

# Unilateral Traumatic Testicular Dislocation in a Patient of Pelvic Diastasis and Spine Fracture in an Adult: A Case Report and Review of Literature

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## Learning Point of the Article:

This incident highlights the importance of clinically examining the patient's scrotum in severe injuries to ensure the testis position and it also reminds us to look at CT scans carefully for the same. Orchidopexy can provide good reproductive function if performed at the right time.

## Abstract

**Introduction:** With advancement, the occurrence of road traffic accidents is common. Timely management of fractures of the spine and pelvis is of the utmost importance for survival, ambulation, and maintenance of normal life. Genitourinary complications following pelvic ring injuries are not unknown; however, testicular dislocation is rare and can cause significant morbidity if not managed appropriately.

**Case Report:** Our case was a 25-year-old male who was presented to the tertiary trauma center following a motorcycle accident. He had an anteroposterior compression (APC) fracture of the pelvic ring (APC-III, Arbeitsgemeinschaft für Osteosynthesefragen 61-C1.2), D8-D9 vertebra compression fracture, fracture of the left distal radius, and radio-carpal dislocation. However, no concomitant genitourinary injury was noticed at the initial assessment. After resuscitation, the pelvis was planned to be fixed with an anterior symphyseal plate and posterior sacroiliac joint fixation using 2 cancellous screws. While using Stoppa's approach, surprisingly, the right testicle was observed to be inferior to the pubis. Trauma surgery help was sought and the dislocated testis was reduced and managed with orchidopexy after checking the viability. At the follow-up of 1 year, the pelvic fracture was united without urogenital complication.

**Conclusion:** In cases of complex pelvic ring injury, a careful genital examination should be performed and a multi-disciplinary team approach with compromising of radiology, traumatology, and orthopedics departments should be adopted for better patient outcomes.

**Keywords:** Genito-urinary injuries, traumatic testicular dislocation, pelvic fracture.

## Introduction

The incidence of pelvic fracture following a high-energy trauma is approximately 1–3% [1]. The overall incidence of combined spinal and pelvis fractures is reported to be around 10.4%. The genitourinary injuries following pelvic fracture are not uncommon. However, the association of testicular dislocation is a rare event. Fewer than 60 cases have been documented in the literature [2]. Testicular dislocation in the setting of pelvic ring

injury most commonly occurs as a result of “fuel tank” or “straddle”-type injuries, in motorcycle accidents [3]. Delay in diagnosis and treatment is associated with an increased rate of orchidectomy and loss of testicular and spermatic function, which can lead to impaired fertility.

We present a unique case of missed traumatic unilateral testicular dislocation with a fracture of the spine and pelvic ring that was not diagnosed until surgery. We discuss the review of literature

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## Author's Photo Gallery



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**Figure 1:** It shows pre-operative radiographs. (a) Pelvis with bilateral hip: Anteroposterior view with a pelvic binder in situ shows dislocation of the right sacroiliac joint (anteroposterior compression-III, Arbeitsgemeinschaft für Osteosynthesefragen [AO] 61-C1.2). (b) Pelvis with bilateral hip: Inlet view showing pubic diastasis. (c) Left wrist with forearm: Distal radius fracture and radio-carpal dislocation (AO Type 23-C3). (d) Pelvis with bilateral hip: Outlet view demonstrates pubic diastasis.

gustilo-anderson open grade 3a fracture of the left distal radius and radio-carpal dislocation (AO Type 23-C3) (Fig. 1 and 2). After a secondary survey assessment, the patient was taken to the operation theatre for management of an open grade 3A fracture of the left distal radius and radio-carpal dislocation.

Once the patient improved clinically and built up his hematocrit level, he was posted for elective pelvic fracture fixation i.e. on day 4 following trauma. Surgery was planned to apply a reconstruction plate for pubic diastasis through Stoppa's approach and closed reduction internal fixation for Sacro-Iliac (SI) joint fixation using percutaneous cannulated cancellous screws (CCS). Intra-operatively during deep dissection in Stoppa's approach, inadvertently an ovoid smooth white swelling was seen protruding out from below the pubis on the right side internally through the inguinal canal into the abdominal cavity (Fig. 3).

about such injuries, their outcomes, and steps that may be taken to prevent any delays in diagnosis.

