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RESEARCH ARTICLE

DISRUPTION OF THE PUBIC SYMPHYSIS WITH OVERRIDING IMPACT SYMPHYSIS: A CASE REPORT

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Abstract

We report one rare case of overriding impacted symphysis by lateral compression injury of the pelvis. A 21-year-old male presented a disruption of the pubic symphysis following a car accident with lateral injury.

The patient's radiographs revealed a displacement of the left part of the symphysis behind the right one and sacro-iliac disruption. CT scan confirmed a left posteriorly displaced pubic symphysis and a right sacro-iliac disruption without any fracture; There were no additional injuries.

Open reduction and internal fixation was necessary to reduce displacement and fixation of the pubic symphysis with a plate, and screwing of the right sacroiliac disjunction.

One year after injury, there was no pain in the pelvis, urinal and sexual function were normal.

This lesion is secondary to lateral compression injury with internal rotation of the left part of the pelvis. It can be classified in the type B2 of Tile's classification. It is a rare condition because this mechanism very often leads to a fracture of the pelvic ring.

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Introduction:-

Ruptures of the pelvic ring are usually accompanied by a separation of the pubic symphysis associated with a posterior lesion leading to an ascent of an hemi-pelvis [1]. The conjunction or locking of the pubic symphysis is an unusual form of pelvic belt injury, where the pubic symphysis becomes trapped behind or in the opposite obturator frame due to a lateral compression force and internal rotation of the hemi-pelvis. It mainly affects young adults, following a high-velocity trauma.

This eventuality is described by Pennal and Tile under the name of overriding impacted symphysis in 1980 [1], then by Tile in 1988 under that of overlapped locked symphysis [2].

We report a case of incarceration of the left pubic symphysis behind the right with pure disjunction of the right sacroiliac.

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We report the case of a young 21-year-old victim of a car accident, he was ejected from the vehicle while he was a front passenger and not belted. The driver died during the accident. It was a side impact as evidenced by the impact on the right trochanteric region.

The Radiograph of pelvis showed an overlap of pubic symphysis stage 2 of the Thulasiraman's classification (the left symphyseal surface comes behind the right) with right sacroiliac disjunction (**Figure 1**). The pelvic CT scan revealed incarceration of the left pubic symphysis behind the right and an isolated sacroiliac disjunction without fracture (**Figure 2. 3**). The patient was stable and had no associated lesions. In emergency in the operating room a suprapubic catheter was put in place after urethro-vesical exploration under endoscopic control. Then a reduction in closed hearth test was attempted under general anesthesia and curarization by the introduction of an external fixator pins in the 2 greats trochanters and traction via a square point was attempted under scopic control but was unsuccessful.

On D + 3 days the patient was taken up for surgical reduction and fixation of the lesions. A Pfannenstiel approach allowed the exposure of the pubic symphysis and confirmed the incarceration of the left hemi-pelvis. The reduction, very difficult, despite the traction by the 2 external fixator pins at the level of the greats trochanters was practiced using of a hook of Lambotte allowing a traction upwards the incarceration of the left hemi-pelvis and thus an immediate reduction (**Figure 4**). An important venous bleeding then occurred and required a tamponade of a few minutes.

The reduction was maintained by an acetabulum plate fixed by 2 screws on either side of the symphysis.

In the same operating session, time in the prone position, a direct approach to the right posterior sacroiliac allowed sacroiliac tightening of the disjunction, which was important using two cancellous screws under scopic control (**Figure 5 .6**).

Result:-

The patient did not have any urinary lesion, ablation of the probe on day + 2 postoperative, exit on day + 6 with prohibition of pressing on the right lower limb.

On revision with a year of hindsight, the result was very good, no pain in the pelvis, no urinary or sexual dysfunction.

Discussion:-

Frequency:

The exceptional nature of this lesion is probably linked to the fact that the causal mechanism leads in the great majority of cases to a pelvic ring fracture. The term symphyseal conjunction is used to take account of displacement in opposition to the usual spacing, the concept of imprisonment must also be underlined and well included in the term of "overriding impacted symphysis".

The literature lists 17 similar cases associated or not with lesions of the posterior arch, the first were Pennal and Tile in 1980 [1], Gordon and Mears published a detailed observation in 1991 of this exceptional variety [3], and Canonized in 1996 [4]. In 13 cases the reduction in the open was necessary.

The mechanism of injury:

According to the Pennal classification based on the lesion mechanism [1], our observation can be classified in the category of lesions by homolateral lateral compression. According to Tile's classification based on the notion of stability [5], it falls into category B2: rotational instability isolated by homolateral compression.

