

**CASE REPORT**

OPEN ACCESS

Received: 28.09.2023

Accepted: 19.03.2024

Published: 30.03.2024

# An Atypical Presentation of Hip Dislocation In A Pregnant Patient: A Case Report and Review of the Literature

Ayush Agrawal<sup>1</sup>, Madhavan P<sup>2\*</sup>, Hariprasad S<sup>3</sup><sup>1</sup> Junior Resident, Department of Orthopaedics, SDUMC, Kolar, Karnataka<sup>2</sup> Senior Resident, Department of Orthopaedics, SDUMC, Kolar, Karnataka<sup>3</sup> Professor, Department of Orthopaedics, SDUMC, Kolar, Karnataka

**Citation:** Ayush A, Madhavan P, Hariprasad S. An Atypical Presentation of Hip Dislocation In A Pregnant Patient: A Case Report and Review of the Literature. J Clin Biomed Sci 2024; 14(1): 23-26. <https://doi.org/10.58739/jcbs/v14i1.23.1>

\* Corresponding author.

[maddyding53@gmail.com](mailto:maddyding53@gmail.com)

Funding: None

Competing Interests: None

**Copyright:** This is an open access article distributed under the terms of the [Creative Commons Attribution License](#), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Published By Sri Devaraj Urs  
Academy of Higher Education, Kolar,  
Karnataka

ISSN

Print: 2231-4180

Electronic: 2319-2453



## Abstract

Managing an injured patient who is pregnant can be difficult in the management and investigation of the case especially when the patient presents atypically. We encountered a 25-year-old female patient who sustained a posterior dislocation of the right hip and was pregnant at 12 weeks gestation following a road traffic accident. The patient presented to OPD with an atypical attitude of limb i.e., both hip and knee in flexion without any internal rotation and adduction of the limb following which MRI was done which showed right hip posterior dislocation. Through an interdepartmental, skilful team approach the patient, after taking the obstetrician's opinion and the patient under short GA, Closed reduction by Rochester method (longitudinal traction and rotation control) was done for the right hip joint without any complication. As pregnant females possess more risk and complication and more challenges are expected in management, Orthopaedic surgeons are well equipped to treat such patients to reduce patient morbidity and mortality resulting in better outcomes.

**Keywords:** Posterior dislocation of hip; Pregnant female; Atypical presentation; Closed reduction

## Introduction

Providing acute orthopaedic trauma care to a patient who is pregnant and injured is a very complex endeavour needing emergency and skilful team participation. Emergency medicine consultants, trauma and orthopaedic surgeons, gynaecologists-obstetrician, anaesthesiologists, and neonatologists should all together skilfully manage both the mother and the developing foetus to pre-

vent morbidity and mortality in such cases.<sup>1</sup> It is also important that health-care personnel take necessary steps to reduce further risks and complications to the foetus by appropriate and judicious use of ionizing radiation, antibiotics, and anticoagulants.<sup>1</sup>

Posterior dislocation of the right hip mostly occurs with axial load on the femur, typically with the hip adducted and flexed.

Associated acetabular injury can be determined by the position of the hip. Caring for a pregnant patient who is injured can be a challenge both in the investigation and management of the case especially when the patient presents atypically.<sup>1</sup>

We encountered a case of A 25-year-old female with 3 months of amenorrhea who presented to orthopaedic OPD with complaints of right hip pain following a road traffic accident (High velocity injury). MRI of the pelvis with hip joint revealed dislocation of the right hip (Thompson and Epstein classification of posterior hip dislocation TYPE I). Through a panoramic, all-inclusive team approach, the patient was guided through closed reduction by Rochester method (longitudinal traction and rotation control) under short GA with successful outcomes without any complication to both the mother and her child.

### Case Presentation

A 25-year-old female presented to orthopaedic OPD with complaints of right hip pain following a road traffic accident (High velocity injury). On arrival, she was hemodynamically stable and conscious. After taking a detailed record, we found that the patient was pregnant at 12 weeks of gestation. Doppler ultrasound confirmed normal foetal heart sounds.