### Case Report

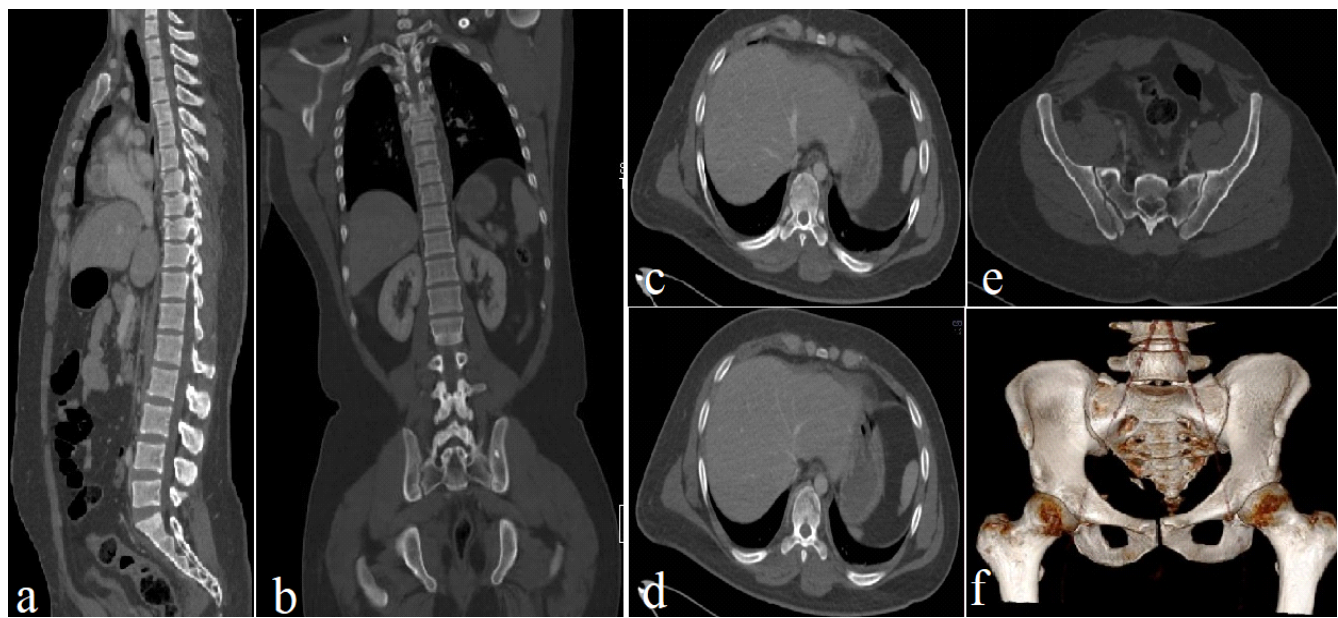
A 25-year-old man was presented to the trauma emergency after a motorcycle collision with a heavy four-vehicle. The primary management was done elsewhere and then referred to our center for definitive management. The patient was re-evaluated using advanced trauma life support guidelines and was resuscitated. Upon primary assessment, the patient was Borderline [4].

In the primary survey, there was a lacerated wound of size 3 × 2 cm over the anterior aspect of the left elbow and 10 × 2 cm over the left wrist without distal neuro-vascular deficit. There were bruises on the scrotum and penile base with palpable testis in the scrotum. Upon subsequent radiological evaluation, he was diagnosed with D8, D9 vertebra compression fracture with ASIA E neurology, pubic diastasis, and right sacroiliac joint dislocation (anteroposterior compression-III, Arbeitsgemeinschaft für Osteosynthesefragen [AO] 61-C1.2),

On careful examination, the right testis was found to have migrated into the pelvis through the abdominal wall defect. In an operative assessment from the trauma surgeons, it was sought and the dislocated testis was reduced by manual manipulation and orchidopexy was done. This was followed by anterior pubic diastasis fixation with a 5-hole reconstruction plate and the right SI joint close reduction internal fixation was done through two CCS. The associated spine fracture was managed conservatively.

In the post-operative period, retrospective analysis of an abdominal computed tomographic scan confirmed the diagnosis of right testicular dislocation (Fig. 4). The patient did not have any history of cryptorchidism, retractile testis, or inguinal hernia. Hence, the diagnosis of missed right testicular dislocation was confirmed. There were no immediate post-operative complications noted. The wound was healed in the follow-up. The patient was followed regularly for up to 1 year. On ultrasonography of the bilateral scrotum, there was adequate blood flow in the bilateral testis during his last visit. However, the patient and his relatives were counseled about the





**Figure 2:** It demonstrates a pre-operative computed tomography scan. (a) The sagittal section of the whole spine shows compression fracture at D8 and D9 levels. (b) Coronal section of whole spine showing compression fracture at D8, D9 level. (c and d) Axial section showing compression fracture at D8, D9 level respectively. (e) Axial section of pelvis showing crescent fracture right side.

