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F-26 - DX ALGORITHM TAA

F-26 - What is the diagnostic "algorithm" for infected total ankle arthroplasty?

Response/Recommendation:

Patients who present with clinical symptoms and signs of periprosthetic ankle infection (pain, erythema, warmth, sinus tract, abscess around the wound) and sinus tract communicating with the ankle/subtalar joint are likely to have infection. In the absence of sinus tract, elevated inflammatory markers (ESR and CRP) should prompt ankle joint aspiration for cell count, differential and culture. The joint aspiration is repeated. If the same organism is identified in at least two cultures of synovial fluid, the patient is diagnosed to have infection. If the repeat aspiration is negative, further investigation is warranted. In patients not requiring surgical intervention, nuclear imaging should be considered for diagnosis. If operation is indicated, histologic exam (>5 neutrophils/high-power field) or synovial fluid analysis is conducted to confirm infection.

Strength of Recommendation: Limited

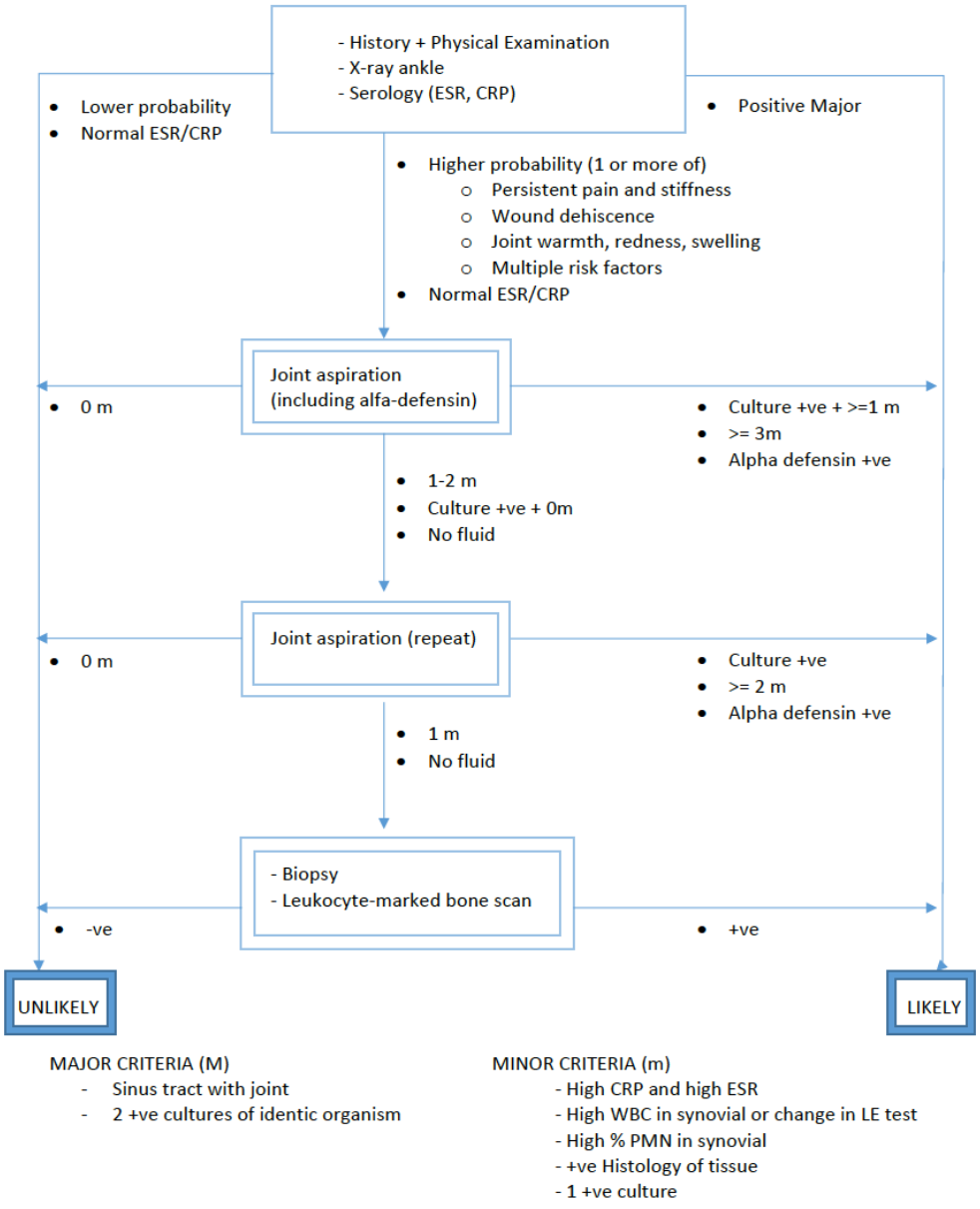
Rationale:

Diagnosis of infected total ankle arthroplasty is mainly guided by the periprosthetic joint infection (PJI) diagnostic criteria developed from the Musculoskeletal Infection Society (MSIS), and the International Consensus Meeting.[1-3] Although the current PJI diagnostic criteria was developed based on hip and knee patients, the majority of the infected total ankle joint clinical studies have employed the same or variation of the MSIS criteria.[3-9] The major diagnostic criteria include 1) Presence of a sinus tract which communicates to the joint, or 2) two positive cultures isolating the same pathogen from the periprosthetic tissue or synovial fluid samples. [1-3] Minor criteria include elevation of inflammatory markers (CRP, ESR), elevated synovial fluid WBC count or change on leukocyte esterase test strip, elevated synovial fluid PMN, positive histologic analysis of periprosthestic tissue, and single positive culture. [1-3] The above diagnostic algorithm was also recommended by the same authors.[1-3]

Systematic literature review and meta-analysis have shown 0-4.6% occurrence of deep infection after total ankle arthroplasty.[10,11] Myerson et al reported 3.1% infection rate after total ankle arthroplasty.[6] Their criteria for diagnosis was based on clinical findings of swelling, inflammation, drainage, or persistent wound problem which prompted the protocol of joint aspiration for culture and microscopy. Synovial fluid analysis and lab analysis of inflammatory markers (CRP, ESR, WBC) were tested to confirm infection. Patton et al utilized similar criteria

and reported 3.2% rate of ankle PJI.[7] Usuelli et al employed the same diagnostic criteria suggested by the MSIS and reported 3.7% deep infection in the anterior approach group compared to 1.4% deep infection in lateral approach group.[9]

However, some authors have raised a question that the current MSIS guideline for diagnosis and treatment of hip and knee PJI may be different from the ankle joint, given the relatively thinner soft tissue envelope and limited number of patients who underwent successful joint-preserving revision ankle arthroplasty.[3,5] Moreover, there is no clinical study that have validated utilization of the current hip and knee PJI diagnostic criteria for the ankle PJI. Therefore, a high quality clinical investigation is needed to validate the current criteria and algorithm for diagnosis and treatment of the ankle PJI.



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