

Metallosis After Total Hip Arthroplasty

JOSPT Cases 2021;1(3):197-198. doi:10.2519/josptcases.2021.10339

Case Presentation

A 67-year-old overweight woman was referred to physical therapy by an orthopaedic surgeon for lumbosacral spondylosis without myelopathy. Past medical history included a right total hip arthroplasty (THA) 9 years ago and a left THA 7 years ago.

The patient's chief complaint was the inability to walk short distances in the garden due to severe bilateral hip pain and weakness. The patient noted dysesthesia of the bilateral lower extremities, mostly on the right side. There was no report of constitutional symptoms. During the physical therapy exam, the patient demonstrated poor balance, an unsteady gait pattern with a positive Trendelenburg sign bilaterally, and generalized bilateral

lower extremity weakness of 3+/5 that was not in a myotomal pattern. Slump and straight leg raise tests reproduced posterior hip-to-thigh pain bilaterally.

Treatment/Outcome

The patient completed a 6-week program focusing on progressive strengthening and addressing gait abnormalities. During the course of therapy, the patient was diagnosed with nondiabetic polyneuropathy. The patient did not improve as expected and reported burning pain and a “popping” sensation within the right hip during walking, which resulted in a consultation with another in-house physical therapist, who performed musculoskeletal ultrasound of the right hip. Musculoskeletal ultrasound imaging

(FIGURES 1 and 2) revealed a soft tissue mass overlying the gluteus medius and gluteus minimus. The patient was referred back to the orthopaedist, who ordered magnetic resonance imaging that confirmed an oval mass along the lateral right hip. Further testing was positive for cobalt poisoning. The patient was diagnosed with metallosis and referred for bilateral revision THA.

Learning Point

Metallosis is a rare but severe complication of joint replacements and is defined as the build-up of debris within surrounding tissue, resulting in osteolysis and loosening of the prosthesis.⁴ Metal build-up can cause systemic toxicity (cobalt poisoning), which is linked to various symptoms such as peripheral neuropathy.¹ A physical therapist's decision to perform musculoskeletal ultrasound in this complex presentation helped guide the referral back to the physician for additional testing and appropriate diagnosis and management. ■

FIGURE 1

Short-axis view diagnostic ultrasound image of the right lateral hip, using a linear probe with a frequency of 5 to 16 MHz, showing the GT and overlying gluteal tendons (asterisk) and a soft tissue mass (arrow). Abbreviation: GT, greater trochanter.

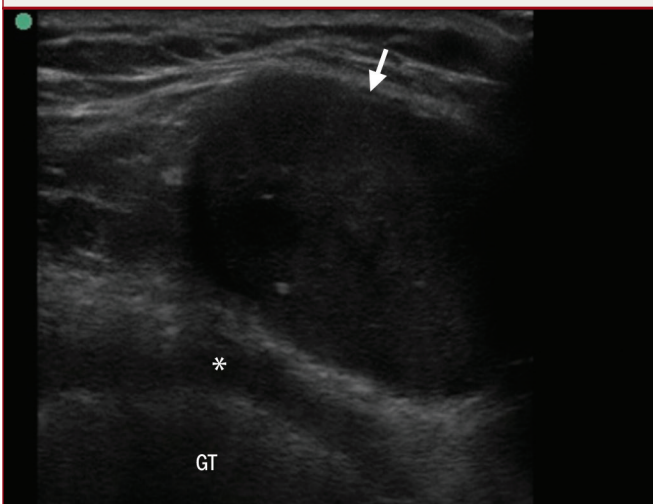
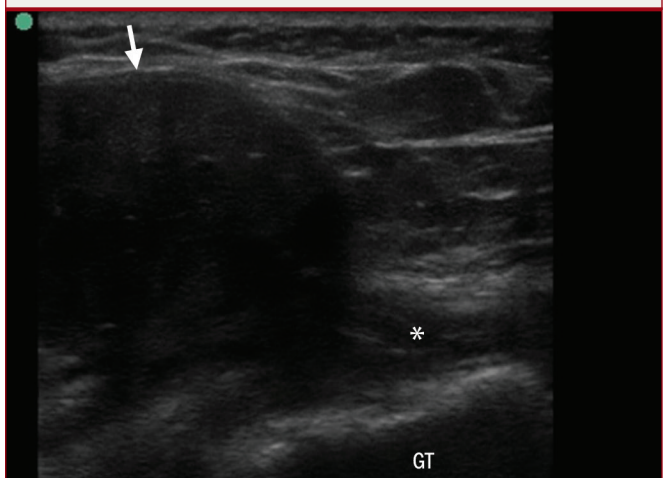


