



Chronic prosthetic joint infection (PJI) with *Cutibacterium* spp presenting with “rice bodies”



Erin H. Yang MD, Hayden N. Box MD, Barbra M. Blair MD
Massachusetts General Hospital, Harvard Medical School, Boston, MA, USA

INTRODUCTION & AIMS

Rice bodies are an intriguing entity associated with inflammation in joint spaces. We present a case of rice bodies associated with *Cutibacterium* spp periprosthetic infection of the left hip. We recount key history, diagnostic workup, and evolution of the case. Lastly, we discuss the current literature around rice bodies and their clinical associations.

CASE PRESENTATION

The patient is a 66-year old man with well-controlled hypertension and osteoarthritis for which he underwent an uncomplicated left total hip arthroplasty (THA) in February, 2024.

Approximately 9 months after the index surgery, he developed intermittent episodes of fevers, chills, night sweats, and left hip pain. He underwent two guided left hip joint aspirations with interventional radiology, and fluid studies shown (Table 1). Microbiologic cultures from both samples were without growth; molecular sequencing returned both times showing *Cutibacterium modestum*.

Table 1. Diagnostic studies from two separate left hip joint fluid aspirations

Fluid studies	September 2025	October 2025
Total nucleated Cell count	20,000	21,569
Neutrophils (%)	80%	84%
Lymphocytes (%)	8%	15%
Cultures (routine, anaerobic, fungal mycobacterial)	No growth	No growth
Next-generation rRNA sequencing	<i>Cutibacterium modestum</i>	<i>Cutibacterium modestum</i>

In October 2025, he underwent magnetic resonance imaging (MRI) of the left hip demonstrating a total hip arthroplasty with a moderate to large effusion with synovitis, communicating with a progressive collection encircling the greater trochanter and proximal femur with innumerable rice bodies (Fig. 1).

