Aspergillosis Causing Delayed Implant Loosening in a Case of Total Hip Arthroplasty: A Case Report with Review of Literature

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However, only a single documented case of hip prosthesis infection has been attributed to aspergillosis. To the best of our knowledge, this is only the second case of aspergillus causing PJI after total hip arthroplasty (THA).

CASE REPORT

A 45-year-male patient, known case of diabetes and hypertension since 4 years, who had a total hip replacement done 12 years back for avascular necrosis and revision arthroplasty 3 years back, presented to our hospital’s outpatient department with pain in the left hip since 4 months and was walking with crutch support. On examination, there was mild shortening of left lower limb with restriction of movements at left hip joint. There was no obvious soft tissue swelling or local rise of temperature. No redness or discharging sinus was seen. Modified teleoroentgenogram revealed limb length discrepancy with shortening of left femoral length by 1.5 cm with Ficat Arlet Stage II Avascular necrosis of right femoral head (Figure 1). Laboratory investigations were within normal limits except for mildly elevated C-reactive protein (3.4 mg/l) and erythrocyte sedimentation rate (23 mm/h). Repeated arthrocentesis for cultures did not yield any growth even after 48 h.
Based on clinicoradiological findings of implant loosening, left hip revision arthroplasty was undertaken and debrided tissue was sent for histology. The patient tolerated the procedure well and was ambulated on day 4 and subsequently discharged under antibiotic cover.

Histopathology of the debrided tissue showed shards of devitalized bone with granulomatous inflammation and enmeshed septate, dichotomous branching hyphae morphologically consistent with aspergillus (Figure 2a and b). As the diagnosis was not suspected during the surgery, no specimen was submitted for fungal culture.

In the light of histopathology report, the patient was counseled for two-stage revision surgery, which he refused because of the involved complexities and also because he was pain-free, instead he opted for prolonged systemic antifungal therapy. On 3 months follow-up, the patient is pain-free and has started walking without crutch support.

**DISCUSSION**

PJI is a rare but devastating complication of arthroplasty fraught with grave consequences as it is difficult to diagnose and equally difficult to treat. Among the rare cases of PJI caused by *Fungal organisms*, *Candida albicans* accounts for the majority, with other rarely reported entities being *Aspergillus fumigatus*, *Pichia anomala*, and *Rhodotorula minuta*.1,6

Aspergillus is a ubiquitous opportunistic saprophytic fungus which develops hyphae only in the pathogenic state. The risk factors usually associated with fungal infections are immunosuppressed states, rheumatoid arthritis, diabetes mellitus, malignancy, tuberculosis, malnutrition, prior native joint infections, and renal impairment.1,3

The presentation of fungal PJIs closely resembles that of chronic bacterial infection, having an indolent course with local swelling and pain without any other inflammatory features. Radiographic spectrum for fungal PJIs ranges from being normal to frank bony destruction. Serial radiographs with comparative analysis for features like radiolucency >2 mm at bone-implant interface and component migration helps diagnose implant loosening, with the limb length shortening being the most reliable criteria for prosthesis loosening. Presence of femoral periosteal reaction and associated soft tissue may help favor a diagnosis of infective over aseptic joint loosening.7 However, no specific radiographic feature has been described to differentiate fungal from bacterial PJIs.

Diagnosis of fungal PJI is essentially made by histopathological examination and culture in concert...
with clinical and radiological findings.\textsuperscript{8,9} It is postulated that in samples obtained for PJI, any cultured fungal species should be considered pathogenic, and not as contaminant.\textsuperscript{1}

Newer diagnostic techniques which can also be employed for diagnosis of fungal PJIs include the sonication of the removed implant and polymerase chain reaction, which are supposed to increase the diagnostic yield.\textsuperscript{1,8}

Most effective treatment for fungal PJI is two-staged procedure with delayed reimplantation arthroplasty after adequate systemic antifungal therapy ranging from 6 weeks to 3 months depending on the patients' clinical profile.\textsuperscript{1,6}

**CONCLUSION**

High index of suspicion is warranted for fungal etiology in the setting of PJI, as a delayed diagnosis can be catastrophic for both the patient and the treating surgeon. Clinical examination and radiological investigations play an important albeit ancillary role in the management of fungal PJIs, whereas histopathology and culture remains the gold standard for diagnosis.

**REFERENCES**


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