

Original Article

## A Case Report of a Delayed Diagnosed Femoral Neck Fracture

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### Abstract

Hip fractures in elderly population are frequent representing a significant health care problem which sometimes results in permanent impairment of independence and quality of life. We present a case of a 91 years old man retired farmer submitted at the hospital after one month of left hip pain, mobilization difficulty and with a missed femoral neck fracture after a fall while doing his daily farm activities. He initially diagnosed with left sciatica and given analgesia. One month later he presented with deterioration of hip pain and difficulty in weight-bearing, despite continuing to work on his farm.

**Keywords:** hip fracture, etiology, delay diagnosis, complications

### Introduction

Hip fractures in the elderly are frequent and represent a health care problem which sometimes results in significant permanent impairment of independence and quality of life (Pathak, Parker and Pryor, 1997). The most common cause of hip fractures in elderly is a fall in conjunction with undiagnosed osteoporosis (Pathak, Parker and Pryor, 1997; Humadi, Alhadithi and Alkudiyari, 2010).

Delay in diagnosis occurs in approximately 10% of total hip fractures (Pathak, Parker and Pryor, 1997; Humadi, Alhadithi and Alkudiyari, 2010) and is usually due to failure to seek medical help, late presentation to the doctor, difficulty in confirming the suspected diagnosis or/and initial failure of

doctors to make the diagnosis (Humadi, Alhadithi and Alkudiyari, 2010; Eastwood, 1987).

Complications in patients with delayed diagnosis of hip fracture are important with significant impact on patients involving continued pain, fracture displacement, increased risk of nonunion and avascular necrosis (Thomas, Mason and Deshpande, 2014).

Our case highlights an elderly patient with a trans-cervical femoral neck fracture and delayed diagnosis who continued weight-bearing activities.

### Case report

A 91-year-old retired farmer presented at our hospital after one month of left hip pain and difficulty in mobilization. His acute symptoms gradually started after an accidental fall while

doing his daily farming activities. After the fall, he got to his feet and continued his usual activities. Prior to the accident he was fit and active only taking medication for substitution of thyroid function as regular medication. He had not been previously diagnosed with osteoporosis and hence was not under treatment for this condition. Prior to review in our Department he had consulted a health-care professional at a regional health center.

He was initially diagnosed with left sciatica and given analgesia. On this visit he had concealed the occurrence of the fall and, as result, no radiographic examination was performed. Throughout this period his symptoms gradually worsened and he required a stick for mobilization. One month later he presented at our department. He had severe left hip pain with abductor weakness. Radiographs showed a left transcervical fracture of the femoral neck (Figure 1). He was admitted to hospital where we performed a cemented unipolar hemiarthroplasty (Figure 2a).

At 8 weeks follow-up, clinical examination showed that the wound had healed and radiographic assessment showed a congruent position of the fracture (Figure 2b). After 1-year follow-up the patient had made a good recovery, he no longer complained of pain or impairment, with full range of motion of the left hip for his age and had returned to the activities of daily living.

### **Discussion**

Hip fractures are the most serious osteoporotic fracture, with the incidence of hip fractures rising continuously due to the ongoing ageing of the worldwide population (Mosseri et al., 2016). It is estimated that about 1.6 million hip fractures occurred worldwide in 2000 (Johnell and Kanis, 2006), while this incidence expected to increase to more than 6 million by the year 2050 (Mosseri et al., 2016).

There is clear evidence of marked variations in hip fracture rates worldwide with the highest rates presented by Scandinavia, followed by the United States, Western Europe, Asia and Africa. Furthermore, it is clear that women suffer a greater incidence of hip fractures than men (Kanis et al., 2012).

In the elderly population, most hip fractures can result from a simple loss of balance leading to a