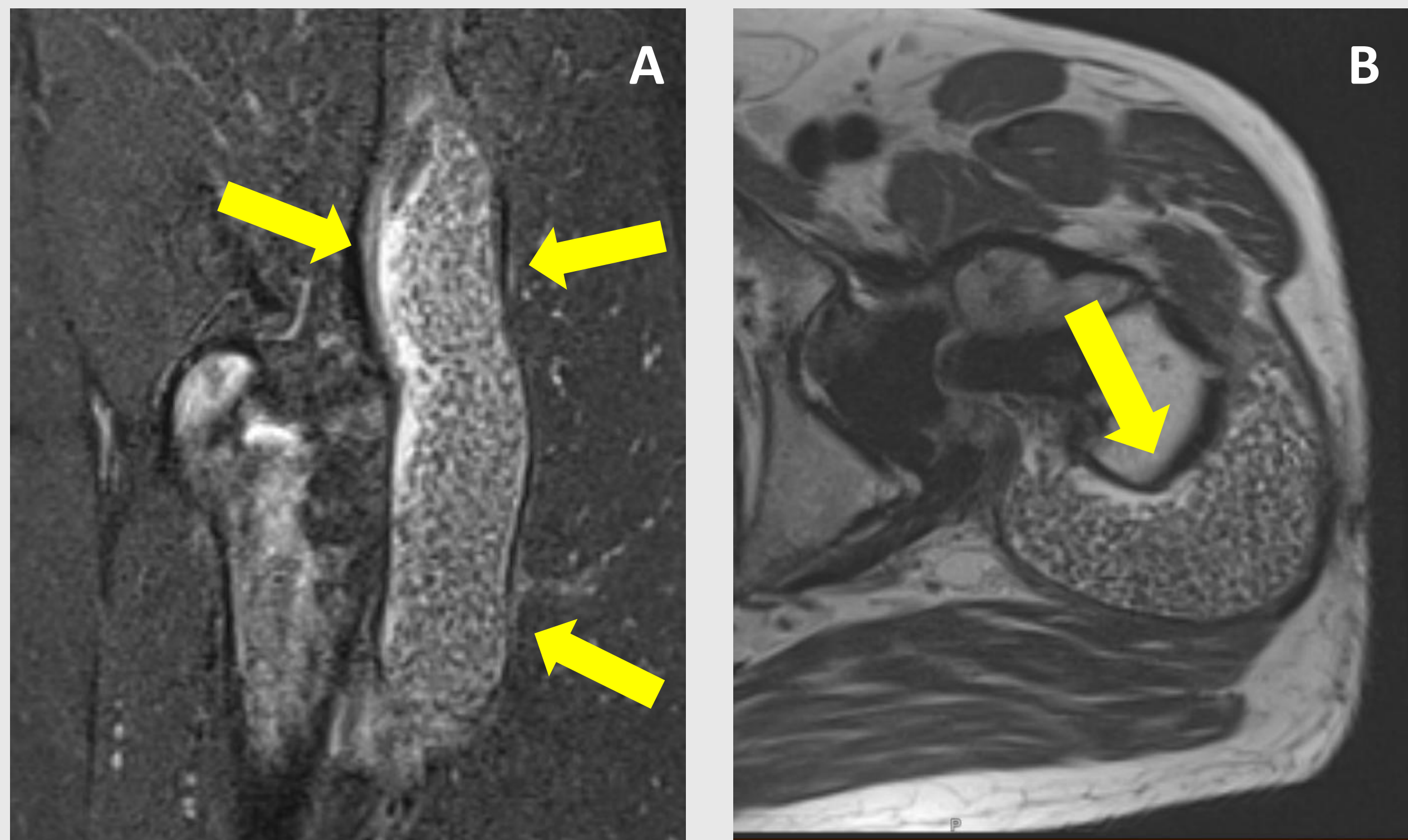


Figure 1. MRI without contrast demonstrating (A) sagittal and (B) axial views of the left prosthetic hip with an adjacent sac of rice bodies (yellow arrows)

REFERENCES

1. Fehring TK, Otero JE, Fehring KA, et al. One-Stage Versus Two-Stage Exchange Arthroplasty for Periprosthetic Joint Infection: A Prospective Randomized Trial. *J Bone Joint Surg Am.* 2026;108(14):1070-1082. doi:10.2106/JBJS.25.00713

2. Haibo Z, Tianrui W, Wenlian S, et al. A Case of Rice Body Synovitis of the Knee Joint. *Orthop Surg.* 2022;14(3):628-632. doi:10.1111/os.13195

3. Tian Y, Zhou HB, Yi K, Wang KJ. Idiopathic tenosynovitis of the wrist with multiple rice bodies: A case report and review of literature. *World J Clin Cases.* 2022;10(32):11908-11920. doi:10.12998/wjcc.v10.i32.11908

4. Xie B, Liao C, Zhou Z, Wang M. Rheumatoid Arthritis-Associated Shoulder Rice Body Bursitis: Arthroscopic Management and Mechanistic Implications. *Am J Case Rep.* 2025;26:e949580. Published 2025 Oct 22. doi:10.12659/AJCR.949580

5. Ramirez DC, Ren R, Burge AJ, Potter HG, Su E, Bauer TW. Exuberant Rice Body Formation Associated with Adverse Local Tissue Reaction After Hip Resurfacing Arthroplasty: A Case Report and Review of the Literature. *JBJS Case Connect.* 2023 Apr 13;13(2). doi:10.2106/JBJS.CC.22.00524. PMID: 37053362.

6. Issack PS. Formation of a large rice body-containing cyst following total hip arthroplasty. *BMC Res Notes.* 2012;5:294. Published 2012 Jun 14. doi:10.1186/1756-0500-5-294

7. Bayoud W, Rizkallah M, Georges S, Younan T, Haykal G. A Large Rice Body-Containing Cyst Mimicking Infection following Total Hip Arthroplasty: A Case Report. *Case Rep Orthop.* 2017;2017:5354298. doi:10.1155/2017/5354298

8. Leong VJ, Abbas AA, Ayob KA, Loh KW, Rahman NA, Selvaratnam V. Rice Body Formation in an Enterococcus faecalis-Infected Total Hip Arthroplasty Causing Sciatic Nerve Compression. *Cureus.* 2024;16(8):e67798. Published 2024 Aug 26. doi:10.7759/cureus.67798

9. Wang S, Ro H, Xu H, Fang L, Li X. Post-traumatic Candida infection leading to bilateral wrist rice body tenosynovitis: a case report and literature review. *Arch Orthop Trauma Surg.* 2026;146(1):135. Published 2026 Apr 6. doi:10.1007/s00402-026-06288-2

10. Jeon CH, Kim TW, Park JY, Hwang CS, Lim S. *Mycobacterium intracellulare* Tenosynovitis with Rice Body Formation with Literature Review. *Infect Chemother.* 2023;55(2):299-305. doi:10.3947/ic.2022.0025

11. Cheung H, Bauer TW, Endo Y. "Rice Body"-Like Synovial Particles on Magnetic Resonance Imaging: What Is the Spectrum of Diagnoses?. *HSS J.* Published online February 17, 2026. doi:10.1177/15563316251413271

