Mycobacterium Flavescens infection: An Unusual Case of Prosthetic Joint Infection

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Background

- Total knee arthroplasty (TKA) is widely considered as one of the most successful orthopedic surgeries. Risk factors for PJIs include patient history of obesity, diabetes mellitus, rheumatoid arthritis, immunosuppression, and previous history of PJIs[2].
- PJI's caused by Mycobacterium Tuberculosis were reported to be less than 75 cases between 1975 and 2017, mostly involving hip prosthesis.
- Being an atypical cause of PJIs, we emphasize the importance of considering NTM as a differential for immunocompromised patients especially those with prior surgical intervention.

Case Presentation

We present a case of a 70-year-old patient with a PJI secondary to *Mycobacterium flavescens* occurring one year after a total knee arthroplasty (TKA). Patient underwent an incision and drainage and discharged home with 4 week course of Ertapenem and drain management. This was followed by 12 months of outpatient Azithromycin and Levofloxacin

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Images

Figure 1. X-ray of Left knee showing previous arthroplasty with presence of moderate knee joint effusion and prepatellar soft tissue edema.

Results

2011 Musculoskeletal Infection Society (MSIS) criteria[15]	
PJI present in 1 major criteria or 4 minor criteria	
Major criteria	2 positive periprosthetic cultures with phenotypically identical organisms
	Presence of sinus tract communicating with joint
Minor criteria	Elevated CRP and ESR
	Elevated synovial fluid WBC count or significant change in leukocyte esterase test strip
	Elevated synovial fluid PMN%
	Presence of purulence in affected joint
	Positive histological analysis of periprosthetic tissue
	Single positive culture

Table 1: Depiction of 2011 MSIS criteria to outline diagnosis of PJIs

Discussion

Clinical manifestations of mycobacterium related PJIs are variable and usually depend on the onset of symptoms

- Early onset is associated with incision site necrosis or hematoma formation and presents as tender, warm, indurated edema at the surgical site resulting in wound dehiscence, joint effusion, and fever.
- Delayed onset is associated with persistent joint pain particularly in motion and weight bearing, along with slight edema and joint loosening at site.
- Synovial fluid analysis allows guidance towards the infectious cause of PJI, with mycobacterium related PJI presenting with an elevated cell count, elevated white blood cell count, and elevated polymorphonuclear leukocyte percentages.
- Concurrently with surgical interventions, utilization of antimicrobial agents provides additional control in Mycobacterium-related PJIs
- Examples of successful regimens include aminoglycosides with cephalosporins followed by fluoroquinolone and macrolide regimens.

Conclusion

In conclusion, We suggest consideration of *Mycobacterium flavescens* among other NTMs as a possible cause of PJIs if presented similarly to that chronicled in this case report. We suggest that future research include examining different biomarkers for quicker detection and earlier intervention in NTM infections.

References

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