



Journal Homepage: -www.journalijar.com

INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)

Article DOI:10.21474/IJAR01/11475
DOI URL: <http://dx.doi.org/10.21474/IJAR01/11475>



RESEARCH ARTICLE

CASE REPORT OF BILATERAL ACETABULAR FRACTURE COMBINED WITH FRACTURE OF LEFT FEMORAL NECK IN ELDERLY FEMALE PATIENT

Khalid A. Garout, Amjad I. Ilyas, Meshael A. Al-Matari and Arwa S. Al-Shareef
MBBS, Surgical Resident at Saudi Board of Orthopedic Surgery.

Manuscript Info

Manuscript History

Received: 05 June 2020
Final Accepted: 10 July 2020
Published: August 2020

Abstract

The incidence of acetabular fractures in the elderly population is increasing due to preexisting osteoporosis and falls or low-energy trauma. However, the prognosis of acetabular fractures in the elderly are generally poor when compared with those in young patients. Therefore, the proper initial management options are critical, as early failures and subsequent salvage surgery can be accompanied by significant morbidity. This is the case report with detailed history, examination of 80 years-old female patient with bilateral acetabular fracture combined left femur neck fracture.

Copy Right, IJAR, 2020. All rights reserved.

Introduction:-

The hip joint is a "ball and socket" joint comprising of the acetabulum (socket) and the femoral head (ball).⁽¹⁾ The term "hip fracture" implies fractures at any of these structures.⁽²⁾ Acetabular fractures are part of the hip fractures that occur because of high-impact trauma such as a car vehicle accident or a bad fall.⁽³⁾ However, they can occur during a lower-impact fall, primarily in older adults who have fragile bones due to osteoporosis.^(3,4)

While the elderly population grows, the number of hip fractures continues to increase. Researchers⁽⁵⁾ indicated that approximately 90 percent of hip fractures in the elderly occur from a simple fall from the standing position due to poorer balance, medication side effects, and difficulty maneuvering around environmental hazards. Moreover, female sustain hip fractures more often due to their higher rates of osteoporosis.⁽⁴⁾ According to data from the United States Agency for Healthcare Research and Quality (AHRQ), in 2003 there were 310,000 hospitalized patients with hip fractures in the United States alone.⁽⁶⁾ In Saudi Arabia, The number of osteoporotic hip fractures estimated to be 8768 cases in 2004.⁽⁷⁾

Although, the acetabular fractures are not common compared with femur fractures but are considering serious bone fractures that may disrupt the major neurovascular to lower extremities.^(8,9) Thereupon, early and prompt surgical intervention is mandatory in such cases. This is the case report with detailed history, examination of 80 years-old female patient with bilateral acetabular fracture combined left femur neck fracture. The present report aimed to highlight the rare presentation of bilateral acetabular fractures with concomitant femoral neck fracture.

Report of the case:

Clinical presentation and history:

80-year-old female has indoor mobilizer with assistant and known case of Diabetes Mellitus, Hypertension and Ischemic heart diseases. She also suffered from morbid obesity with long history of osteoporosis and chronic kidney

Corresponding Author:- Khalid A Garout

Address:- MBBS, Surgical Resident at Saudi Board of Orthopedic Surgery.

disease. Patient presented to ER after her falling down at home in the wet floor of bathroom while she was getting out from bathroom. After that, she could not stand or bear weight, with minimal left hip pain.

Examination:

On examination, she was conscious and alert with normal and stable vital signs. Locally, there was tenderness over the left hip on deep palpation associated with lateral and posterior bruises but there were no open wounds or swelling. Her range of motion of the left hip was restricted with minimal pain. Stroke had ruled out after specific clinical examination and there was intact distal neurovascular upon examination.

