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Visual Case Discussion

Chronic post traumatic osteomyelitis

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69-year-old male presented to the ED complaining of left lower extremity pain and swelling that has been intermittently present for the last 1 month. The swelling started at the back of his knee and extended to his lower leg for last 4 days. Past medical history significant for CAD, COPD, DM, HTN and chronic left knee pain secondary to a distal femur fracture. Physical examination significant for a 2 × 2 cm, circumferential, non-fluctuant, swelling in the popliteal fossa region. No erythema, warmth, skin abrasion, lesions or pus was noted. Labs including CBC, CMP were unremarkable. Venous Duplex LE showed a large (4.2 cm × 4.5 cm × 9.4 cm) heterogeneous mass in the left popliteal fossa. XR knee showed marked deformity of the distal femur with evidence of healed fracture (Fig. 1). Orthopedics was consulted, they recommended discharge with follow up for biopsy of mass. He returned 2 days later, complaining of worsening pain and swelling with discharge from the mass. Physical examination was significant for erythema, tenderness and induration of the left popliteal fossa with a wound draining serosanguinous fluid. Labs showed elevated CRP and ESR. CT LE showed soft tissue density within the distal femoral diaphysis suggestive of chronic osteomyelitis of the distal left femur, communicating via sinus tracts with three discrete periosteal abscesses (Fig. 2). Follow up MRI showed a complex fluid collection which tracked posteriorly from the cavity through an osseous defect in the posterior femoral metaphysis into the popliteal fossa and abuts skin surface (Fig. 3). Chronic post traumatic osteomyelitis is a difficult diagnosis and clinically subtle to recognize. CRP and ESR are usually elevated and helpful in diagnosis, however WBC may be normal. Plain radiographs are difficult to interpret due to the distorted osseous anatomy and the physiologic reaction to the injury. CT and MRI are the preferred modality for diagnosis.[1–3]

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Fig. 1. Left Knee, XR, AP view: Extensive new bone formation, with an old healed fracture.

Fig. 2. Left Lower extremity, CT with contrast, Sagittal view: Soft tissue density with the distal femoral diaphysis communicating with the periosteal abscess.

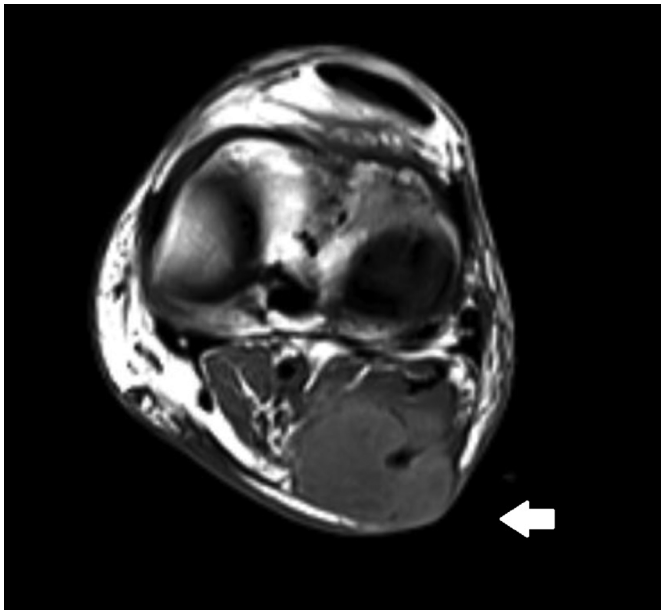

Fig. 3. Left Lower extremity, MRI without contrast, T1 Axial view: Fluid collection in the popliteal fossa extending to the skin surface.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.visj.2019.100593.

References

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Questions

1. What is the most common organism involved in chronic osteomyelitis?
   a. Polymicrobial
   b. *Pseudomonas Aeruginosa*
   c. *Staph Aureus*
   d. *Staph Epidermis*
   e. *Streptococcus viridians*

2. CRP is useful in the diagnosis of osteomyelitis.
   a. True
   b. False

Answers

1. C. Explanation: The most common infecting organism is *Staphylococcus aureus*, which is identified either alone or in combination with other pathogens in 65–70% of patients. *Pseudomonas aeruginosa*, the second most common infecting organism, is found in 20–37% of patients. Polymicrobial, and more than one organism is present in 32–70% of patients.

2. True. Explanation: CRP and other inflammatory markers such as ESR, procalcitonin have been shown to be highly sensitive and specific for the diagnosis of osteomyelitis.