The mechanism retained is that of lateral compression with a relatively anterior impact explaining the associated internal rotation causing the passage of the right articular surface behind the left hemi-pelvis which has remained in place.

Lateral compression with internal rotation represents the most frequent mechanism of trauma to the pelvic ring: 57 % for Young [6], 71 % for Sénégas [7], but most often causes a fracture of the pelvic ring.

Therapeutic principles:

In emergency it is necessary to manage possible urological lesions and to carry out an open reduction, at best, after 4 to 5 days so as not to be confronted with a venous bleeding by lesion of the retro-pubic plexus.

The fixation was made according to the principles of Judet and Letournel by a plate screwed on the upper edge of the symphysis [8]. The direct approach of the posterior sacroiliac allows a sacroiliac screwing of the disjunction by cancellous screws under scopic control, percutaneous approach under scopic control is possible.

The sequels:

The main complications are urinary, erectile or neurological. This type of sequels is well known after the disjunction of the symphysis. according to the various publications their frequencies vary between 30% and 80% [9]. Sexual disorders appear to be linked to lesions of the striated sphincter and pudendals vessels.

Conclusion:-

The conjunction of the pubic symphysis is a rare lesion, often associated with urinary lesions and erectile dysfunction. It is due to lateral compression of the pelvis. Surgical treatment has allowed a satisfactory reduction and a good functional result without residual pain. Internal fixation not only stabilizes the pubic symphysis but also the posterior arch.

Declaration of Competing Interest:-

The authors declare no conflict of interest.

Author contributions:-

All the authors have contributed to the conduct of this work. All authors also declare having read and approved the final version of the manuscript.

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Fig.1 A radiograph of the front pelvis showing the symphyseal overlap, with the right hemi-pelvis passing backwards from the left by internal rotation and lateral compression.

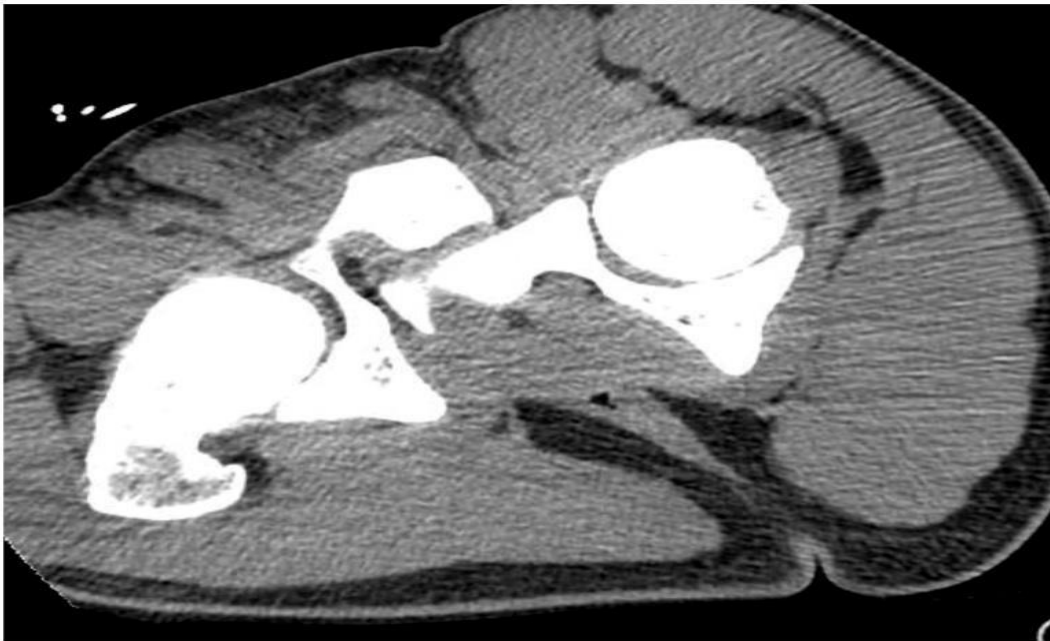


Fig.2 CT axial slice showing incarceration of the left pubic symphysis behind the right