Investigations and Procedure:

Initial X ray radiographs (Figure 1) revealed that there were bilateral acetabulum fracture and left femoral neck fracture. In order to evaluate the acetabulum fracture geometry, CT showed left displaced comminuted both column acetabulum fracture with ipsilateral displaced trans-cervical femoral neck fracture, and right minimally displaced posterior wall acetabulum fracture (Figure 2). Her lab showed microcytic hypochromic anemia (HB: 8.4 g/dl), otherwise within normal values.

Patient underwent medical evaluation by multidisciplinary team from internal medicine, anesthesia, and orthopedic who decided that patient was not fit for operative management due to sudden upper GI bleeding. Accordingly, she had follow up with gastrologist and two weeks later, she became stable. Treatment options either operative or non-operative were discussed with the patient and her family; they were keen to get her symptoms improved.

However, surgical plan was open reduction and internal fixation of left acetabulum and total arthroplasty with or without acetabulum cage versus hemiarthroplasty for the left hip. There were considerable factors that helped to guide treatment options like intraoperative acetabulum fracture condition, bone quality, general health condition of the patient and anesthesia time to minimize the risk of the surgery.

On the surgery day, the patient was taken to theatre and she was under general anesthesia with left lateral position. The Kocher-Langenbeck approach was used to visualize and fix the anterior and posterior acetabulum with one pre contoured plate size 3.5 mm and screws for both column. Fixation was stable and accepted under fluoroscopy, so cemented total hip arthroplasty had performed.

Postoperative Management and Follow-up:

Fortunately, surgery time was five hours without post-operative complications; reported blood loss was around 300 cc. After that, patient transferred to overnight observation in intensive care unit then transferred to regular surgical ward.

First day post operation, patient started the bed physiotherapy and she was just mobilized bed to chair only- due to her right non-displaced acetabulum fracture. By third day, slight electrolytes imbalance had observed due to her kidney condition as the medical assessment of the nephrologist who saw her and this issue was managed. Patient got discharge home four days after surgery in good condition on wheelchair and indicated medications.

Following the surgery, the patient had a good initial improvement with a physical therapy plan aiming for mobilization on wheelchair and full weight bearing. She had follow up appointment after three weeks from surgery to remove staples. (Figure 3)



Figure 1:- X-ray radiograph of left shoulder showing bilateral acetabulum fracture and left femoral neck fracture.



Figure 2:- CT scan (3D left, axial right) showed left displaced comminuted both column acetabulum fracture with ipsilateral displaced trans-cervical femoral neck fracture



Figure 3:- X ray after one-month post operation.

Discussion:-

Acetabular fractures of the hip joint are among the most serious injuries treated by orthopedic surgeons.⁽³⁾ People of all ages are vulnerable to these injuries who are involved in high-velocity trauma but some elderly patients with fragile bones due to osteoporosis may develop pelvic and acetabular fractures with a lower impact fall.^(4,5) The present case is an old female with a long history of osteoporosis thus made her vulnerable to acetabular fracture in bad fall.

In general, the initial clinical assessment of trauma and resuscitation protocols are crucial and recommended as best clinical practice that help guide treatment.⁽¹⁰⁾ Accordingly, the injured elderly patients have to go through clinical assessment to determine the cause of the fall (for example syncope, seizure or stroke) and to rule out the additional orthopedic injuries like intracranial hemorrhage, cervical spine and combined fractures.^(10,11) The present case had assessed by ER physician, and the reason of fall was due to slipping on wet floor.