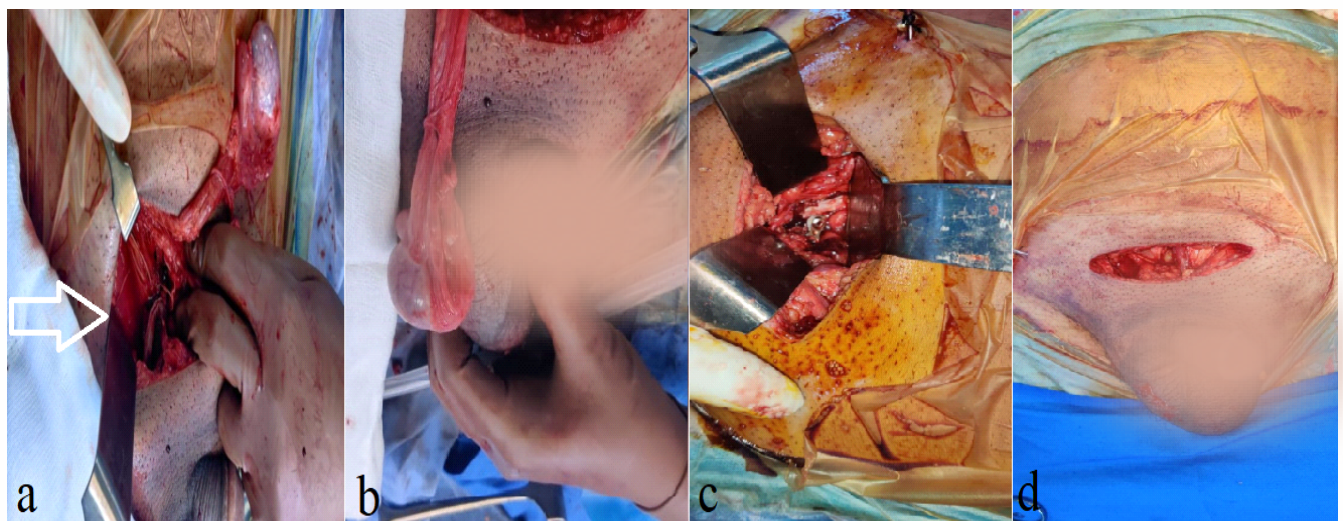
occurrence of inguinal hernia in the future.

### Discussion

Claubry first described this entity in 1818; traumatic testicular dislocation to the extra scrotal migration of one or both testicles as a consequence of direct scrotal trauma [5]. Motorcycle collisions are the most frequent causative mechanism; the sudden deceleration of the motorcycle catapults the rider forward. Because the rider is straddled over the saddle, his perineum and scrotum are struck in the midline by the bike

tank, which presses the testes upward, forcibly displacing them in a lateral and upward direction [6].

Boudissa et al. emphasized the importance of initial physical examination, including palpation and inspection [7]. It is important to ask about any history of cryptorchidism, testicular retraction, or previous inguinal hernia. On clinical evaluation, testicular dislocation may appear as an empty scrotum, loose skin (Brockman's sign), testicular hematoma, and inguinal mass. This physical examination may be hampered by pain, edema, hematoma, hemocele, deep testicular dislocation, damage to neighboring structures, or obesity of the patient.



**Figure 3:** It shows the intra-operative findings. (a) The arrow shows the defect in the right lower abdominal wall. (b) Viable right testis with intact spermatic cord. (c) Pubis diastasis fixation through reconstruction plate. (d) Orchidopexy of the right testis with a sutured wound at the right scrotum.