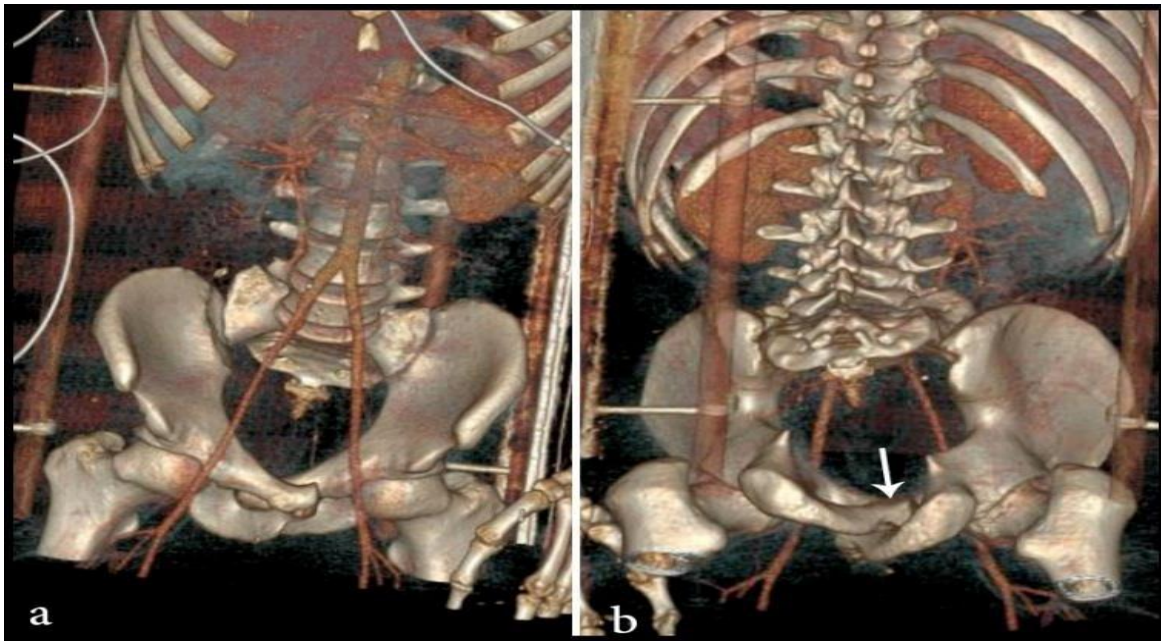


Fig.3 CT reconstructions images

- (a) Ventral view showing sacroiliac disjunction on the right side
- (b) Dorsal view showing pubic symphysis incarceration in the shutter frame (white arrow)

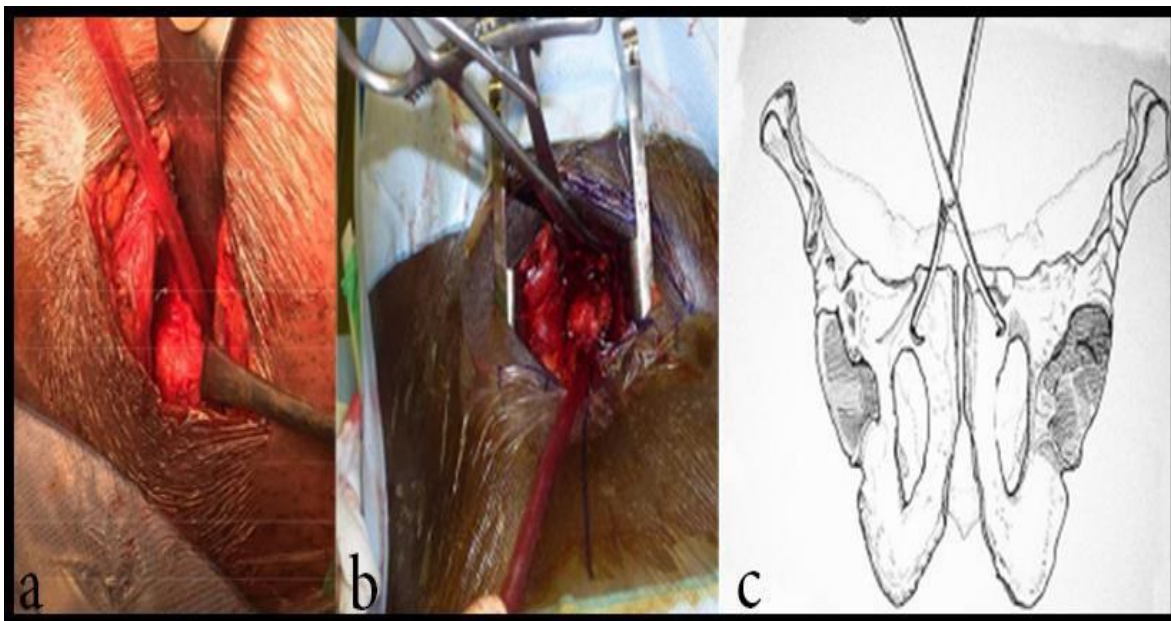


Fig.4: (a) the use of a Lambotte hook that allowed traction up the left hemi-pelvis and immediate reduction. (b) The reduction is maintained by a Weber davier as shown in the image (c).

