



# Rad to Rad Learning: Three-Phase Bone Scan: Prosthesis Evaluation

The Radiology Partners (RP) NMMI Radiology National Subspecialty Division (NSD) presents our newest Rad to Rad Learning case.

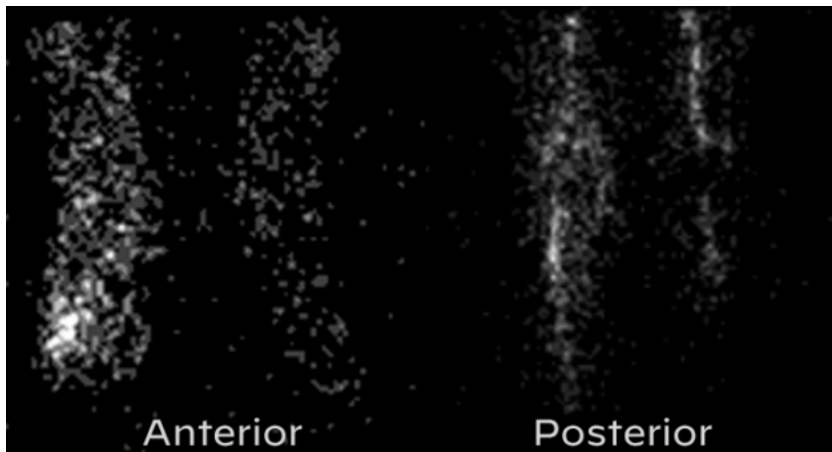
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## Peer Learning Opportunity



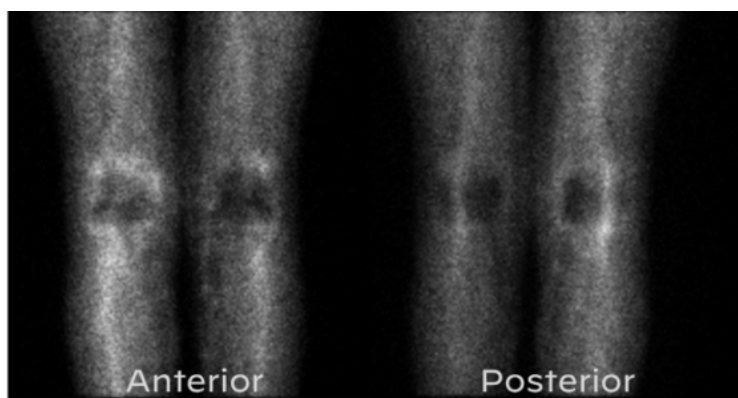
**Diagnosis of prosthetic loosening (septic or aseptic) can be achieved with three-phase bone scan using proper technique and specific scintigraphic findings.**

**63/yo F with right knee pain, bilateral TKAs in 2010**

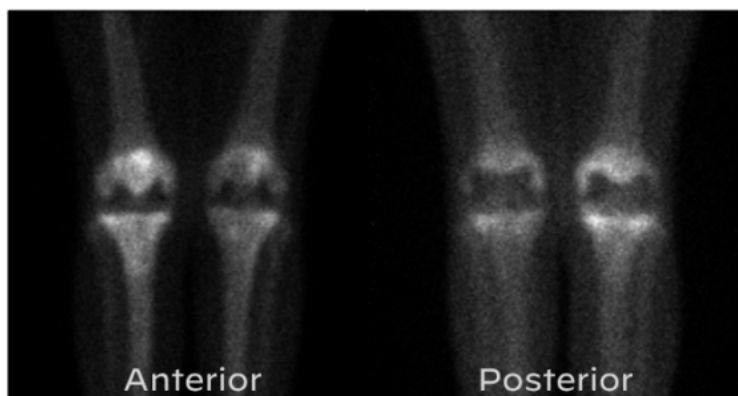


**Flow Phase:**  
*Asymmetric tracer uptake on the right.*

**Flow Phase: Asymmetric tracer uptake on the right.**



**Blood Pool Phase:**  
*Asymmetric right-sided uptake demonstrates inflammation/synovitis.*



**Delayed Phase:**  
*Asymmetric right-sided periprosthetic uptake shows increased bone turnover.*

*Shared to improve patient safety and healthcare delivery in the provision of radiology services. The circumstances and facts are changed, altered, or deidentified to preserve confidentiality. Privileges have not been waived.*

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## Practical Insights



- **Time since surgery is important history. Patients can have reactive uptake on all three phases up to 1-2 years since surgery.**
- **Cemented prostheses usually revert to baseline uptake after one year. Non-cemented prostheses can take up to two years.**
- **Laterality and site of pain are also essential history that increase the diagnostic yield.**



### **Takeaway: Abnormal uptake in all three phases likely indicates septic loosening.**

The The NMMI Radiology National Subspecialty Division (NSD) is part of [RP's Clinical Value Team](#), which works to elevate patient care and enhance value through innovation, collaboration and education. To advance this goal, our radiologists and advanced practice providers are committed to sharing peer learning as valuable reminders and insights about what we encounter in our day-to-day practice. Check back here and on [X](#), [LinkedIn](#) and [Instagram](#) to see these common cases and our findings.

Visit the [Clinical Resources page](#) for more cases and to see what we've developed to enhance best practice recommendations, elevate image quality and patient care and update current standards throughout RP's network of practices, all to deliver excellent radiology services to patients, referring clinicians and client partners.



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