Clinical Case Report

Medicine

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Traumatic testicular dislocation

A case report and literature review

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Abstract

Introduction: Traumatic testicular dislocation is an uncommon complication of blunt scrotal injury and is easily overlooked because of the presence of other severe accompanying injuries. In most cases, an operation is needed for the prevention of malignant change or infertility.

Patient concerns and diagnosis: We report a case of traumatic testicular dislocation with pelvic fracture and internal bleeding in a 27-year-old male with testis rupture after a motorcycle collision.

Interventions and outcomes: He received emergent right radical orchiectomy, and a series of operations for femoral and pelvic fractures were performed after his condition stabilized in the intensive care unit. After 1 month postsurgery, no obvious genitourinary complications were noted.

Conclusion: We suggest scrotum examination in all trauma patients, particularly if a pelvic injury is suspected or in case of a high risk of a motorcycle collision, to avoid missing the diagnosis and prevent severe complications

Abbreviations: CT = computed tomography, PE = physical examination.

Keywords: case report, emergent medicine, motorcycle accident, traumatic testicular dislocation

1. Introduction

Testicular dislocation is defined as the testis outside the scrotum, and the first case was reported by Claubry in 1818.[1] It is a rare event with fewer than 200 reported cases.[2,3] Testicular dislocation is most commonly reported due to motorcycle injury (80%) at a young age (in the 20s) and is usually unilateral[4]; other causes include falling, explosion to hit during sexual activity, etc. We report a case of traumatic testicular dislocation in a 27-year-old male with testis rupture after a motorcycle collision, along with a brief literature review.

2. Case presentation

A 27-year-old male was sent to the emergency department in a clinically unstable state after a motorcycle collision. Physical examination (PE) showed multiple contusions and bruises over bilateral lower extremities. A whole-body computer tomography (CT) scan and series radiography of extremities were performed. The findings revealed bilateral pubic superior and inferior ramus fractures with associated bleeding in left levator ani through contrast extravasation, suspected right testicular dislocation, left femoral shaft fracture, and right pneumothorax (Figs. 1 and 2). His Injury Severity Score was 27. Emergency blood transfusion (4 units of packed RBC), resuscitation, chest tube insertion, and angiography were performed. Angiography showed active bleeding from the distal branches of the bilateral internal pudendal arteries, and hence, embolization was performed. After vital sign stabilization, a urologist and an orthopedic surgeon were consulted. Thereafter, emergency surgery was arranged for right testicular dislocation with right testis rupture, and right radical orchiectomy was performed (Fig. 3). The patient was admitted to the intensive care unit after surgery, and a series of operations for femoral and pelvic fractures were performed after his condition stabilized (Fig. 4). After 1 month postsurgery, no obvious genitourinary complications were noted.

Editor: Maya Saranathan.

Informed consent was obtained from the patient for the purpose of publication.

Data sharing not applicable to this article as no datasets were generated or analyzed during the current study.

The authors have no conflicts of interests to disclose.

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How to cite this article: Chiu Y-C, Lin Y-K. Traumatic testicular dislocation: a case report and literature review. Medicine 2022;101:18(e29137).