Acetabular fractures occur because of the impact of the femoral head on the articular surface that in turn make the femoral head may no longer fit firmly into the socket, and the cartilage surface of bones may be damaged.^(1,12) Moreover, many studies^(10,13,14) showed that patients with fractures of the acetabulum experience serious injury to surrounding soft tissue (skin and muscles) associated with significant bleeding and risk of nerve damage. On rare occasion,⁽¹⁵⁾ the bilateral acetabular fractures with femoral neck fracture and intact neurovascular may coexist as in the present case. In Matta's study of 262 acetabular fracture cases that showed the most significant prognostic indicator of a poor result was a fracture or impaction injury to the femoral head.⁽¹⁶⁾

In context of treatment, Acetabular fractures require rapid and precise treatment and, in some cases, one or more surgical procedures. Moreover, many researches^(10,17) have consensus about the important of extensive knowledge of the bony anatomy by using radiological images as first line of acetabular fractures treatment. Currently, a plain X-ray of acetabular fractures is often supplemented but CT examination that is more precise than a conventional X-ray, as this can provide a more detailed image of the extent of fracture and its morphology.^(17,18) However, the fractures of the acetabulum are usually not treated for 5 to 10 days following the injury because of some patients, experience significant bleeding.⁽¹⁹⁾ On other hand, previous study showed that the timing for surgical treatment of acetabular fracture is usually 3 to 5 days after injury; delays over 3 weeks associated with poorer outcomes.⁽²⁰⁾ The present case had sudden upper GI bleeding and during this period, the patient was in traction to prevent additional injury.

The Kocher-Langenbeck approach is the mainstay for the surgical management of acetabular fractures and provides sufficient access to the majority of posterior based acetabular fractures.^(21,22) It makes the procedure less invasive,

shortens the operative time, minimizes blood loss and overcomes the exhaustion and fatigue of the surgical team.^(23,24) Despite the fact that the Kocher-Langenbeck approach offers a wide access to the posterior elements of the acetabulum, the surgeon must remain cognizant that this approach is not extensile and whenever a wider exposure is needed, e.g., in superior dome involvement, a different approach might be considered.⁽²⁵⁾ The surgical treatment plan of the present case was open reduction and internal fixation through Kocher-Langenbeck approach with reasonable consumed surgery time without post-operative complications.

Conclusion:-

Bilateral acetabular fracture is a rare injury. Surgical treatment with internal fixation has significantly improved the prognosis of these injuries. Adequate evaluation and surgeon experience are essential to obtain excellent outcome.

Ethical consideration:

The patient and her relatives were informed that data from the case would be submitted for publication, and she gave her consent.

Conflicts of interest:

None.

References:-

1. Tile M, Helfet DL, Kellam JF. Fractures of the pelvis and acetabulum. Baltimore: Williams & Wilkins; 1995 Jan.
2. Letournel E. Acetabulum fractures: classification and management. Orthopedic Trauma Directions. 2007 Sep;5(05):27-33.
3. Kannus P, Parkkari J, Sievänen H, Heinonen A, Vuori I, Järvinen M. Epidemiology of hip fractures. Bone. 1996 Jan 1;18(1):S57-63.
4. Löfman O, Berglund K, Larsson L, Toss G. Changes in hip fracture epidemiology: redistribution between ages, genders and fracture types. Osteoporosis International. 2002 Jan 1;13(1):18-25.
5. Laird A, Keating JF. Acetabular fractures: a 16-year prospective epidemiological study. The Journal of bone and joint surgery. British volume. 2005 Jul;87(7):969-73.
6. Butler M, Forte ML, Joglekar SB, Swiontkowski MF, Kane RL. Evidence summary: systematic review of surgical treatments for geriatric hip fractures. JBJS. 2011 Jun 15;93(12):1104-15.
7. Alwahhabi BK. Osteoporosis in Saudi Arabia: Are we doing enough?. Saudi medical journal. 2015 Oct;36(10):1149.
8. Wolinsky FD, Fitzgerald JF, Stump TE. The effect of hip fracture on mortality, hospitalization, and functional status: a prospective study. American journal of public health. 1997 Mar;87(3):398-403.
9. Brauer CA, Coca-Perrillon M, Cutler DM, Rosen AB. Incidence and mortality of hip fractures in the United States. Jama. 2009 Oct 14;302(14):1573-9.
10. Hoge S, Chauvin BJ. Acetabular Fractures. InStatPearls [Internet] 2019 Jun 22. StatPearls Publishing.
11. Hak DJ, Olson SA, Matta JM. Diagnosis and management of closed internal degloving injuries associated with pelvic and acetabular fractures: the Morel-Lavallee lesion. Journal of Trauma and Acute Care Surgery. 1997 Jun 1;42(6):1046-51.
12. Rinne PP, Laitinen MK, Huttunen T, Kannus P, Mattila VM. The incidence and trauma mechanisms of acetabular fractures: a nationwide study in Finland between 1997 and 2014. Injury. 2017 Oct 1;48(10):2157-61.
13. Magnussen RA, Tressler MA, Obremskey WT, Kregor PJ. Predicting blood loss in isolated pelvic and acetabular high-energy trauma. Journal of orthopaedic trauma. 2007 Oct 1;21(9):603-7.
14. Fassler PR, Swiontkowski MF, Kilroy AW, Routh Jr ML. Injury of the sciatic nerve associated with acetabular fracture. The Journal of bone and joint surgery. American volume. 1993 Aug 1;75(8):1157-66.
15. Nehme AH, Matta JF, Boughannam AG, Jabbour FC, Imad J, Moucharafieh R. Literature review and clinical presentation of bilateral acetabular fractures secondary to seizure attacks. Case reports in orthopedics. 2012;2012
16. Matta JM. Fractures of the acetabulum: accuracy of reduction and clinical results in patients managed operatively within three weeks after the injury. JBJS. 1996 Nov 1;78(11):1632-45.
17. Judet R, Judet J, Letournel E. Fractures of the acetabulum: classification and surgical approaches for open reduction: preliminary report. JBJS. 1964 Dec 1;46(8):1615-75.

