Calcaneal Brodie’s Abscess: A Rare Case Presentation of 52 Years Duration With Prior Failed Multiple Treatments Avoiding Major Amputation

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Introduction

Brodie’s abscess or sub-acute osteomyelitis is a rare presentation accounting for 2% of all osteomyelitis cases. Although it usually presents in the first or second decade of life, we present a rare case in a 69-year-old white male. He was seen by an infectious disease specialist and referred to a Podiatric (Foot and Ankle) Surgeon. A team approach was coordinated and the patient was treated by the Podiatric Surgery and Infectious Diseases teams and culture specific antibiotics afterwards. With aggressive surgical intervention using an offloading device (external fixator) to prevent post-operative fracture along with culture specific systemic antibiotics the patient recovered and was functioning well in a normal shoe. He remains ulceration and cellulitis free at eleven months post-op.

Case Report

A 69-year-old white male had a history of surgery on his left heel in 1964 for a bone cyst. His post-operative course was complicated by infection. Unfortunately, for the last 52 years his quality of life has been affected by the painful heel abscess with draining fistula in spite of numerous attempts at surgical correction and multiple courses of oral and IV antibiotics. Major amputation was considered. MRI on 9/18/2015 (Figure 1) demonstrated a calcaneal Brodie’s abscess measuring approximately 4.1 x 2.7 x 3.0 cm which contained dependent fluid and gas.

The patient was successfully treated utilizing a team approach by the Providence Hospital Podiatric Surgery and Infectious Disease Departments. Surgical approach (Figure 2) consisted of a very aggressive debridement including curettage and drilling of the hypertrophied sclerotic cortical calcaneal walls due to prior surgical attempts and the chronicity of the abscess. The void was filled with calcium sulfate carrier along with vancomycin and tobramycin antibiotic beads (Figure 3). An external fixator was utilized to prevent pathologic fracture through cortical collapse (Figure 4). The fixator was removed 5 weeks post-op (Figure 5). The patient was continued on IV ceftriaxone 2 grams IV q.24h for 6 week post-op. The patient was compliant, and was successfully discharged, being able to bathe, bear weight without any pain in normal shoes and returned to normal activity (Figure 6).

Figure 2. Presentation on 09/18/2015, arrows point to abscess, MRI on right

Figure 3. Operation on 10/21/2015, a. aggressive drilling of the sclerotic calcaneal bone to promote bleeding and osteogenesis; b. packing with calcium sulfate and vancomycin.

Figure 4a. Immediate post operative X-ray. b. Sidekick Stealth External Fixator device

Figure 5. External fixator removed and delayed primary closure of lateral wound delayed until 5 weeks post initial procedure. The patient was allowed protected weight bearing in CAM boot at 5 weeks and returned to normal shoe at 2 months post-operatively.

Figure 6. Two months post-op (12-23-2015). Postsurgical changes of the calcaneus with debridement and packing of the known Brody’s abscess. Significant improvement in the surrounding bone marrow edema within the calcaneus with no air or fluid component identified within the lesion itself.

Discussion

Brodie’s abscess in the calcaneus has been treated successfully using a one-stage approach of aggressive debridement and curettage with antibiotic beads/calcium sulfate packing as Olaisen demonstrated (2). Currently, the standard treatment of osteomyelitis includes debridement of infected tissues, dead space management, and 4 to 6 weeks of parenteral antibiotics as indicated in a recent review by Gomes (6). It is paramount that a load bearing bone such as the calcaneus be protected from the destructive weight bearing to prevent collapse, especially when aggressive debridement is performed in revisional cases such as this one. Another key component of this case is culture specific systemic antibiotic therapy as well as local delivery of antibiotics through the use of well documented antibiotics beads. At 11 months follow-up, the patient was ambulating pain free in a normal shoe.

Conclusions

Brodie’s abscess or sub-acute osteomyelitis occurs in about 2% of all osteomyelitis cases. We recommend that with bone reactivity and difficult chronic cases, as well as cases with multiple prior surgeries, be treated utilizing an aggressive team approach with inter-physician communication to alter appropriate treatments.

Pearls from this case include
• a team approach to limb salvage
• aggressive surgical therapy
• appropriate bio-mechanical offloading

References