Received: 3 February 2022 / Accepted: 4 March 2022

http://dx.doi.org/10.1097/MD.0000000000029137

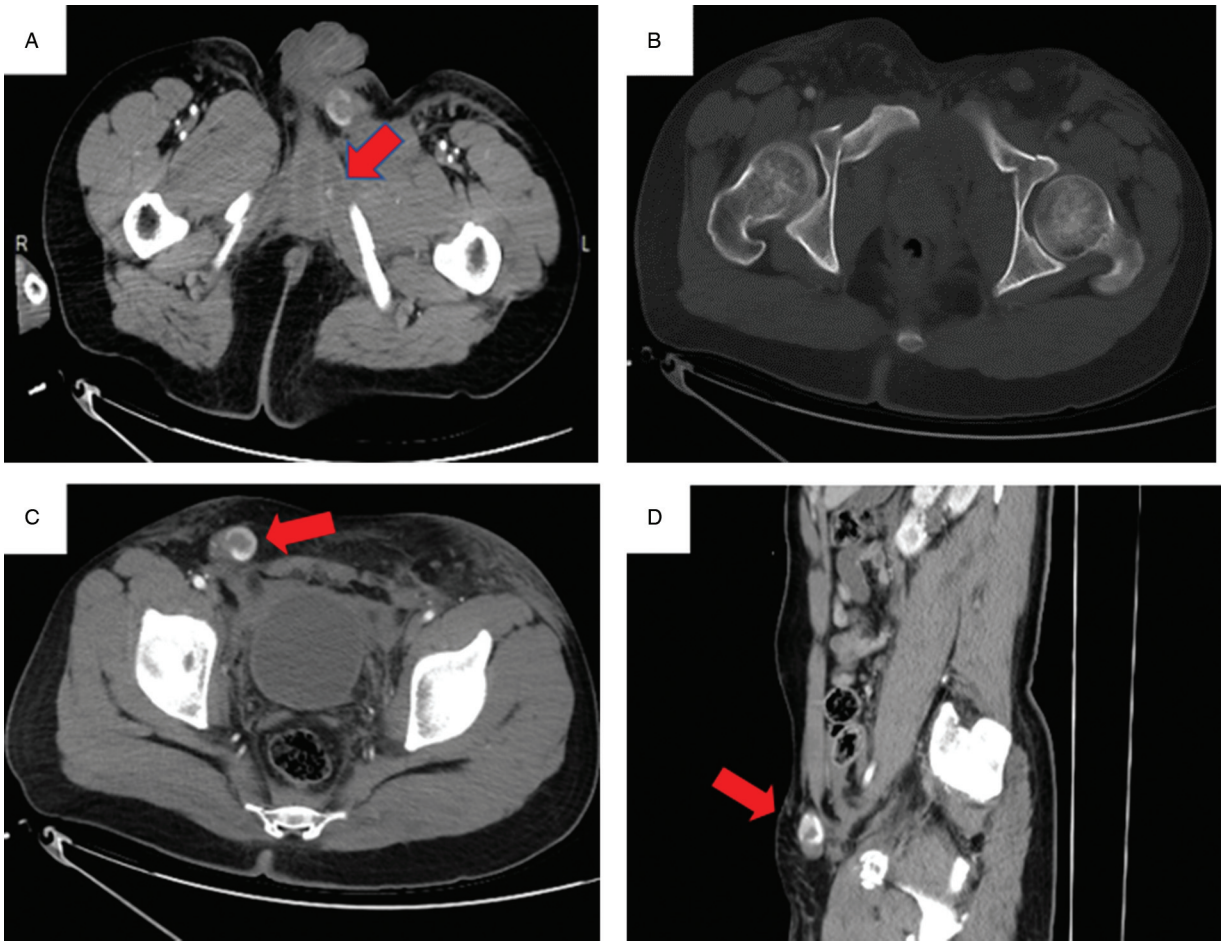

Figure 1. A: CT imaging showing bleeding in left levator ani. B: CT imaging showing bilateral pubic superior and inferior ramus fractures. C: CT imaging showing right testicular dislocation(axial view). D: CT imaging showing right testicular dislocation (sagittal view). CT = computed tomography.

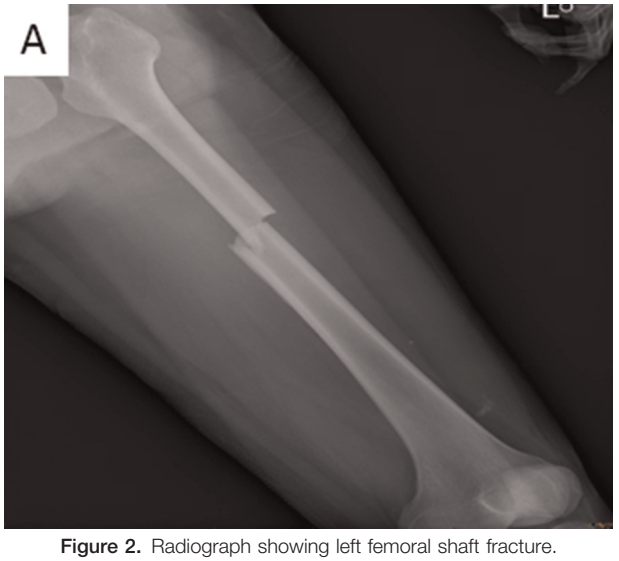

Figure 2. Radiograph showing left femoral shaft fracture.

3. Discussion

Testicular dislocation is easily overlooked because other severe injuries, such as pelvic fracture, long bone fracture, or intra-abdominal bleeding, can accompany at the same time. Although testicular dislocation is usually not fatal, a series of complications, including pain, malignant change, infertility, or abscess/necrosis, may occur if left untreated.[3,6,7] However, the prognosis is often good if treated appropriately. The diagnosis might be missed in patients with nonsevere trauma where CT is not required or if the scrotum remains unexamined. Some studies reported nine groin trauma patients where the testicular dislocation diagnosis was initially missed, but the delayed diagnosis was made within an average of 19 days.[8] For early diagnosis of testicular dislocation, PE and understanding the cause of injury are important, especially in cases involving palpation of the scrotum and presentation of scrotal hematoma.[3] Recently, CT has also been reported to be a good tool, and the findings play a critical role in the testicular dislocation diagnosis in many trauma patients.[9] Some authors have recommended CT to be more sensitive in detecting testicular dislocation,[8,9] particularly in cases involving hollow viscus injury, pancreatic injury, and pelvic injury.[8]