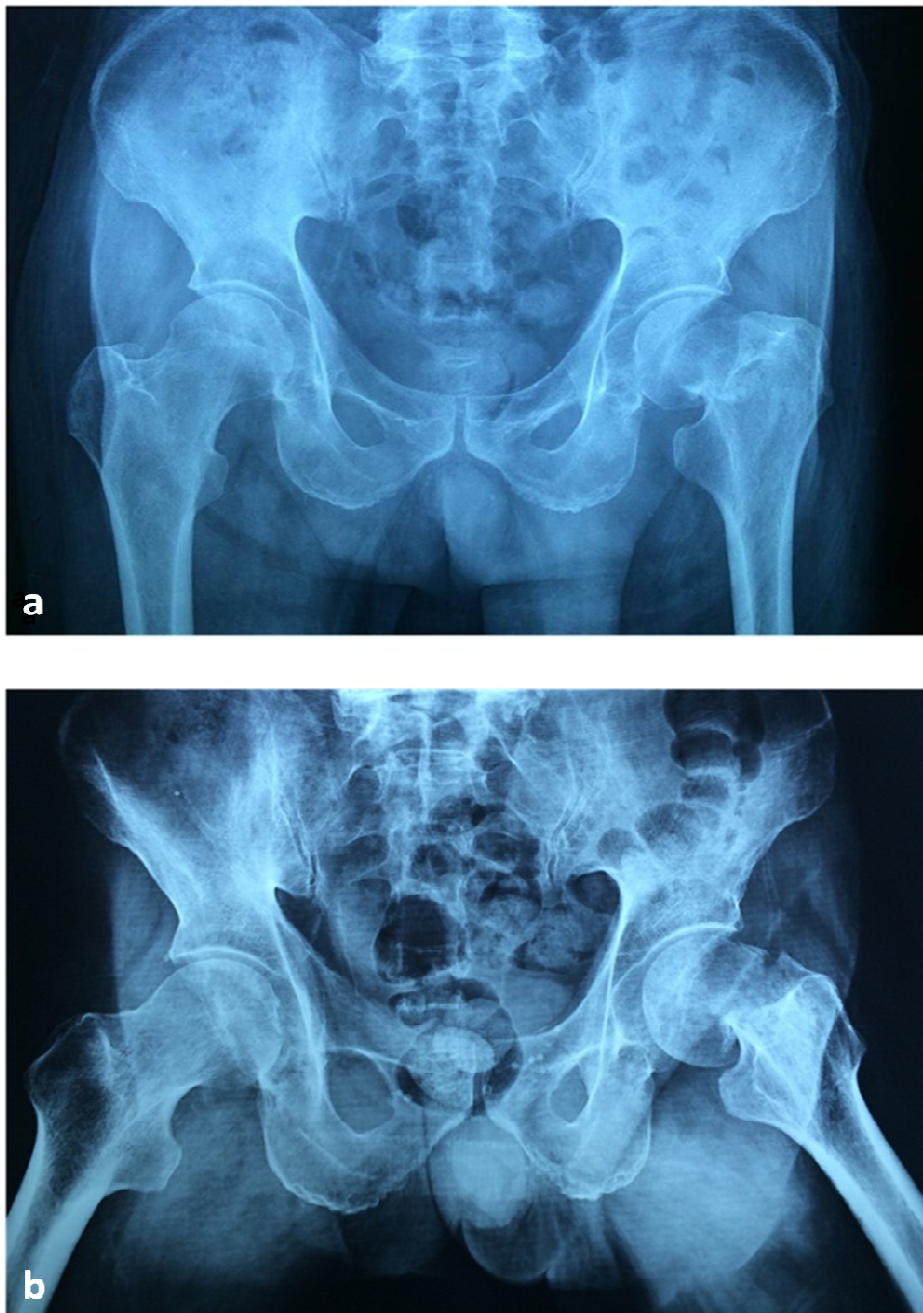
fall and this is more likely to happen in the elderly when severe osteoporosis may occur in conjunction with an increasing loss of certainty in movement and balance (Pathak, Parker and Pryor, 1997).

Risk factors for falls may be related to the individual such as vision problems, muscle weakness and poor balance, or/and related to person's environment such as wet surfaces and unsuitable footwear (Kanis et al., 2012).

