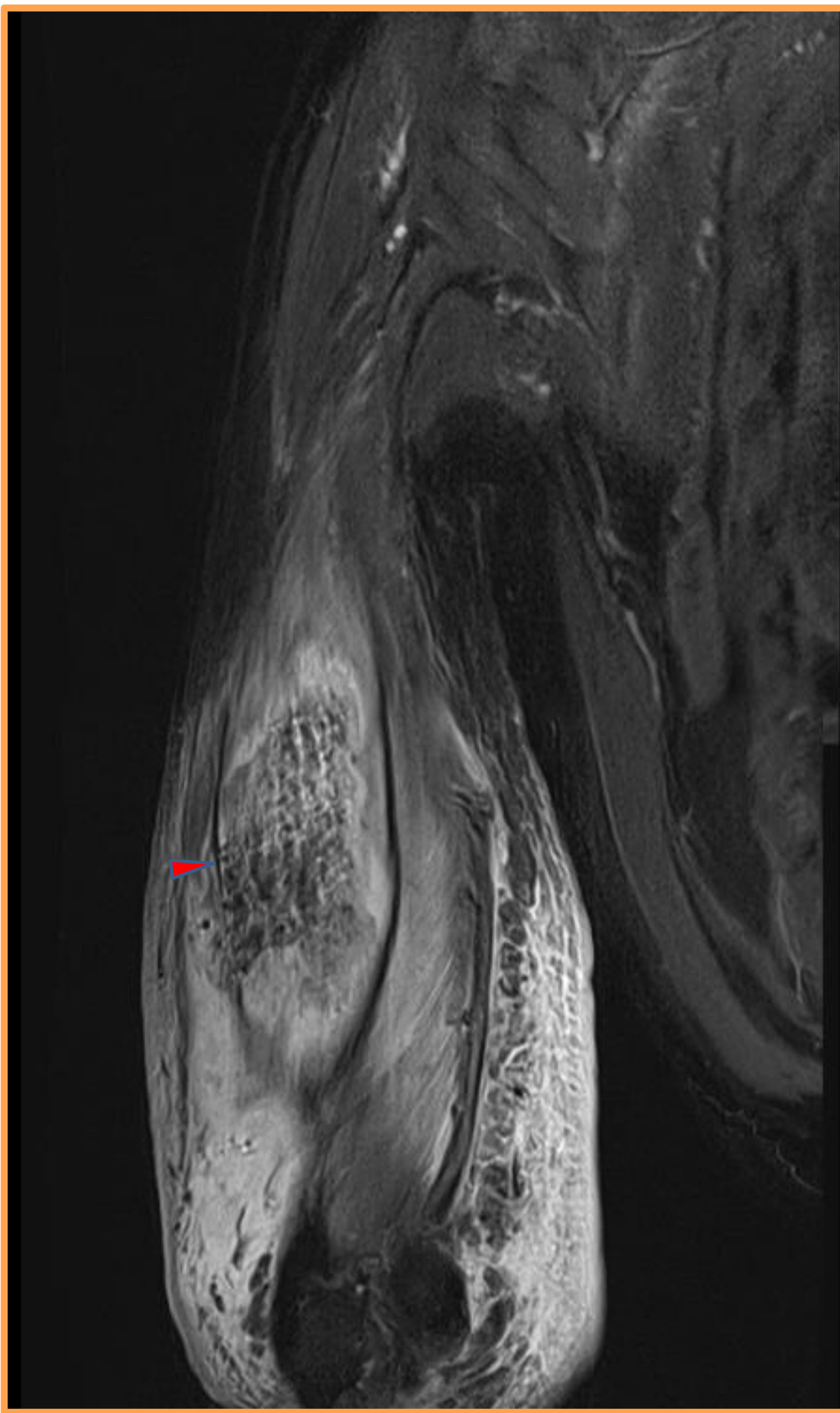


Figure 1(Left): MRI coronal view – large pneumatised peripherally enhancing intramuscular collection in right triceps with extensive soft tissue oedema

Figure 2(Above): MRI axial view - peripherally enhancing intramuscular collection with associated midshaft humeral osteomyelitis

Case

- A 69-year-old man with metastatic colorectal adenocarcinoma (brain, lung, mediastinal and retroperitoneal lymph node involvement) receiving encorafenib and cetuximab presented with fever, malaise, and progressive right arm swelling and erythema.
- Examination revealed extensive oedema and erythema involving the posterior arm, elbow, forearm, and hand, with preserved elbow range of motion.
- He was hypotensive on admission, with C-reactive protein 254 mg/L.
- Ultrasound demonstrated a triceps intramuscular fluid collection containing gas.
- Magnetic resonance imaging identified a large pneumatised, peripherally enhancing intramuscular collection (18 x 5 x 2.8cm) with associated mid-shaft humeral osteomyelitis.
- Blood cultures grew *Clostridium septicum*.
- Urgent incision and drainage revealed extensive loculated infection involving the posterior compartment, subcutaneous tissue, and triceps muscle, with 50 mL of pus drained.
- Intraoperative samples confirmed *C. septicum*.
- The patient received initial broad-spectrum antibiotics (piperacillin-tazobactam), followed by ceftriaxone, and subsequently targeted therapy with benzylpenicillin and clindamycin.
- He improved clinically following surgical intervention.
- He was transitioned to oral co-amoxiclav and amoxicillin to complete a six-week course for osteomyelitis.

Discussion

- *Clostridium septicum* infection is a rare and highly aggressive clinical entity, often progressing rapidly to septic shock with high mortality.
- Unlike other clostridial species, it can infect viable tissue in the absence of trauma.
- Combined myonecrosis and long bone osteomyelitis is exceptionally rare, with only limited cases described in the literature.
- This case highlights such a presentation in an immunocompromised host and underscores the need for a high index of suspicion.
- Gas-forming infection on imaging in the context of systemic toxicity and underlying malignancy should prompt urgent surgical source control and initiation of targeted antimicrobial therapy.
- Combined penicillin and clindamycin remains the cornerstone of treatment due to its bactericidal and toxin-suppressing effects, with prolonged therapy required in cases complicated by osteomyelitis.

Key Learning Points

- ❑ *C. septicum* infection should be suspected in atraumatic, rapidly progressive soft tissue infections in setting of underlying malignancy.
- ❑ Gas-forming infection with systemic toxicity requires immediate surgical source control and toxin-directed antimicrobial therapy.

References
1. Kornbluth AA et al. Medicine (Baltimore), 1989; 2. Alpern RJ et al. JAMA, 1969; 3. Seder CW et al. Ann Thorac Surg, 2009; 4. Srivastava I et al. Infect Dis Clin Pract, 2017