SURGICAL APPROACH & ANTIBIOTIC COURSE

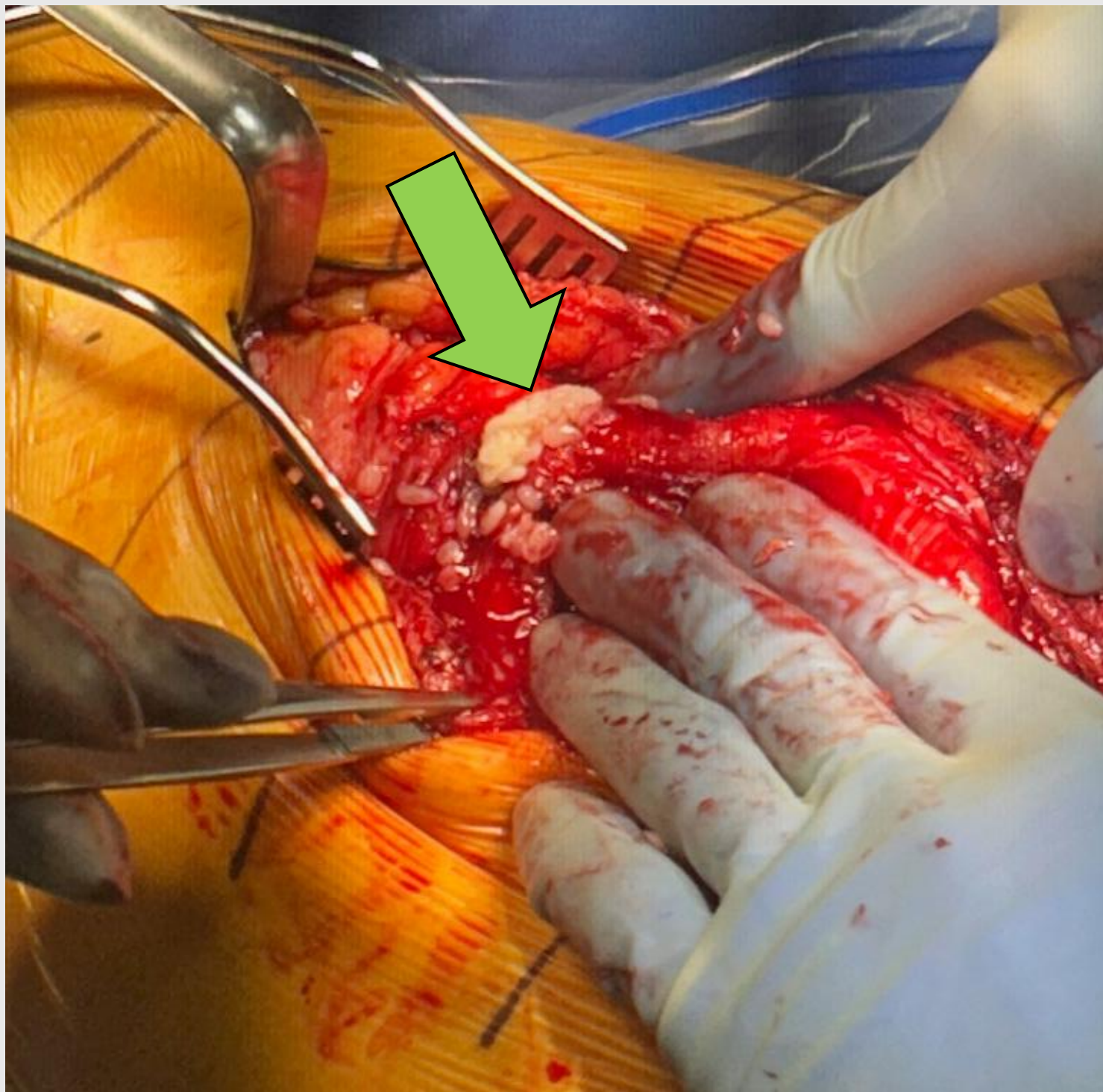


Figure 3. Rice bodies encountered intra-operatively (green arrow)

Anaerobic Culture/Test	Rare (1+) <i>Propionibacterium</i> species !
Resulting Agency: MGH	Presumptive
Susceptibility	
Clindamycin	0.03 Susceptible
Moxifloxacin	0.12 Susceptible
Penicillin G	0.008 Susceptible
Tetracycline	0.12 Susceptible