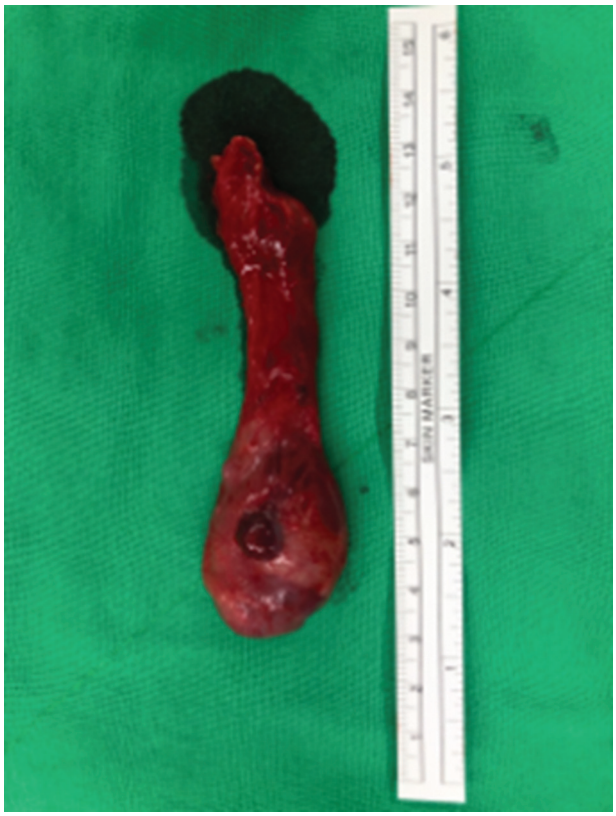

Figure 3. Specimen of right radical orchiectomy.

Missed injury is not uncommon in patients with major trauma in the emergency department, accounting for approximately 12.1% of cases, especially in younger patients with more severe injuries and polytrauma.[10,11] Additionally, the pelvis has the highest incidence rate of missed injury, and clinically significant missed injury (defined as the Abbreviated Injury Scale ≥ 2) is significantly associated with pelvic injury (hazard ratio, 2.19).[10]

Some cases of testicular dislocation are treated with conservative treatment (e.g., observation or manual reduction);[7,12] however, surgical orchidopexy is needed in most cases and is recommended as the preferred initial treatment due to failure of closed reduction, the possibility of torsion, or difficulty to locate the ruptured testis.[6]

We searched PubMed and reviewed some case reports or case series with the keyword "testicular dislocation" from January 1965 until August 2021(Table 1). Initially, 110 articles were identified, and 12 articles not published in English were excluded. Rest 98 articles were retrieved for review, and 53 articles not meeting the interest or lacking full text were excluded. Finally, 45 reports containing 105 cases published until August 2021 were analyzed. The most common cause of testicular dislocation in these reports is motorcycle accidents (80%), followed by traffic and road accidents (5.7%) and blunt/hit injuries (3.8%). The most commonly used diagnostic method is PE (34.2%), followed by sonography (21.9%) and CT (19%). However, the values changed to PE (53.7%), sonography (34.3%), and CT (29.9%) if the numbers of patients without diagnostic methods were excluded. These results are consistent with the current published reports and suggest motorcycle accidents as the most common cause for testicular dislocation and PE as the most important diagnostic method.

In the present case, the scrotum was not examined initially because of other severe injuries and unstable vital signs. Therefore, the diagnosis of traumatic testicular dislocation was missed, though it was finally detected using CT. Thus, we suggest scrotum examination in all trauma patients, particularly if a pelvic injury is suspected or in case of a high risk of a motorcycle collision, to avoid missing the diagnosis and prevent severe complications.

