

CASE REPORT

General Medicine

The curious case of a 75-year-long dislocated hip causing abdominal pain

Kelsey Kukuza DO  | Khoa Tu MD | Vicken Totten MD | Sakona Seng DO

Kaweah Delta Health Care District, Visalia, California, USA

Correspondence

Khoa Tu, MD, Emergency Medicine Physician,
Kaweah Delta Health Care District, 400 W.
Mineral King Ave, Visalia CA 93291, USA.
Email: Khoa.Tu@vituity.com

Funding and support: By *JACEP Open* policy, all authors are required to disclose any and all commercial, financial, and other relationships in any way related to the subject of this article as per ICMJE conflict of interest guidelines (see www.icmje.org). The authors have stated that no such relationships exist.

Disclosure: The history and etiology of our patient's hip dislocation were obtained from her daughter with the use of a translator.

Consent: Verbal consent obtained and discussed with family by hospital interpreter over the telephone. Case report submitted to the research department and confirmed the deidentification of the report.

Abstract

We present a case of abdominal pain due to chronic hip dislocation of 75 years duration. Hip dislocations are not uncommon, but long-term, unreduced dislocations are vanishingly rare in the developed world. This 80-year-old female, who emigrated to the United States as an adult, presented to the emergency department for acute abdominal pain. Workup showed no intra-abdominal cause for her pain. History revealed she had suffered a traumatic hip dislocation at 5 years of age that was unable to receive adequate treatment because of limited health care access. After several years, she regained functional ability because of anatomic and compensatory musculoskeletal changes in the pelvis. The adaptations likely caused excessive muscular strain resulting in muscle spasm at the location of her abdominal pain. To our knowledge, this is the only reported case of a hip that remained dislocated for 75 years.

1 | INTRODUCTION

A hip dislocation is the malposition of the femoral head outside its acetabulum. In the developed world, the majority of hip dislocations are managed acutely. Delayed reposition is associated with complications, including neurovascular injury (10%) or avascular necrosis (6%–40%).^{1–3} Other potential sequelae consist of post-traumatic osteoarthritis, recurring dislocation, or thromboembolism.⁴ After literature review, hip dislocations rarely presented later than 6 weeks in developed countries.⁵ This case report highlights the importance of musculoskeletal connection and anatomical response to pathology. The increasing elderly population and efforts to increase access to medical care in rural populations may make chronic injuries less of a rare diagnosis.

2 | CASE REPORT

An 80-year-old female with a past medical history of hypertension, asthma with steroid use, and chronic hypoxic respiratory failure presented to the emergency department with moderate right lower abdominal pain that radiated to her flank and buttock. She noted a sudden onset of pain lasting throughout the evening. The pain was sharp, intermittent, and improved with hydrocodone/acetaminophen. She denied any dyspnea, nausea, vomiting, melena, dysuria, or other gastrointestinal complaints. Vital signs: blood pressure of 154/80 mmHg, heart rate of 107 beats per minute, temperature of 37.1°C, and oxygen saturation of 88% on room air. Physical examination: right

Supervising Editor: Junichi Sasaki, MD.

This is an open access article under the terms of the [Creative Commons Attribution-NonCommercial-NoDerivs](https://creativecommons.org/licenses/by-nc-nd/4.0/) License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.

© 2020 The Authors. *JACEP Open* published by Wiley Periodicals LLC on behalf of the American College of Emergency Physicians.

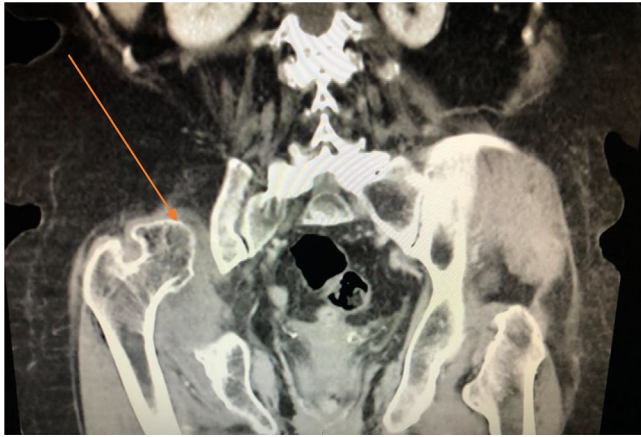


FIGURE 1 Computed tomography abdominal pelvis imaging with incidental finding of right hip dislocation (arrow). The right femoral head is visualized outside and superior to the native acetabulum

costovertebral angle (CVA) tenderness, and mild pain to palpation in the right lower quadrant (RLQ) without rebound tenderness. Ambulation revealed slight gait difficulty due to a shortened right leg. Laboratory values: leukocytosis of $13.95 \times 10^9/L$, thrombocytopenia of $121 \times 10^9/L$, hyperglycemia of 174 mg/dL, and urinalysis without evidence of infection. Computed tomography (CT) of the abdomen and pelvis demonstrated no acute intra-abdominal pathology. A compression deformity of unknown age in the 11th thoracic vertebra was observed, which may have contributed to her CVA tenderness but was unlikely the sole cause of her symptoms. A chronically dislocated right hip was incidentally noted (Figure 1).