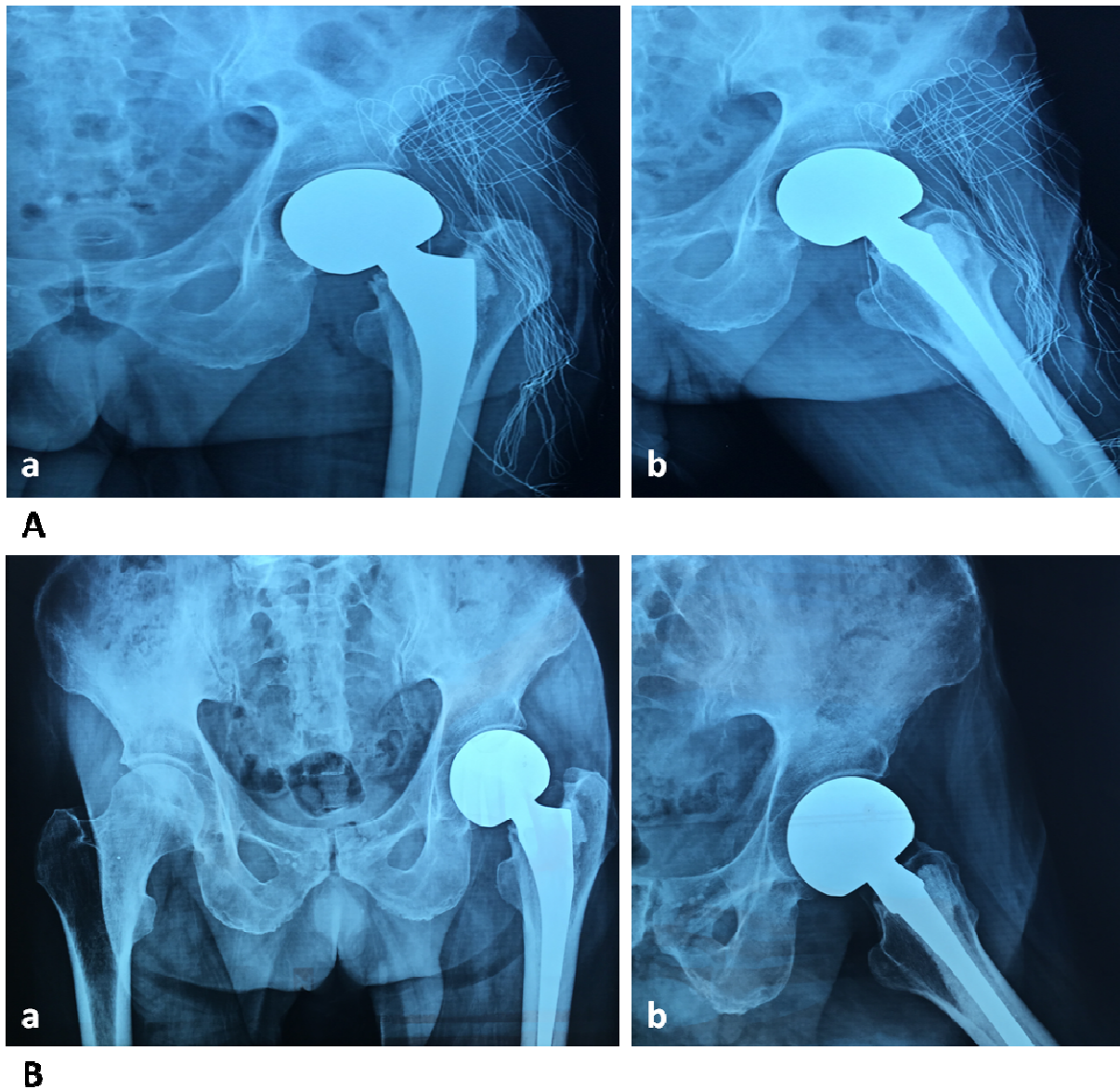
Risk factors for osteoporosis include modifiable factors such as calcium/vitamin D deficiencies, physical inactivity and the smoking habit, as well as, unmodifiable factors such as family history and increasing age (Kanis et al., 2012). As result, hip fractures cause considerable functional decline and nearly always require surgical treatment.

Hip fractures more generally result from a simple fall in the elderly. During physical examination, patients with hip fracture usually present pain in the groin and inability to perform weight-bearing activities. They may exhibit shortening and external rotation of the affected limb and sometimes minor pain with little or no limitation in range of motion. Imaging modalities, such as plain radiographs, magnetic resonance imaging (MRI), bone scan and computed tomography (CT) can help in confirming the diagnosis (LeBlanc, Muncie and LeBlanc, 2014). As result, the diagnosis of hip fracture can usually be established through a detailed medical history, a clinical examination, and imaging findings of the symptomatic limb. A well structured and easily understood diagnostic algorithm is always useful in formulating diagnosis (Figure 3).

