Clinical Case Reports International

Case Report
Published: 29 Dec, 2022

Early Screw Migration into the Bladder and Spontaneous Expulsion: A Rare Complication after Internal Fixation of the Pubic Symphysis

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Abstract

The presence of a foreign body in the bladder is a relatively common finding. However, migration and early spontaneous expulsion of the screw after treatment of the symphysis pubis disjunction is considered rare. We present a report of a 64-year-old man who, after a fall from a height, presented with a disjunction of the pubic symphysis treated with two-plate fixation and presence of screw migration into the bladder and spontaneous expulsion one month after surgery.

Keywords: Screw; Pelvic fracture; Internal fixation; Bladder foreign body

Introduction

Disjunction of the pelvic ring is associated with a 7% to 25% incidence of urinary tract injuries [1]. Treatment with an anterior plate in the pelvis is recommended as a fixation method for disjunctions of the pubic symphysis [1-3]. Because the fixation is performed in the joint area, micro movements occur and may cause plate breakage or loosening of screws [3]. The literature demonstrates that late screw loosening with migration to the bladder is relatively common [1-4]. In this study, we report a case of migration to the bladder and early (one month) spontaneous expulsion of the screw after anterior pelvic ring surgery with plates in the pubic symphysis.

Case Presentation

Male patient, 64 years old, victim of a fall from a roof, approximately three and a half meters high on November 25th, 2021. Upon admission to the orthopedic emergency room, after physical examination and imaging tests, the opening of the pubic symphysis chapter II was diagnosed (Figure 1).

Both the patient and the fracture remained stable throughout the treatment, and it was decided not to temporarily fix the pelvis with an external fixator. After carrying out all the preoperative preparation, the definitive orthopedic surgical procedure was performed seven days after the trauma. A pelvic approach was used through the Pfannenstiel access, with associated detachment to protect the urinary bladder. The orthopedic surgical technique used was the placement of two orthogonal plates, one superior and one anterior. Top plate was large fragment DCP with 4 mm × 4.5 mm screws. The anterior reconstruction plate was made of small fragments with 4 mm × 3.5 mm screws. Satisfactory radiographic control was performed at all stages (Figure 2).

On January 01st, 2022, the patient reported spontaneously eliminating, *via* urine, 1 screw 3.5 mm from the anterior plate after loosening the plate. After examination of excretory urography associated with cystoscopy, it was confirmed the formation of a fistula in the anterior wall, close to the transition with the lateral/medial bladder fundus, around 0.6 cm (Figure 3).

The formation of the fistula was due to a foreign body reaction (friction against the bladder) after loosening the 3.5 mm screw, and after its formation it was encompassed by the organ. From the urological point of view, we proceeded in an expectant manner, keeping the patient using an indwelling urinary catheter for 30 days associated with the use of the antibiotic Bactrim

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Received Date: *12 Dec 2022*
Accepted Date: *23 Dec 2022*
Published Date: *29 Dec 2022*

Citation:
Labronici PJ, Pereira LF, Cabral GG, Hoffmann R, da Silva LHP, Giordano V. Early Screw Migration into the Bladder and Spontaneous Expulsion: A Rare Complication after Internal Fixation of the Pubic Symphysis. Clin Case Rep Int. 2022; 6: 1447.

Figure 1: Antero-posterior X-ray of the pelvis with the pubic symphysis lesion.

Figure 2: Images of symphysis fixation with two plates in antero-posterior, inlet and outlet view.

(sulfamethoxazole + trimethoprim) for 10 days and ultrasound control to confirm the closure of the orifice. From the orthopedic point of view, watchful waiting was maintained; with no weight bearing for two months associated with radiographic control and computed tomography.

Discussion

Screw migration to the bladder after disjunction of the pubic symphysis with exit through the urethra has been reported as an extremely rare event [5]. Bladder injury can be caused by the trauma itself, considering the proximity of the organ to the bone, by herniation of the bladder into the symphysis or by iatrogenic injuries [5]. Perry and Husmann [6] observed that 50% of urethral injuries after fracture of the pelvis in women were not diagnosed by inadequate urological evaluation.

Fridman et al. [7] and Sho et al. [3] reported a patient with spontaneous expulsion of the implant after fixation of the pubic symphysis similar to our case. Peled et al. [8] reported that there was an injury to the bladder during the trauma, therefore, the possibility that the screw migrated through the injured area cannot be excluded.

The pubic symphysis is a fibrous joint that exhibits micromovements during walking. Therefore, when the surgeon performs fixation of the pubic symphysis, in the pelvic ring, loosening of the screw and/or breakage of the screw and plate is common [3]. What is observed in the literature is the presence of this complication

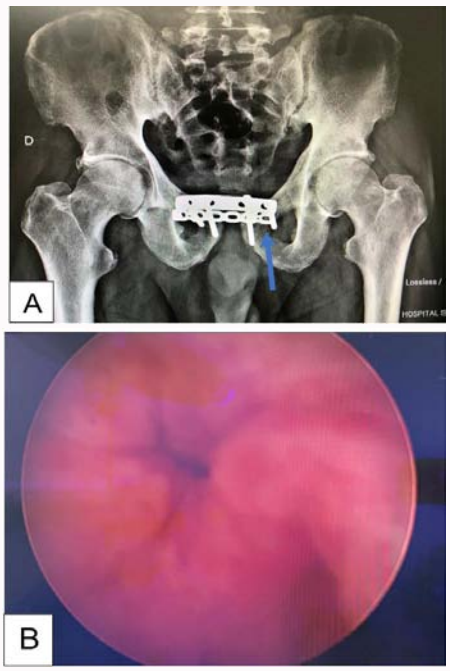

Figure 3: A) X-ray of the pelvis without the screw (arrow); B) Image of the fistula in the bladder.

in patients with disjunction symphysis pubis treated with a plate, in which migration of the screw to the bladder generally occurs late [1-4]. Hosseini et al. [9] reported a case of bladder perforation due to screw loosening seven weeks after pelvic surgery, which was treated with cystoscopic screw removal. Unlike the previous case described by Hosseini et al. [9], our case involved the exceptional case with migration of the screw to the bladder with spontaneous elimination 1 month after surgery, still in a state of convalescence and without any complaints. This reinforces the lack of diagnosis due to previous bladder injury, which may have favored its migration, despite the patient still being at rest.

Matta [10] advocated a single, curved pelvic plate with four or six holes with 3.5 mm screws. Some researchers have advocated the use of double plates, longer 4.5 mm screws or even two-hole plates with similar results [1,3]. To avoid the instability generated by fixation of the pubic symphysis, fixation with two plates was chosen a 4.5 DCP in the upper region and a 3.5 anterior reconstruction plate. The doubt raised by the authors was the need for posterior fixation of the sacroiliac joint and the use of long V-shaped anterior screws, which could stabilize the pelvis, preventing screw migration.

Conclusion

This report is intended to alert orthopedic surgeons to be careful with the fixation of the pubic symphysis and to look for the diagnosis of bladder injuries due to trauma, avoiding complications such as migration of the screw to the bladder.

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