Additional history was obtained regarding the incidental finding. Our patient had traumatically dislocated her hip when she was 5 years old after falling while gathering wood. She lived in a remote rural village in Mexico where advanced medical care was not available. A local veterinarian determined that she had dislocated her hip but was unable

to perform a closed reduction, despite using a traction and pulley system for horses. The initial injury likely caused extreme disruption of the ligamentous and muscular pelvic stabilizers. After unsuccessful reduction, her father tied a shawl around her hip and made her a walking cane. After using the cane and shawl for 4 years, she was able to ambulate independently. The initial differential for her abdominal pain had included acute appendicitis, impacted renal calculi, and bowel perforation. However, because of the noninfectious presentation and negative CT workup, the leukocytosis was attributed to her chronic steroid use; and hypoxemia was expected after learning she used 3–4 L of oxygen. The initial tachycardia quickly resolved with rest in the examination room.

Orthopedic surgery was consulted and noted significant osseous modifications, including a right femoral head pseudo-acetabulum (Figure 2A). The CT demonstrated additional compensatory changes: right medially rotated and cephalad ilium with effacement of the acetabulum (Figure 2B). It was hypothesized that the patient had likely moved in an abrupt manner that placed excess tension on the muscles of her hip, causing a muscle strain/spasm that manifested as abdominal and flank pain. A total hip arthroplasty (THA) was recommended. Reduction was to be avoided because of the grossly abnormal anatomy and prolonged injury duration. The patient politely declined surgery and was admitted for treatment of her hypoxic respiratory failure. The hospitalist thought her pain to be pleuritic in nature; however, muscle spasm better details causality of RLQ tenderness and radiating buttock pain.

3 | DISCUSSION

Adult native hips are very stable because of the attachments of the iliofemoral, pubofemoral, ischiofemoral, and ligamentum teres ligaments, with contributions from the gluteus medius, gluteus maximus, piriformis, iliopsoas, and rectus femoris muscles.^{6,7} Children have more

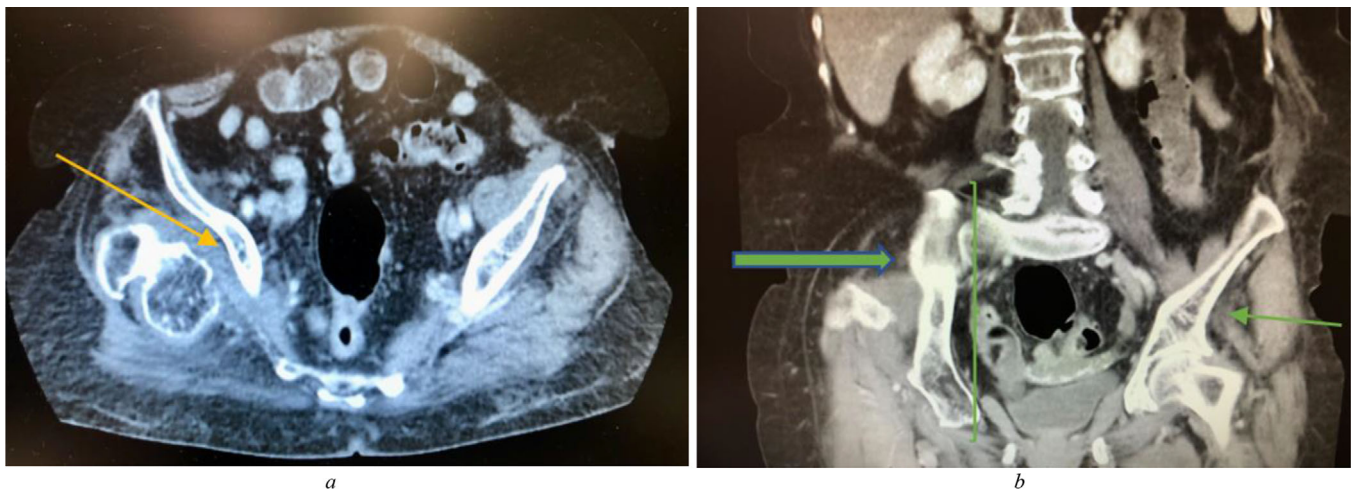


FIGURE 2 (A) Pseudo-acetabulum formation adjacent to the right femoral head on the ilium (arrow). The right femoral head demonstrates arthritic like changes. The left femoral head (not pictured) intact without changes. (B) Computed tomography imaging of the right ilium that is medially rotated and displaced (thick arrow) compared to the left ilium (thin arrow) likely as a result of compensatory adaptations

shallow acetabula and may dislocate with less trauma.⁸ Younger persons (16–40 years old) dislocate their hips more commonly, likely from frequent trauma.⁶ Due to loss of hip stabilizers, up to 1% of prosthetic hips dislocate.⁹

