

# A Case Report of an “Incidental” Neck of Femur Fracture

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## What to Learn from this Article?

To encourage clinicians to question a radiograph that does not fit with the clinical findings of a neck of femur fracture and consider further imaging to obtain a more definitive picture.

## Abstract

**Introduction:** On rare occasions, hip fractures can be missed. Approximately 75,000 neck of femur fractures occur in the United Kingdom per annum. Up to 10% of hip fractures are occult on plain radiograph. This case demonstrates a usual presentation of an “incidental” neck of femur fracture, which had been missed 1 year prior.

**Case Report:** A 91-year-old gentleman presented with incidental finding of left neck of femur fracture on a routine radiograph. A quick review of the patient notes revealed a fall, with a lengthy hospital admission, approximately 1 year previously. Despite his initial inability to weight-bear and protracted slow progress with physiotherapy no further imaging of the hip was obtained beyond an initial, negative pelvic radiograph.

**Conclusion:** Doctors must be bold in questioning a radiograph that does not fit with the clinical picture. Clinical suspicion of neck of femur fracture in the face of a negative radiograph necessitates further imaging to obtain a definitive answer.

**Keywords:** Fracture, incidental, neck of femur, radiograph.

## Introduction

Many doctors regard diagnosing a hip fracture as a simple task. The more experienced doctor knows that some cases are not clear-cut, as between 2% and 10% are occult on conventional radiography [1-4]. In cases, where there is clinical suspicion of a neck of femur fracture, but imaging has been negative or equivocal, further imaging (e.g. magnetic resonance imaging/computed tomography) is required [5]. Hip fractures, like everything else, can be missed and this can have serious implications for patients. A delay of over 48 h from admission to surgery doubles the risk of death within 1 year postoperatively [6].

## Case Report

Following a routine radiograph performed by his general practitioner a 91-year-old gentleman was referred to accident and emergency with an incidental finding of fractured left neck of femur (Fig. 1). His general practitioner had requested a pelvic radiograph to further investigate the cause of this gentleman's left knee pain. Despite no falls within the previous year, he had been experiencing worsening left knee pain for several months. The radiograph demonstrated the well-corticated edges of an old fracture, and the patient was able to mobilize using his frame. A decision was taken not to operate, and the patient was discharged.

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## Author's Photo Gallery



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**Figure 1:** Routine pelvic radiograph of a 91-year-old man requested by his general practitioner to further investigate the cause for his left knee pain. Demonstrated is an “incidental” old, left sided, displaced, intracapsular had as neck of femur fracture with well-corticated edges.



**Figure 2:** Lateral radiograph of the left hip from the same 91-year-old gentleman taken 1 year previously, following a fall. No obvious fracture is evident.



**Figure 3:** Anteroposterior radiograph of the left hip from the same 91-year-old gentleman taken 1 year previously, following a fall. Degenerative changes of the left hip joint are demonstrated although no obvious fracture is evident.

Review of past incidents to find a cause for this neck of femur fracture quickly illuminated a possible event. Approximately 1 year prior, the patient had been admitted to hospital following a mechanical fall at home, after which he was unable to weight-bear. Clinical examination had demonstrated none of the salient features of a neck of femur fracture or had initial radiographs of the pelvis exposed a fracture (Fig. 2); only degenerative changes consistent with osteoarthritis (Fig. 3). Radiographs of the knee demonstrated no abnormality, yet the gentleman was unable to walk and was admitted.

Three weeks later, the patient continued to make poor progress with physiotherapy. No further imaging of the patient’s pelvis was obtained. Magnetic resonance imaging of his left knee was requested to exclude the possibility of soft tissue injury, which demonstrated a tear of the medial meniscus. Felt to be the cause of his delayed progress, further physiotherapy was encouraged and eventually this gentleman managed to mobilize independently with a frame. He was discharged home from hospital via rehabilitation facility.

### Discussion

Hip fractures are often simple to diagnose clinically and radiologically, with initial imaging sensitivity estimated as 90-98% [1-4]. Approximately 75,000 femoral necks are fractured in the UK per annum [7] and this is projected to rise further [8]. If initial radiographs alone are used to exclude a neck of femur fracture then this poses the alarming possibility that up to 7,500 (of the known) neck of femur fractures could have been missed. Delays in diagnosis increase the risk of avascular necrosis, arthroplasty, nonunion, thromboembolic events, and mortality [9, 10].

This case and figures above demonstrates the need for clinicians to have a high index of suspicion when evaluating elderly patients following a fall. If there is clinical suspicion of a neck of femur fracture, then a negative radiograph is not enough and further imaging is required; magnetic resonance imaging - or computed tomography, if unavailable or contraindicated [5].

### Conclusion

The sheer prevalence of neck of femur fractures, combined with the knowledge that up to 10% are occult on radiograph [1, 2, 3, 4] necessitates clinicians to have a high index of suspicion of occult neck of femur fractures in elderly patients following a fall. Although occult fractures are well documented in the literature, Hilton’s law, as well as referred pain from the joint above or below, are reasons for the threshold for further imaging modalities to be lowered. The aim of this case report is to raise awareness, to encourage doctors to be bold in questioning a radiograph that does not fit with the clinical picture and to increase requests for further imaging to obtain a definitive answer; the numbers and guidelines [7] are on your side.

### Clinical Message

To encourage clinicians to question a radiograph that does not fit with the clinical findings of a neck of femur fracture and consider further imaging to obtain a more definitive picture.

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