18. Rommens PM. The Kocher-Langenbeck approach for the treatment of acetabular fractures. *European Journal of Trauma*. 2004 Aug 1;30(4):265-73.
19. Handoll HH, Queally JM, Parker MJ. Pre-operative traction for hip fractures in adults. *Cochrane Database of Systematic Reviews*. 2011(12).
20. Madhu R, Kotnis R, Al-Mousawi A, Barlow N, Deo S, Worlock P, Willett K. Outcome of surgery for reconstruction of fractures of the acetabulum: the time dependent effect of delay. *The Journal of bone and joint surgery. British volume*. 2006 Sep;88(9):1197-203.
21. Hak DJ, Olson SA, Matta JM. Diagnosis and management of closed internal degloving injuries associated with pelvic and acetabular fractures: the Morel-Lavallee lesion. *Journal of Trauma and Acute Care Surgery*. 1997 Jun 1;42(6):1046-51.
22. Magu NK, Rohilla R, Singh A, Wadhvani J. Modified Kocher-Langenbeck approach in combined surgical exposures for acetabular fractures management. *Indian Journal of Orthopaedics*. 2016 Apr;50:206-12.
23. Giannoudis PV, Grotz MR, Papakostidis C, Dinopoulos H. Operative treatment of displaced fractures of the acetabulum: a meta-analysis. *The Journal of bone and joint surgery. British volume*. 2005 Jan;87(1):2-9.
24. Zhang L, Xu M, He C, Du H, Chen H, Guo Y, Tao S, Zhang Q, Liang X, Tang P. Effectiveness of acetabular transverse and posterior wall fractures by Kocher-Langenbeck approach. *Zhongguo xiu fu chong jian wai ke za zhi= Zhongguo xiufu chongjian waike zazhi= Chinese journal of reparative and reconstructive surgery*. 2010 Dec;24(12):1428-31.
25. Siebenrock KA, Gautier E, Ziran BH, Ganz R. Trochanteric flip osteotomy for cranial extension and muscle protection in acetabular fracture fixation using a Kocher-Langenbeck approach. *Journal of orthopaedic trauma*. 2006 Jan 1;20(1):S52-6.