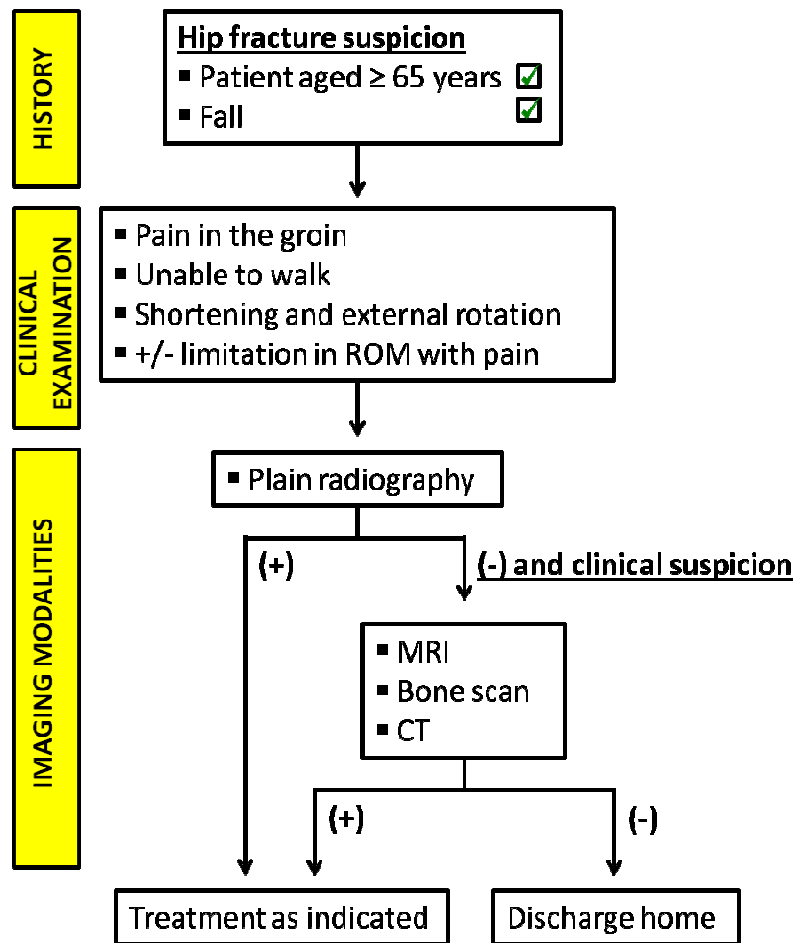
Delayed recognition for more than 24 hours occurs in about 10 percent of hip fractures and may result in an increased morbidity and mortality (Brunner, Eshilian-Oates and Kuo, 2003). The delay may occur from patients not presenting at hospital immediately, or failure to seek medical help (Pathak, Parker and Pryor, 1997). Others reasons for this delay may be an initial failure by doctors to make the diagnosis, difficulty in confirming the suspected diagnosis, absence of radiographic examination, radiologically "invisible" and initially undisplaced hip fractures (Pathak, Parker and Pryor, 1997; LeBlanc, Muncie and LeBlanc, 2014).



**Figure 1. Pre-operative antero-posterior (a) and frog-leg (b) radiographs show a left trans-cervical fracture of femoral neck.**



**Figure 2.** Post-operative (A) antero-posterior (a) and lateral (b) radiographs show a unipolar hip hemiarthroplasty. 8 weeks post-operative (B) antero-posterior (a) and lateral (b) radiographs show union and satisfactory position of the fracture.



**Figure 3. Hip fracture diagnostic algorithm**

In our study, the patient had concealed the fact of his fall at his initial examination during medical history taking. It is obvious that the doctor must be honest and sincere in order to gain the confidence of their patients. If this principle is not adhered to, patients may become anxious, hide useful information and finally lose confidence in their doctor, resulting in an impaired medical history and introducing the possibility of additional risks in the course of their treatment. Confidence building between doctor and patient remains the major goal and is the “key” to a good medical history. The importance of building confidence cannot be overemphasized because of its relationship to wider treatment outcomes. As a result, delay in diagnosis can be catastrophic resulting in the three major complications of

avascular necrosis of the femoral head, nonunion/malunion and later degenerative changes (Brunner, Eshilian-Oates and Kuo, 2003). Furthermore this delay could lead to unnecessary pain, disuse osteopenia, femoral neck resorption, high failure rates of internal fixation, rise of pulmonary thromboembolism and higher mortality (Thomas, Mason and Deshpande, 2014).

#### References

- Pathak G., Parker M.J. & Pryor G.A. (1997) Delayed diagnosis of femoral neck fractures. *Injury* 28:299-301.
- Humadi A., Alhadithi R.H. & Alkudiri S.I. (2010) Validity of the DEXA diagnosis of involutional osteoporosis in patients with femoral neck fractures. *Indian Journal of Orthopaedics* 44:73-78.

- Eastwood H.D. (1987) Delayed diagnosis of femoral-neck fractures in the elderly. *Age and Ageing* 16:378-382.
- Thomas A., Mason F. & Deshpande S. (2014) An unusual presentation of femoral neck fracture in a young patient. *Journal of Surgical Case Reports* 12:1-3.
- Mosseri J., Trinquart L., Nizard R. & Ravaud P. (2016) Meta-analysis of a complex network of non-pharmacological interventions: The example of femoral neck fracture. *PloS One* 11:e0146336.
- Johnell O. & Kanis J.A. (2006) An estimate of the worldwide prevalence and disability associated with osteoporotic fractures. *Osteoporosis International* 17:1726-1733.
- Kanis J.A., Odén A., McCloskey E.V., Johansson H., Wahl D.A., Cooper C. & IOF Working Group on Epidemiology and Quality of Life. (2012) A systematic review of hip fracture incidence and probability of fracture worldwide. *Osteoporosis International* 23:2239-2256.
- LeBlanc K.E., Muncie H.L. Jr & LeBlanc L.L. (2014) Hip fracture: diagnosis, treatment, and secondary prevention. *American Family Physician* 89:945-951.
- Brunner L.C., Eshlian-Oates L. & Kuo T.Y. (2003) Hip fractures in adults. *American Family Physician* 67:537-542.