**Figure 4:** The pre-operative computed tomography scan showed the spot crucial points that were missed initially. (a) Axial section depicting the absence of testis in the rt scrotum at the level of the lower scrotum. (b) Axial section showing right testis at the level of the superficial inguinal ring. (c) Sagittal section demonstrating left testis at the level of the scrotum. (d) The sagittal section in which the arrow depicts the level of the right scrotum near the superficial inguinal ring. (e) A coronal section in which arrow marks right testis at the level of rt superficial inguinal ring

Serial number	Author	Journal/year	Age	Unilateral/bilateral	Diagnosis	Fracture	Associated injury	Treatment
1	Bromberg et al. [10]	The Journal of Trauma, Injury, Infection, and Critical Care, 2003	33	Bilateral	Emergency	Nondisplaced T12 vertebral compression fracture	Right femoral fracture, right first metacarpal fracture	Orchidopexy
2	Ko et al. [11]	Annals of emergency medicine, 2004	17	Left	60 days	Pelvis fracture	Lt femoral shaft	Orchiectomy
3	O'Brien et al. [12]	The Journal of Urology, 2004	37	Bilateral (right - retrovesically, left - superficial inguinal region)	Emergency	APC	-	Bilateral orchiopexy
4	Phuwapraisirisan et al. [13]	Journal of medical association of thailand, 2010	27	Left	21 days	Pelvic fracture	-	Orchidopexy
5	Tsurukiri et al. [14]	Images in Clinical Urology, 2011	32	Bilateral (one testis was prolapsed at the perineal region, and the other was dislocated in the superficial perineal region)	Emergency	Pelvis injury	-	Surgically reduced
6	Smith et al. [6]	Journal of Surgical Orthopaedic Advances, 2012	23	Bilateral (superficial inguinal dislocation with the testis projected through the external, cremasteric, and internal spermatic fascia)	Intra -operative	APC type 2	-	Orchidopexy
7	Boudissa et al. [7]	Orthopedics and Traumatology, 2013	62	Bilateral	Emergency	Tile B1 pelvic -ring fracture	Gustilo 3B open left tibial mid-diaphyseal fracture, Gustilo 3A open left wrist fracture and spontaneously reduced right knee dislocation	Orchidopexy
8	Gómez et al. [15]	International Urology and Nephrology, 2014	25	Left	Admission	Pelvic fracture	Rupture of the membranous urethra	Surgical debridement and orchidopexy
9	Kim et al. [16]	Journal of Orthopedic Science, 2016	57	Right (external inguinal ring level)	1 year	Tile C-2 pelvic ring injury	-	Orchiectomy
10	Wiznia et al. [17]	Case Reports in Orthopedics, 2016	44	Left (superior to the fascia overlying the inguinal canal)	Emergency	Lateral compression type pelvic ring injury	Left T-shaped acetabulum fracture (OTA classification 62 - B2)	Manual reduction
11	Middleton et al. [3]	Journal of Bone and Joint Surgery, 2019	51	Bilateral (right testicle dislocated more proximally than the left)	Intraoperative swelling	APC type 2	Left pneumothorax, Left 4-6 anterolateral rib fractures, right femoral shaft fracture with intra-articular extension	Urologist manually reduced both testicles
			31	Right	1 month	APC type 2	Subarachnoid hemorrhage	Orchidopexy
12	Morgan et al. [18]	BMJ Case report, 2019	29	Right	Emergency	APC	-	Manual reduction
13	Bernhard et al. [19]	Cureus , 2021	29	Left	Intra -operative (inferior to the pubis)	APC type 2	-	Orchidopexy
14	Chouhan et al. [20]	JOCR, 2021	30	Left, intra -pelvic	Emergency			

APC: Anteroposterior compression

**Table 1:** It depicts the reported testicular dislocation in English literature, their associated injuries, and management.



Naseer et al. also mentioned the importance of scrotal examination in a traumatic patient [8]. Doppler ultrasonography is helpful in detecting the blood flow and therefore the viability of the testicle.

In addition, Ezra et al. [9] emphasized the need for computed tomography (CT) for the rapid diagnosis of scrotal trauma, including testicular rupture, torsion, dislocation, hematoma, or contusion, as well as epididymal, scrotal, and urethral injuries, because most polytrauma or pelvic trauma patients are initially assessed by CT. In our case, an initial CT scan (Fig. 4) revealed right traumatic testis dislocation. However, we did not take cognizance because the testis was palpable when the patient had a pelvis binder.

To avoid such mistakes in the future, we must be alert to the feasibility of testicular dislocation in addition to fracture patterns when initial CT scans are performed in cases of pelvic fractures. Surgeons should be aware that inattention to testicular injuries including testis dislocation, rupture, and

torsion in cases of polytrauma or pelvic fracture may lead to inevitable testicular resection in the future. Reported cases in English literature are mentioned in Table 1 with their management.

