

## Case Report

# Intravesical Migration of a Screw during Hip Osteosynthesis: A Case Report

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**Abstract:** The incidence of fractures of the upper extremity of the femur continues to increase as the population ages. Dynamic hip screw (DHS) is the treatment of choice for stable fractures. We report the case of an 80-year-old man with no notable pathological history presenting with a pertrochanteric fracture. Intraoperatively, the cephalic screw migrated unexpectedly into the pelvis. Several attempts were made to remove it, but the screw had penetrated deep into the pelvis, making removal impossible through the femoral neck. An emergency abdominal CT scan was performed showing that the screw had penetrated into the bladder. The urological surgeon was called in to remove the screw via a medial abdominal approach, which was finally removed without any further complications. Intravesical migration of a DHS screw is a rare complication. Compliance with the DHS surgical technique, especially in very old osteoporotic patients, can avoid this complication.

**Keywords:** Case report, Pertrochanteric fracture, dynamic hip screw, osteoporosis, complication.

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## INTRODUCTION

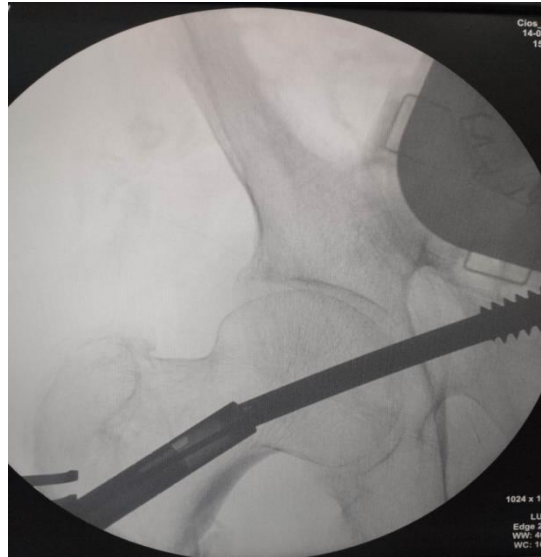
The incidence of fractures of the upper end of the femur continues to increase with the aging of the population. It poses a public health problem due to the high morbidity and mortality that it causes. [1] The treatment of these fractures is generally surgical. They are broadly classified into stable and unstable fractures depending on the fracture pattern. The dynamic hip screw (DHS) is the treatment of choice for stable fractures [2].

This topic has been reported online with the SCARE criteria.

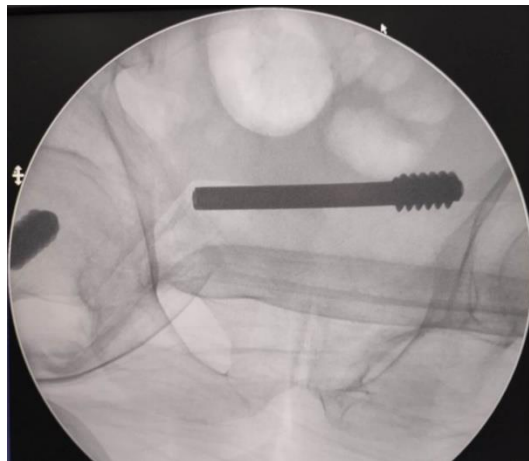
## CASE REPORT

We report the case of an 80-year-old man with no notable pathological history who was admitted to our trauma department for management of a pertrochanteric fracture that occurred during a low-energy trauma. The surgeon chose DHS to treat the fracture. The operation was performed under rachis anesthesia. The fracture was

reduced on a traction table under image intensifier control. During the placement of the plate on the cephalic screw and because of the difficulties of placing the plate, the surgeon decided to use the hammer. During radiographic monitoring of this surgical step, the cephalic screw migrated unexpectedly into the pelvis (Figure 1), with intraoperative emission of a liquid reminiscent of urine through the hole in the cervical screw. Several attempts were made with different surgical forceps to remove it through the screw hole, but the screw had penetrated deep into the pelvis, making it impossible to remove. The osteosynthesis procedure was completed with a new plate (Figure 2). An emergency abdominal CT scan with contrast injection was performed showing that the screw had penetrated into the bladder (Figure 3). The urological surgeon was called in to remove the screw via a medial abdominal approach, on surgical exploration the screw perforated the bladder wall (Figure 4), it could finally be removed and the bladder sutured without any further complications.



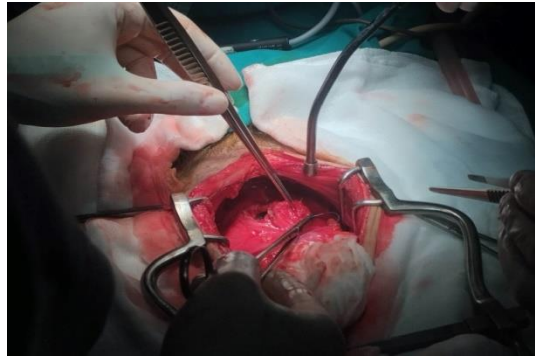
**Figure 1: Misalignment between screw and plate and beginning of intra pelvic migration**



**Figure 2: Intra pelvic screw**



**Figure 3: Uro scan showing an intra-bladder screw**



**Figure 4: Per operative view of the bladder injury**

## DISCUSSION

The main intraoperative complications during DHS insertion include improper mounting, migration of the guide wire into the pelvis; migration of the compression screw; and intrapelvic vascular injury caused by the guide wire [3-5]. Several perioperative complications have been described in the medical literature. However, only three cases have described migration of the cephalic screw into the pelvis during surgery [6-8]. Singh *et al.*, reported a case of intrapelvic migration of a DHS screw in a 55-year-old patient. In this case, the surgeon removed the screw through the cervix using Kocher forceps without any complications [4]. The main cause of this complication is a forced insertion, usually by a hammer, of a misaligned screw into the plate. The authors suggest using a guide to adjust the plate to the screw and to avoid forcing the plate onto the screw. A second cause is excessive reaming of the proximal femur, which could be the cause of screw slippage in the pelvis. Finally, we believe that poor bone quality caused by osteoporosis is a high risk factor for pelvic bone injury caused by a cephalic screw, which can easily enter the pelvis.

## CONCLUSION

Intra pelvic migration of a DHS screw is a rare complication.

Awareness of this potential event and careful adherence to the DHS surgical technique, especially in very elderly.

Surgical technique, especially in very elderly osteoporotic patients, can avoid this complication.

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**Data Availability:** All data is available to readers.

**Consent:** Written informed consent was obtained from the patient's parent for publication of this case report and accompanying images.

**Declaration of Competing Interest:** None.

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