The patient was determined to be stable after undergoing a primary survey. The patient complained of right hip pain during the secondary survey, also right lower limb shortening was noted (Figure 1). No neurovascular deficit was found. X-rays were avoided to prevent radiation exposure. MRI of the pelvis with hip joint revealed posterior right hip dislocation (Thompson and Epstein classification of posterior hip dislocation TYPE I) (Figure 2). Surgical management was deferred as the patient didn't present with any absolute indication. After taking the Obstetrician opinion and informed consent from the patient, the patient underwent closed reduction by Rochester method (longitudinal traction and rotation control) under short GA. Range of motion and power at the right hip were checked post-reduction. The patient was mobilised with walker assistance on postoperative day 5. The physical examination of the right hip was painless and comfortable on regular follow-up, the patient has been advised to avoid extreme range of movements to avoid recurrence. The patient was further screened and evaluated, and the foetus was found to be safe and in no danger. Overall, the patient has recovered fully without any complications related to the hip. After three weeks of utilising a walking assistance following reduction, the patient was able to walk normally, and a healthy baby was delivered via normal delivery, according to additional follow-up.

Types	Thompson and Epstein classification of hip dislocations
I	Dislocation with no more than minor chip fractures
II	Dislocation with single large fragment of posterior acetabular wall
III	Dislocation with comminuted fragments of posterior acetabular wall
IV	Dislocation with fracture through acetabular floor
V	Dislocation with fracture through acetabular



Fig 1. Clinical images of presentation of patient showing shortening of right lower limb with flexion of right hip and knee



Fig 2. a) MRI Pelvis axial view, (b) coronal view showing posterior dislocation of hip

### Discussion

It was found that around 46% of maternal deaths under 40 years of age are due to trauma in pregnant patients<sup>2-6</sup> and it will lead to complicated pregnancy in about 6-7% of pregnant

patients.<sup>4</sup> The incidence of road traffic accidents (RTA) in pregnant patients is about 55%<sup>7</sup>. The incidence of maternal deaths in pregnant patients with RTA or trauma is about 10-11% and 10-15% are associated with the foetal death rate in the first trimester and 50-54% in the third trimester<sup>8,9</sup>. Every year around 1200 to 4000 pregnancies go for miscarriages due to trauma, with minor maternal injuries being the most important cause<sup>10</sup>. Orthopaedic trauma is multiply injured and accounts for almost 22%<sup>11</sup>. Pelvic fractures are highly prone to complications including foetal loss<sup>12</sup>.

The pregnant patient with polytrauma comes with so much difficulty in management. In every step of management, the unique physiological change in pregnant patients demands some changes to standard trauma protocols.

### Changes during Pregnancy and Their Effects on the Management of Trauma

For treating this subset of patient, informed and effective treatment decisions is important. It is necessary that all treating doctors, orthopaedic surgeons, should know the pregnancy-related physiological disturbances, especially the hemodynamic status of the patient. Therefore, a careful initial trauma evaluation must be done in pregnant patients with severe trauma like acetabulum or pelvic fractures.<sup>13</sup> Most of the patients admitted with maternal trauma should undergo monitoring of the foetus even if there are no symptoms found in the mother, at least for 24 hours of initial hospitalisation<sup>14</sup>. In this patient, monitoring was done closely, and the Obstetrician's opinion was taken wherever required. At the end of the primary survey, the patient was found to be hemodynamically normal, and the secondary survey was carried out. Mostly radiographic evaluation for the management and diagnosis of musculoskeletal trauma is required in such situations. To protect the uterus, Investigations should be done judiciously if possible<sup>14</sup>. There is ample evidence to prove the safety of limited imaging and does not lead to delayed diagnosis<sup>15</sup>. Exposure of around 5 rad ionizing radiation is

accepted for the foetus<sup>16-18</sup>. Any exposure above the accepted level leads to a high risk of congenital deformities or miscarriages<sup>17</sup>. Out of all the radiation doses absorbed by the mother, approximately 30% is received by the foetus<sup>4</sup>. During the first trimester CT of the abdomen and pelvis should be avoided if possible<sup>4</sup>.