Curiously, our patient presented with a complaint seemingly unrelated to the long-ago injury. Her CT images demonstrated a femoral head superiorly displaced from the acetabulum, a finding consistent with a posterior hip dislocation. There were no signs of avascular necrosis. In a non-injured hip, the acetabulum and femoral head articulate smoothly. The acetabular labrum, a circumferential fibrocartilaginous structure that increases the depth of the acetabulum, contributes to the strength of the ball and socket joint.⁴

Dysplastic hips may also show shallow sockets on imaging; however, our patient had nearly a non-existent acetabulum, conceivably because of the massive remodeling. Over time, these osseous and chondral changes created a pseudo-acetabulum that enabled the patient to walk with minimal physical limitation.

However, the continuous medial rotation and cephalad displacement of the femur likely resulted in hypertonia of the psoas, iliacus, quadratus lumborum, gluteus, and right abdominal wall muscles. Laxity changes would have also occurred in the anterior/posterior thigh and left abdominal wall muscles. These pathologic musculoskeletal and ligamentous changes could precipitate overuse injury. In our patient, the CVA tenderness and RLQ pain were attributed to an acute muscle spasm and strain from a sudden movement that caused increased tension on the psoas, obliques, and gluteus muscles eliciting pain with somatovisceral innervations.

After more than 75 years of the initial injury, a THA would be the only possible correction.^{4,5} Surgery might improve the patient's abnormal gait, thus potentially reducing her pain. However, a THA in an 80-year-old with chronic respiratory failure is not without risk. From the chart review, the patient has had manageable pain after hospital discharge. She was pleased that there was no underlying severe abdominal pathology and definitively declined any surgical intervention.

This case report demonstrates a unique and atypical cause for abdominal pain. The improvisation with available resources and treatment in our patient's home village allowed her to have a functional, well-lived life. Although the fall occurred when she was a child, the extensive musculoskeletal disruption of her native hip joint demanded

anatomical modification with hypertonia and antagonizing laxity of pelvic stabilizing muscles. These impressive adaptations permitted functional capability for numerous decades after discontinuing use of her shawl and cane.

CONFLICTS OF INTEREST

None declared

ORCID

Kelsey Kukuza DO  <https://orcid.org/0000-0002-3494-4486>

REFERENCES

1. Dortaj H, Emamifar A. Traumatic hip dislocation with associated femoral head fracture. *Case Report Orthop.* 2015;2015:865786.
2. Dawson-Amoah K, Raszewski J, Duplantier N, Sutton Waddell B. Dislocation of the hip: a review of types, causes, and treatment. *Ochsner J.* 2018;18(3):242-252. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6162140/>
3. Swiontkowski MF, Mengnai L. Fractures and Dislocations about the Hip and Pelvis. In Swiontkowski MF, Mencia G, eds. *Green's Skeletal Trauma in Children.* Nashville: Elsevier. 2015: 311-364.
4. McKee M, Garay M, Schemitsch E, Kreder H, Stephen D. Irreducible fracture-dislocation of the hip: a severe injury with a poor prognosis. *Journal of Orthopedic Trauma.* 1998;223-9.
5. Selimi V, Heang O, Woebler E, Gollogly J. Chronic hip dislocations: a rarity. How should we treat them? *J Orthop.* 2016;23;13(4):431-436. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5037263/>
6. Masiewicz S, Johnson D. Posterior Hip (Femur) Dislocation. *StatPearls.* Treasure Island (FL): StatPearls Publishing; 2020 Jan 22. <https://pubmed.ncbi.nlm.nih.gov/29083669/>
7. Graber M. Anterior Hip (Femur) Dislocation. 2019. Available from StatPearls Publishing, Treasure Island (FL);: <https://www.ncbi.nlm.nih.gov/books/NBK507814/>
8. Alexander Mortimer J. Delayed diagnosis of hip dislocation in a young child. *Can Fam Physician.* 2016;62(10):815-817. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5063769/>
9. Bradford S, Waddell SM. A detailed review of hip reduction maneuvers: a focus on physician safety and introduction of the Waddell Technique. *Orthop Rev.* 2016;8(1):6253.

How to cite this article: Kukuza K, Tu K, Totten V, Seng S. The curious case of a 75-year-long dislocated hip causing abdominal pain. *JACEP Open.* 2020;1:795–797. <https://doi.org/10.1002/emp2.12187>