Figure 4. Intra-operative anaerobic tissue culture

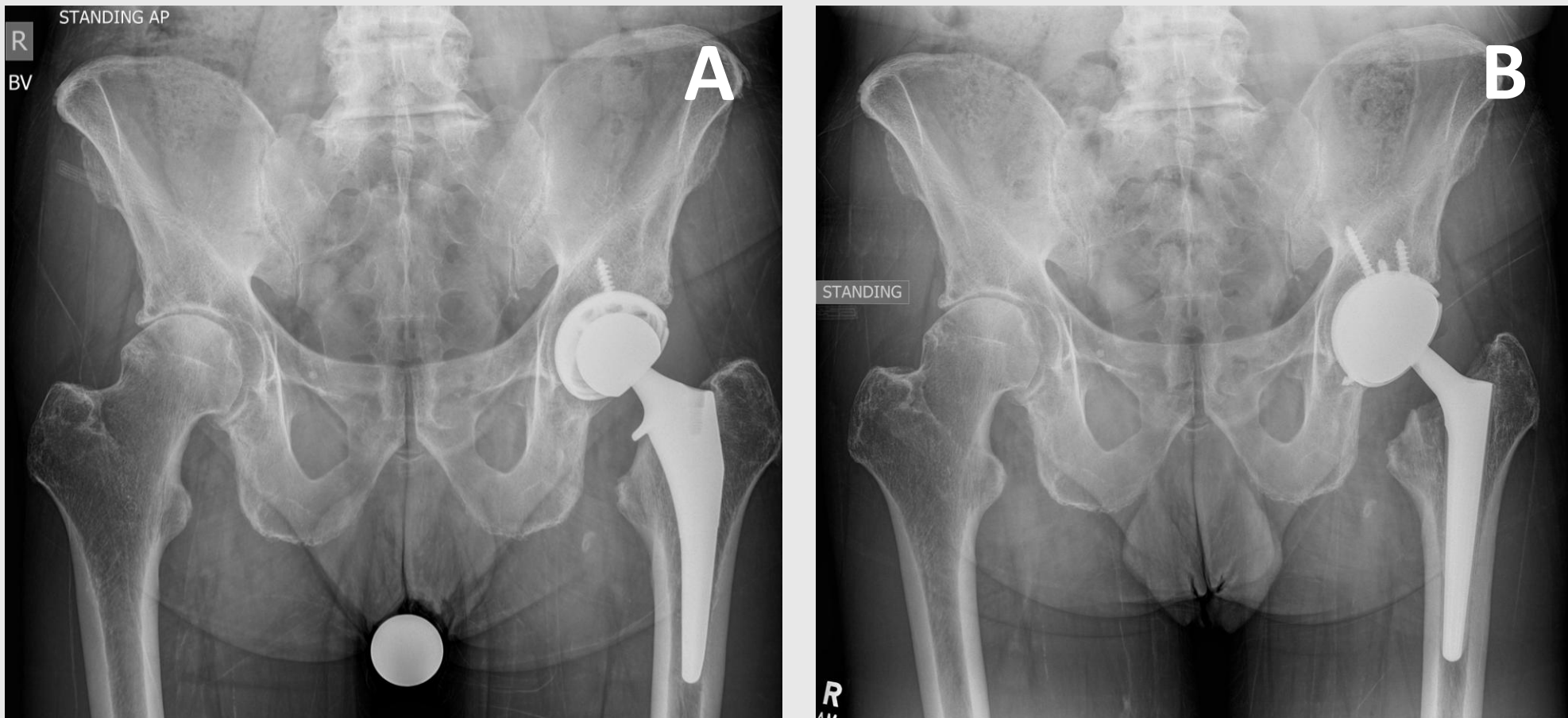


Figure 5. Plain upright radiographs of the pelvis showing the left hip: (A) original prosthesis 1 month prior to surgery and (B) new prosthesis 3 months after one-stage exchange.

DISCUSSION & CLINICAL SIGNIFICANCE

To our knowledge, this is the first reported case of rice bodies associated with *Cutibacterium* spp prosthetic joint infection. Rice bodies may be identified on MRI, histology, or by gross inspection. The exact pathophysiology of rice bodies is not known, but they are thought to represent inflamed synovial villi which detach into individual particles containing fibrin and inflammatory debris (Fig. 5).