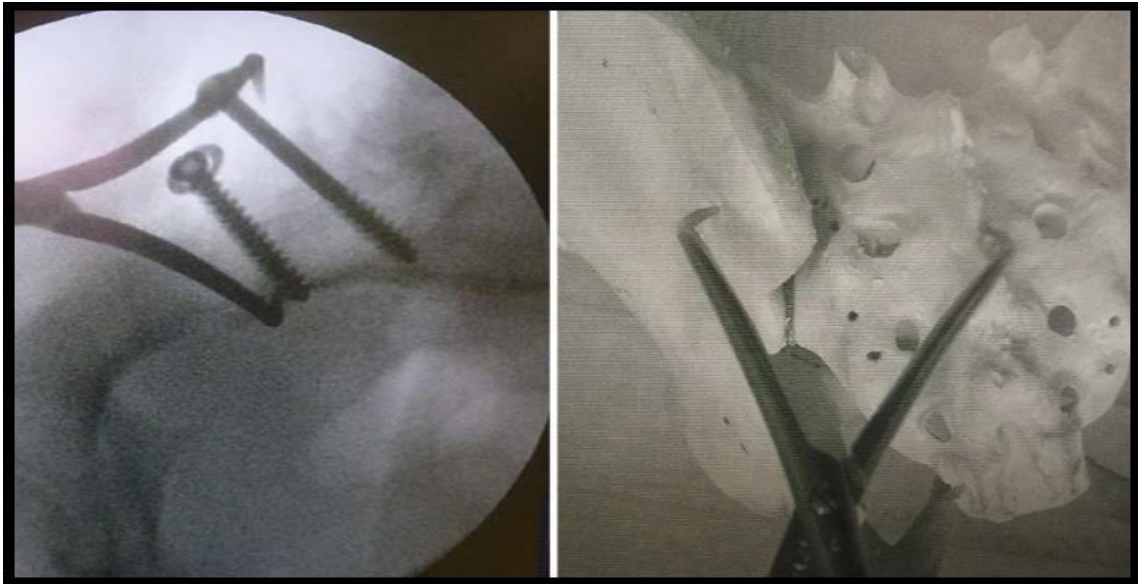


Fig.5 Fluoroscopic per operative image showing the double screwing of the right sacroiliac after maintaining the reduction by a weber davier. The screws are inserted perpendicular to the cortical of the iliac bone.

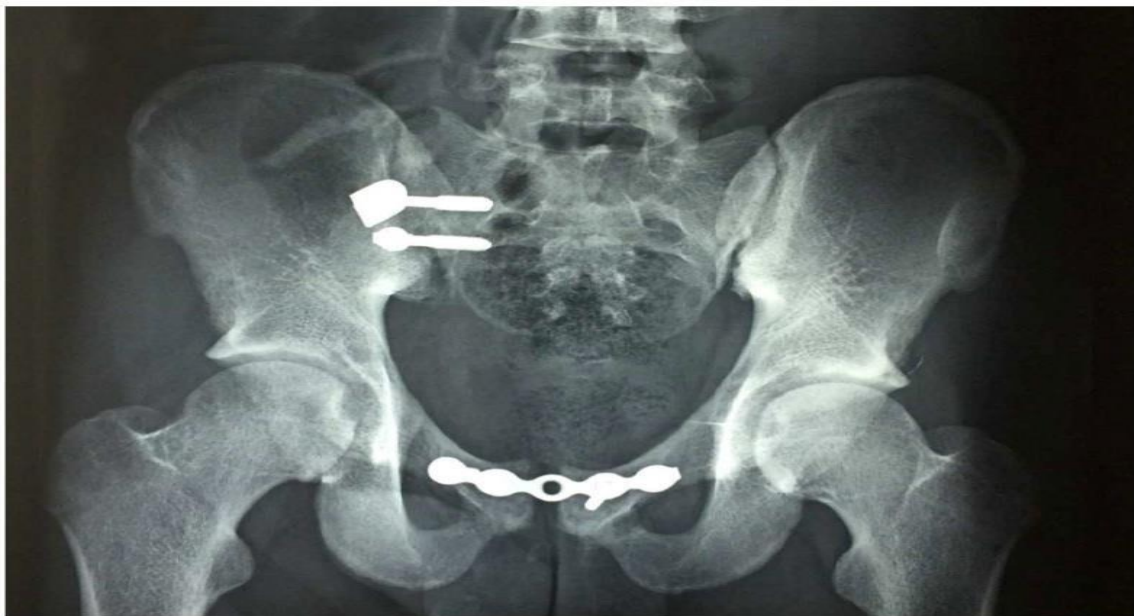


Fig.6 Radiography of the front pelvis after osteosynthesis by a plate screwed from the pubic symphysis and double screwing of the right sacroiliac