### Surgical Considerations

Cautious use of anaesthesia and antibiotics must be made when considering pregnant patients with orthopaedic injuries for operative management. General anaesthesia has been found to be safe in pregnant patients undergoing surgery<sup>19,20</sup>. Although general anaesthetic medications also cross the placenta, no evidence suggests that these anaesthetic drugs are harmful to the foetus<sup>21</sup>. Some evidence suggests that in the first or second trimester, there may be a high risk of spontaneous abortion with these drugs<sup>22</sup>. Hence preferred use of local or regional anaesthesia is advised in view of lowering foetal exposure<sup>3</sup>. The decision of intraoperative foetal monitoring varies among consultants and should be decided with obstetricians<sup>23</sup>.

### Conclusion

This case showed various challenges encountered while managing the pregnant orthopaedic patient. With a panoramic, all-inclusive team effort, the patient was guided through closed reduction under short GA. In this case, both the mother and the foetus were diagnosed properly. The orthopaedic team skilfully treated the patient through the pre- and post-reduction span by achieving stable closed reduction and mobilizing the patient early also minimizing complications with the proper post-reduction rehabilitation. Overall, our case reveals that surgery can be avoided and successful closed reduction can be attained in pregnant patients who have undergone posterior dislocation of the hip with atypical presentation.