### Conclusion

This incident highlights the importance of clinically examining the patient's scrotum in severe injuries to ensure the testis position and it also reminds us to look at CT scans carefully for the same.

### Clinical Message

Close suspicion should be considered particularly in adults in the case of a pelvic fracture who had a fuel tank type of injury pattern. Orchidopexy can provide good reproductive function if performed at the right time.

**Declaration of patient consent:** The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given the consent for his/ her images and other clinical information to be reported in the journal. The patient understands that his/ her names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

**Conflict of interest:** Nil **Source of support:** None

### References

- Ankarath S, Giannoudis PV, Barlow I, Bellamy MC, Mathews SJ, Smith RM. Injury pattern associated with mortality following motorcycle crashes. *Injury* 2002;33:473-7.
- Shefi S, Mor Y, Dotan ZA, Ramon J. Traumatic testicular dislocation: A case report and review of published reports. *Urology* 1999;43:743-5.
- Middleton AH, Martin JM, Wittmann TA, Schmelting GJ. Testicular dislocation after pelvic ring injury: A report of 2 cases. *JBJS Case Connect* 2019;9:141.
- Pape HC, Giannoudis P, Krettek C. The timing of fracture treatment in polytrauma patients: Relevance of damage control orthopedic surgery. *Am J Surg* 2002;183:622-9.
- Claubry EG. Observations sur une retrocession subite des deux testicules dans l'abdomen, a la suite d'une violente compression de la partie inferieure de la paroi abdominale par une roue de la charrette. *J Gen Med Chir Phram* 1818;64:325-8.
- Smith CS, Rosenbaum CS, Michael Harris A. Traumatic bilateral testicular dislocation associated with an anterior posterior compression fracture of the pelvis: A case report. *J Surg Orth Adv* 2012;21:162-4.
- Boudissa M, Ruatti S, Maise N, Arvin-Berod A, Trilling B, Long JA, et al. Bilateral testicular dislocation with pelvic ring fracture: A case report and literature review. *Orthop Traumatol Surg Res* 2013;99:485-7.
- Naseer A, King D, Lee H, Vale J. Testicular dislocation: the importance of scrotal examination in a trauma patient. *Ann R Coll Surg Eng* 2012;94:e109-10.
- Ezra N, Afari A, Wong J. Pelvic and scrotal trauma: CT and triage of patients. *Abdom Imaging* 2009;34:541-4.
- Bromberg W, Wong C, Kurek S, Salim A. Traumatic bilateral testicular dislocation. *J Trauma Acute Care Surg* 2003;54:1009-11.
- Ko SF, Ng SH, Wan YL, Huang CC, Lee TY, Kung CT, et al. Testicular dislocation: An uncommon and easily overlooked complication of blunt abdominal trauma. *Ann Emerg Med* 2004;43:371e5.
- O'Brien MF, Collins DA, McElwain JP, Akhtar M, Thornhill JA. Traumatic retrovesical testicular dislocation. *J Urol* 2004;171:798.
- Phuwapraisrisan S, Lim M, Suwanthanma W. Surgical reduction in a delayed case of traumatic testicular dislocation. *J*



Med Assoc Thai 2010;93:1317-20.

14. Tsurukiri J, Kaneko N, Mishima S. Bilateral traumatic testicular dislocation. *Urology* 2011;78:1306.

15. Gómez RG, Storme O, Catalán G, Marchetti P, Djordjevic M. Traumatic testicular dislocation. *Int Urol Nephrol* 2014;46:1883-7.

16. Kim WY, Lee SW, Jang H, Kim DY. Delayed detection of testicular dislocation with pelvic ring fracture: A case report. *J Orthop Sci* 2016;21:702-4.

17. Wiznia DH, Wang M, Yeon-Kim C, Tomaszewski P, Leslie

MP. Traumatic testicular dislocation associated with lateral compression pelvic ring injury and T-shaped acetabulum fracture. *Case Rep Orthop* 2016;2016:9706392.

18. Morgan O, Davenport D, Enright K. Pelvic injury is not just pelvic fracture. *BMJ Case Rep* 2019;12:e232622.

19. Bernhard Z, Myers D, Passias BJ, Taylor BC, Castaneda J. Testicular dislocation after unstable pelvic ring injury. *Cureus* 2021;13:e13119.

20. Chouhan V, Ladhania M, Chouhan K. Pelvic fracture associated with intrapelvic dislocation of testis. *J Orthop Case Rep* 2021;11:90-4.

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