FIGURE 2

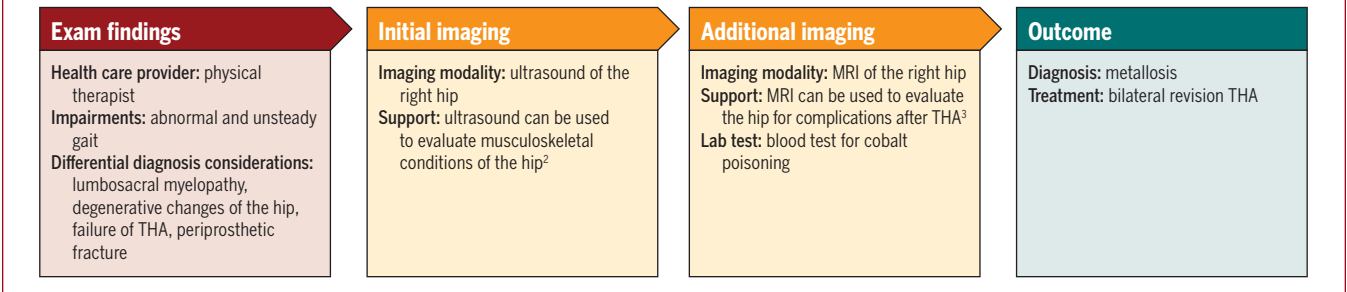
Long-axis view diagnostic ultrasound of the right lateral hip, using a linear probe with a frequency of 5 to 16 MHz, showing the GT and overlying gluteal tendons (asterisk) and a soft tissue mass (arrow) in the fascial plane above the gluteal tendons that is infiltrating gluteal muscle fascia. Abbreviation: GT, greater trochanter.



¹Teton Therapy, Riverton, WY. ²American Academy of MSK Ultrasound, New York City, NY. ■ Copyright ©2021 JOSPT®, Inc

DECISION PATHWAY

In the state of Wyoming, a physical therapist is able to perform diagnostic musculoskeletal ultrasound after completion of continuing education.



Abbreviations: MRI, magnetic resonance imaging; THA, total hip arthroplasty.

REFERENCES

1. Lecoanet P, Blangis M, Garcia M, Legallois Y, Fabre T. Chromium-cobalt intoxication with intense systemic complications following total hip revision after per-operative ceramic fracture. *Case Rep Orthop.* 2019;2019:4209796. <https://doi.org/10.1155/2019/4209796>
2. Molini L, Precerutti M, Gervasio A, Draghi F, Bianchi S. Hip: anatomy and US technique. *J Ultrasound.* 2011;14:99-108. <https://doi.org/10.1016/j.jus.2011.03.004>
3. Pilania K, Jankharia B. Magnetic resonance imaging features of complications following hip replacement: a pictorial review. *Indian J Radiol Imaging.* 2016;26:271-278.
4. Schiavone Panni A, Vasso M, Cerciello S, Maccauro G. Metallosis following knee arthroplasty: a histological and immunohistochemical study. *Int J Immunopathol Pharmacol.* 2011;24:711-719. <https://doi.org/10.1177/039463201102400317>