## References

- 1) Young JR, Vignaly L, Carroll J, Ross P, Mori BV, Czajka CM. Combined Acetabulum Fracture and Hip Dislocation in an 18-Year-Old Female at 35-Week Gestation: A Case Report and Review of the Literature. *Case Reports in Orthopedics*. 2020;2020:1–6. Available from: <https://doi.org/10.1155/2020/8888015>.
- 2) Pape HC, Pohlemann T, Gänsslen A, Simon R, Koch C, Tscherner H. Pelvic Fractures in Pregnant Multiple Trauma Patients. *Journal of Orthopaedic Trauma*. 2000;14(4):238–244. Available from: <https://dx.doi.org/10.1097/00005131-200005000-00003>.
- 3) Tejwani N, Klifto K, Looze C, Klifto CS. Treatment of Pregnant Patients With Orthopaedic Trauma. *Journal of the American Academy of Orthopaedic Surgeons*. 2017;25(5):e90–e101. Available from: <https://dx.doi.org/10.5435/jaaos-d-16-00289>.
- 4) Hill CC, Pickinpaugh J. Trauma and Surgical Emergencies in the Obstetric Patient. *Surgical Clinics of North America*. 2008;88(2):421–440. Available from: <https://dx.doi.org/10.1016/j.suc.2007.12.006>.
- 5) Al-Thani H, El-Menyar A, Sathian B, Mekkodathil A, Thomas S, Mollazehi M, et al. Blunt traumatic injury during pregnancy: a descriptive analysis from a level 1 trauma center. *European Journal of Trauma and Emergency Surgery*. 2019;45(3):393–401. Available from: <https://dx.doi.org/10.1007/s00068-018-0948-1>.
- 6) Connolly A, Katz V, Bash K, McMahon M, Hansen W. Trauma and Pregnancy. *American Journal of Perinatology*. 1997;14(06):331–336. Available from: <https://dx.doi.org/10.1055/s-2007-994155>.
- 7) Hull SB, Bennett S. The pregnant trauma patient: assessment and anesthetic management. *International Anesthesiology Clinics*. 2007;45(3):1–18. Available from: <https://doi.org/10.1097/aia.0b013e3180f30fd6>.
- 8) Muench MV, Canterino JC. Trauma in Pregnancy. *Obstetrics and Gynecology Clinics of North America*. 2007;34(3):555–583. Available from: <https://dx.doi.org/10.1016/j.ogc.2007.06.001>.
- 9) Pearlman MD. Motor vehicle crashes, pregnancy loss and preterm labor. *International Journal of Gynecology & Obstetrics*. 1997;57:127–132. Available from: [https://dx.doi.org/10.1016/s0020-7292\(96\)02829-9](https://dx.doi.org/10.1016/s0020-7292(96)02829-9).
- 10) ACOG educational bulletin. Obstetric aspects of trauma management. *International Journal of Gynecology & Obstetrics*. 1999;64(1):87–94. Available from: <https://pubmed.ncbi.nlm.nih.gov/10190681/>.
- 11) Hill KL, Gross ME, Sutton KM, Mulcahey MK. Evaluation and Resuscitation of the Pregnant Orthopaedic Trauma Patient. *JBJS Reviews*. 2019;7(12):e3. Available from: <https://dx.doi.org/10.2106/jbjs.rvw.19.00013>.
- 12) Horstmann P, Larsen CF, Grønberg H. Adherence to protocol in pregnant trauma patients? A 12-year retrospective study. *European Journal of Trauma and Emergency Surgery*. 2014;40:561–566. Available from: <https://dx.doi.org/10.1007/s00068-014-0378-7>.
- 13) Flik K, Kloen P, Toro JB, Urmey W, Nijhuis JG, Helfet DL. Orthopaedic Trauma in the Pregnant Patient. *Journal of the American Academy of Orthopaedic Surgeons*. 2006;14(3):175–182. Available from: <https://dx.doi.org/10.5435/00124635-200603000-00008>.
- 14) Curet MJ, Schermer CR, Demarest GB, Bieneik EJ, Curet LB. Predictors of Outcome in Trauma during Pregnancy: Identification of Patients Who Can Be Monitored for Less than 6 Hours. *The Journal of Trauma: Injury, Infection, and Critical Care*. 2000;49(1):18–25. Available from: <https://dx.doi.org/10.1097/00005373-200007000-00003>.
- 15) Herfel ES, Hill JH, Lieber M. Radiographic evaluation of the pregnant trauma patient: What are We willing to miss? *European Journal of Obstetrics & Gynecology and Reproductive Biology*. 2018;228:325–328. Available from: <https://dx.doi.org/10.1016/j.ejogrb.2018.06.039>.
- 16) Toppenberg KS, Hill DA, Miller DP. Safety of radiographic imaging during pregnancy. *American family physician*. 1820;59(7):1813–1821. Available from: <https://pubmed.ncbi.nlm.nih.gov/10208701/>.
- 17) Raptis CA, Mellnick VM, Raptis DA, Kitchin D, Fowler KJ, Lubner M, et al. Imaging of Trauma in the Pregnant Patient. *RadioGraphics*. 2014;34(3):748–763. Available from: <https://dx.doi.org/10.1148/rg.343135090>.
- 18) Sakamoto J, Michels C, Eisfelder B, Joshi N. Trauma in Pregnancy. *Emergency Medicine Clinics of North America*. 2019;37(2):317–338. Available from: <https://dx.doi.org/10.1016/j.emc.2019.01.009>.
- 19) Porter SE, Russell GV, Qin Z, Graves ML. Operative Fixation of Acetabular Fractures in the Pregnant Patient. *Journal of Orthopaedic Trauma*. 2008;22(8):508–516. Available from: <https://dx.doi.org/10.1097/bot.0b013e3181847a42>.
- 20) Yosipovitch Z, Goldberg I, Ventura E, Neri A. Open Reduction of Acetabular Fracture in Pregnancy. *Clinical Orthopaedics and Related Research*. 1992;282:229–232. Available from: <https://dx.doi.org/10.1097/00003086-199209000-00030>.
- 21) Reitman E, Flood P. Anaesthetic considerations for non-obstetric surgery during pregnancy. *British Journal of Anaesthesia*. 2011;107:i72–i78. Available from: <https://dx.doi.org/10.1093/bja/aer343>.
- 22) Duncan PG, Pope WDB, Cohen MM, Greer N. Fetal Risk of Anesthesia and Surgery during Pregnancy. *Anesthesiology*. 1986;64(6):790–794. Available from: <https://dx.doi.org/10.1097/0000542-198606000-00019>.
- 23) Cheek TG, Baird E. Anesthesia for Nonobstetric Surgery: Maternal and Fetal Considerations. *Clinical Obstetrics & Gynecology*. 2009;52(4):535–545. Available from: <https://dx.doi.org/10.1097/grf.0b013e3181c11f60>.