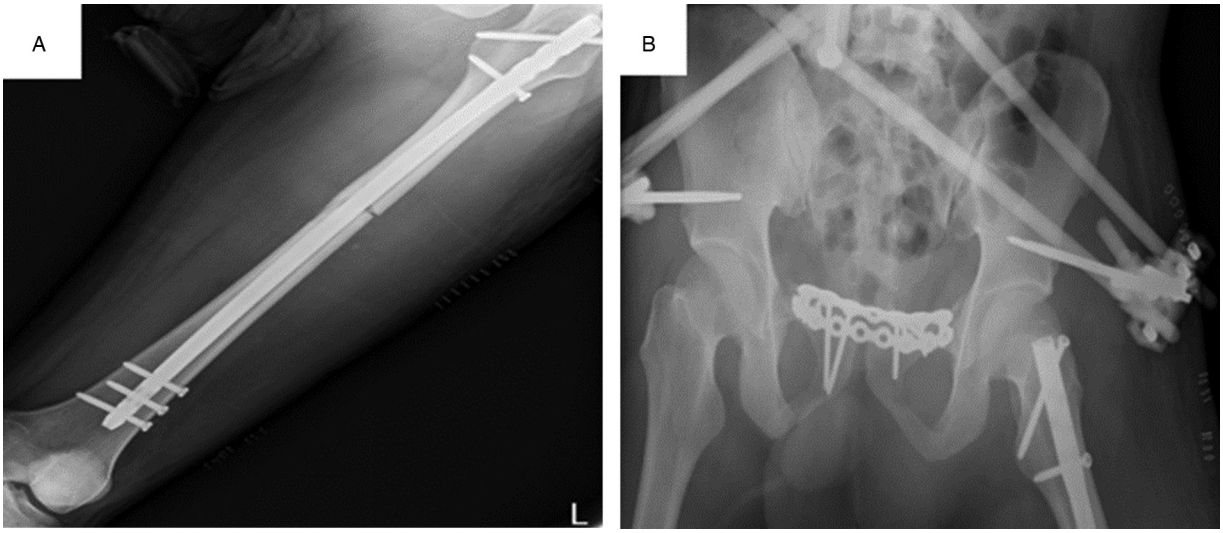

Figure 4. A: Radiograph showing fixation for femoral fractures. B: Radiograph showing fixation for pelvic fractures.

Table 1

Case reports and series of testicular dislocation.

Report	Authors	Number of patients	Mechanism	Diagnostic method
1	Claubry [1]	1	Wagon wheel trauma	Not mentioned
2	Morgan [13]	4	2 Road accidents 1 MA 1 Bicycle accident	PE, OP
3	Edson and Meek [14]	1	Straddle injury	PE
4	Kauder and Bucchiere [15]	1	MA	PE
5	Nagarajan et al [16]	3	3 MAs	PE
6	Masui et al [17]	1	MA	Not mentioned
7	Feder et al [18]	1	Hit by knee on scrotum	PE
8	Lee et al [19]	2	1 MA 1 Automotive accident	PE
9	Madden [7]	1	MA	PE
10	Schwartz and Faerber [20]	1	Pedestrian-motor vehicle accident	PE, US
11	Toranji and Barbaric[21]	1	MA	CT
12	O'Donnell et al[22]	3	MA	PE
13	Shefi S et al. [23]	1	MA	PE, US, CT
14	Kochakarn et al [24]	36	MA	Not mentioned
15	Lo'pez Alcina et al[2]	2	1 MA 1 Kick	PE, US
16	Tsai et al[25]	1	MA	US, CT
17	Bromberg et al[5]	1	MA	CT
18	O'Brien et al[26]	1	MA	US
19	Ko et al[8]	9	7 MAs 1 Explosive injury 1 Seat belt injury	CT(7), US(2)
20	Bedir et al[27]	1	MA	US, MRI
21	Luján Marco et al[28]	1	MA	CT
22	Ihama et al[29]	1	MA	Autopsy
23	Sakamoto et al[30]	1	MA	PE, US, MRI
24	Aslam et al[31]	1	Blunt injury to scrotum	PE, US
25	Ezra et al[9]	1	MA	CT
26	Vasudeva et al[32]	1	MA	US
27	Perera et al[33]	1	MA	PE, US, CT
28	Jecmenica et al[34]	2	MA	Autopsy
29	Tsurukiri et al[35]	1	MA	PE, CT
30	Naseer et al[36]	1	Traffic accident	PE, CT
31	Boudissa et al[37]	1	MA	CT
32	Matzek and Linklater [38]	1	Blunt abdominopelvic injury	PE, US
33	Meena et al[39]	1	MA	PE, US
34	Zavras et al[40]	1	Falling astride on a crossbar	PE, US
35	Gómez et al[41]	7	6 MAs 1 pelvic crush injury	PE, US, autopsy(2)
36	Pesch and Bradin [42]	1	Straddle injury	US
37	Wiznia et al[43]	1	MA	PE, US
38	Kim et al[44]	1	construction accident	CT
39	de Carvalho et al[6]	1	MA	PE, US
40	Shirono et al[12]	1	Falling down	US, MRI
41	Middleton et al[45]	2	MA	CT
42	Riaza Montes et al[3]	1	Uncertain (alcohol abuse)	PE, US
43	Bernhard et al[46]	1	MA	During OP
44	Mangual-Perez et al[47]	1	MA	During OP
45	Naik et al[48]	1	MA	PE

CT = computed tomography, MA = motorcycle accident, OP = operation, PE = physical examination, US = ultrasonography.

Acknowledgments

We thank Dr Chen and Dr Lin for performing the surgeries.

Author contributions

Writing – original draft: Yi-Chen Chiu.
Writing – review & editing: Yen-Ko Lin.

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