Rice bodies have been associated with a variety of noninfectious syndromes, including idiopathic arthropathies,^{2,3} rheumatoid arthritis,⁴ and as a noninfectious complication of arthroplasty.⁵⁻⁷ Infectious etiologies are broad, with cases of rice bodies reported in bacterial,⁸ fungal,⁹ and mycobacterial joint infections.¹⁰ The largest case series to date reported 52 patients with rice bodies on MRI and found that while inflammatory arthritis was still the predominant association, but of those with a joint arthroplasty (14 total; 11 hip), rice body particles were associated with infection in the majority (10/14).¹¹ Among all cases associated with infection (13/52), not just PJI, *Staphylococcus* spp (4/5 non-*Staph aureus*) were most commonly isolated followed by culture negative infections.¹¹

Our case highlights that the presence of rice body-like particles on MRI in the setting of a joint arthroplasty likely represents PJI, and indolent bacterial organisms such as coagulase-negative *Staphylococci* and *Cutibacterium* should be considered.

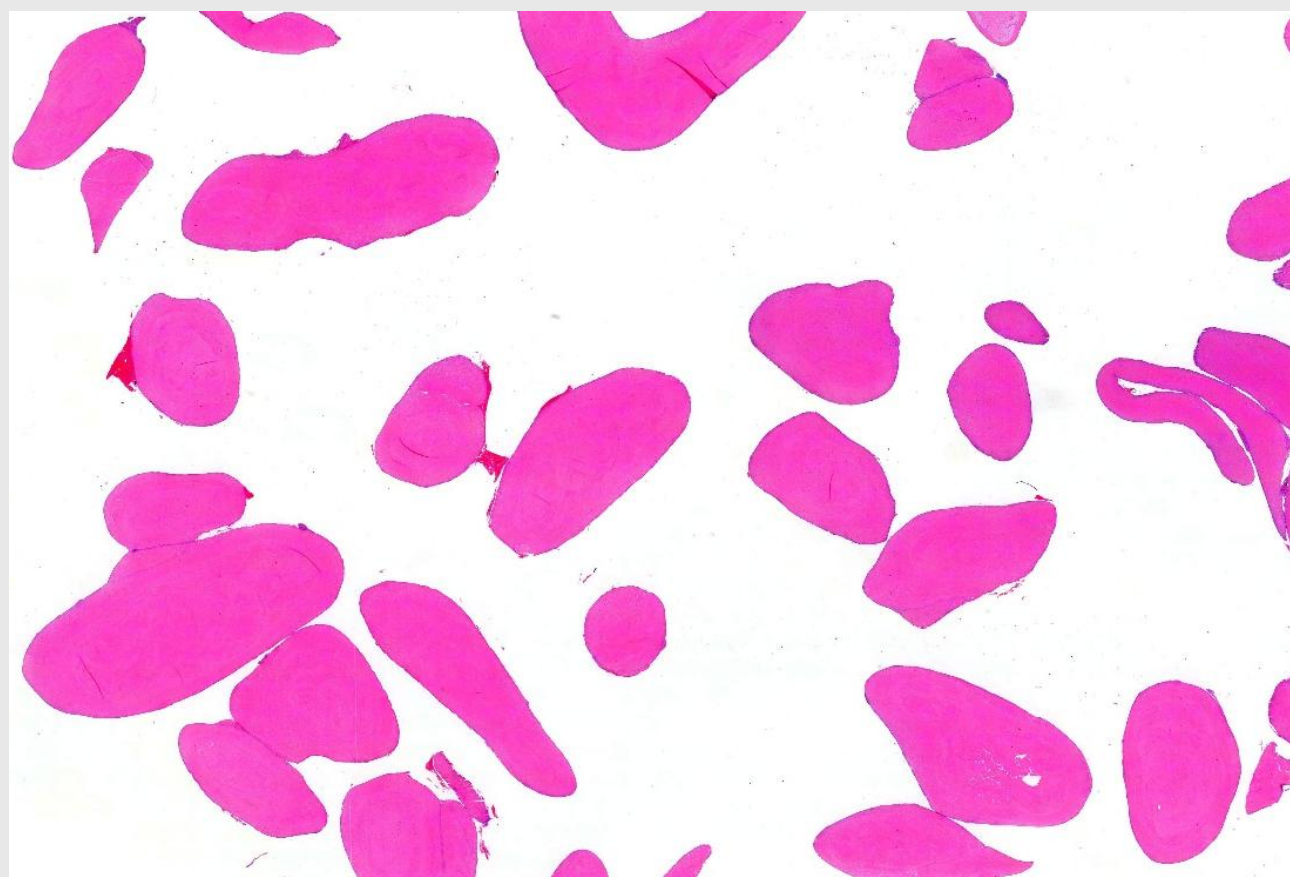


Figure 5. Histopathology of rice bodies extracted from our patient (courtesy of Dr. Dana J. Hariri)