

# Case Report

## Surgical Reduction in a Delayed Case of Traumatic Testicular Dislocation

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A 27-year-old Thai male was admitted with left groin pain and he felt that he lost his left testis three weeks after his motorcycle accident-car collision. He had not been diagnosed after four days of admission at the previous hospital. Surgical reduction was performed without acute and delayed complications after three months of follow-up. Traumatic testicular dislocation is an uncommon sequel of trauma usually related to straddle injury from motorcycle accidents. Diagnosis depends on the awareness of the physician of its possibility of occurrence. Physical examination is the most helpful in diagnosis. CT scan or Doppler ultrasound, if available, may be helpful in diagnosis, particularly locating the extrascrotal testicle and detecting testicular viability. Manual reduction is the treatment of choice for acute traumatic dislocation of testis. Open reduction is indicated for the delayed case, or if there are 1) difficulty in determining the integrity of dislocated testis, 2) possibility of torsion, 3) failure of close reduction, or 4) the minimal morbidity of an inguinal exploration.

**Keywords:** Traumatic testicular dislocation, Dislocated testis, Surgical reduction

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Traumatic dislocation of the testis is a rare perineal trauma<sup>(1-6)</sup>. It is usually related to straddle injury from motorcycle accidents. Diagnosis depends on the awareness of the physician of its possibility. Pelvic computerized tomographic (CT) scan confirms the location of testicle and Doppler ultrasound may be used for assessing the testicular vascularization<sup>(1,2)</sup>. Close reduction, first described by Connor in 1861, is the initial treatment of choice in acute injury<sup>(3)</sup>. However, surgical intervention is preferred in delayed injury. The authors encountered the unilateral dislocation of testis caused by a motorcycle accident. It was a delayed finding, three weeks after injury. Physical examination is most helpful in diagnosis when scanning devices are unavailable for further investigations. Neither Doppler ultrasound nor CT scan was available for this patient. He underwent surgery, and recovered well without complications.

### Case Report

A 27-year-old Thai male came to Phukieo Hospital with left groin pain. He felt that he lost his left testis three weeks after his motorcycle accident-car collision. He rode a straddle motorcycle at high speed and collided with a car. He was sent to Chaiyaphum general hospital. He was hemodynamically stable and neurologically intact. Four days after admission, he was discharged from the hospital. During the admission, the traumatic dislocation of testis was not diagnosed. One week before he came to Phukieo Hospital, he suffered from left groin pain without fever or gross hematuria. The pain increasingly disturbed him and he felt that his left testis had disappeared, and the left groin mass occurred instead. On admission, physical examination revealed the absence of the left testis. A soft tender mass over the left inguinal region was noted (Fig. 1). He ascertained that both testes were present in the scrotum before the accident. The patient denied any history of testicular retraction, cryptorchism, or inguinal hernia in the past. Therefore, the soft tender mass over the left inguinal region was considered as a dislocated testis. Preoperative urinalysis was free from blood and pelvic X-ray

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revealed the fracture of both pubic rami and minimal diathesis. The urologist suggested that surgical intervention was most appropriated for him due to an adhesion of the testis in the groin, causing the high failure rate of close reduction. Furthermore, the viability of testis would be certainly detected on the operation. After informed consent, surgical reduction was performed. On the groin exploration, the left testis was viable and loose adhesion was observed (Fig. 2). The testis was returned to the scrotum. The pelvic fracture was treated by non-operative management. The patient recovered well and he was discharged three days after admission. No testicular retraction occurred during three months of follow-up. The patient reported normal erectile function and semen analysis revealed no abnormality.

### Discussion

Traumatic dislocation of the testis is a rare event, only about 150 cases have been reported so far. The first case was described by Claurby in 1818. A case of bilateral traumatic dislocation of testis, which occurred in a 20-year-old soldier run over by a wagon wheel, was reported. Dislocation of the testis is defined as the displacement of normally located one or both testes to a position other than the scrotum. Kochakarn et al reviewed 36 patients who were treated in Ramathibodi Hospital with traumatic testicular dislocation between 1975 and 1997. The mean patient age was 25 years old (18-38). Bilateral dislocation was found in thirty cases while unilateral dislocation was found in six cases. The most common site of dislocation was at superficial inguinal area (34 cases, 64 testes). The other sites included acetabular and the perineal area (each one case, one testis). Closed reduction under general anesthesia was successful in 14 cases, open reduction after failed closed reduction in 10 cases, open exploration and repaired testis with reposition in 11 cases, and orchietomy only in one case. The overall results after treatment showed the normal size and position of the testis<sup>(5)</sup>.

Dislocation of the testis was classified into two groups by Goulding, (1) internal dislocation where the testis is forced through the external ring into the inguinal canal or even to the abdominal cavity, (2) superficial dislocation where the testis is forced subcutaneously in a circular area having the radius as the spermatic cord length from the external inguinal ring as the center<sup>(1,2)</sup>. Superficial dislocations are more common than internal dislocations<sup>(1-2,7-12)</sup>. In 1929, Alyea delineated the possible locations of the



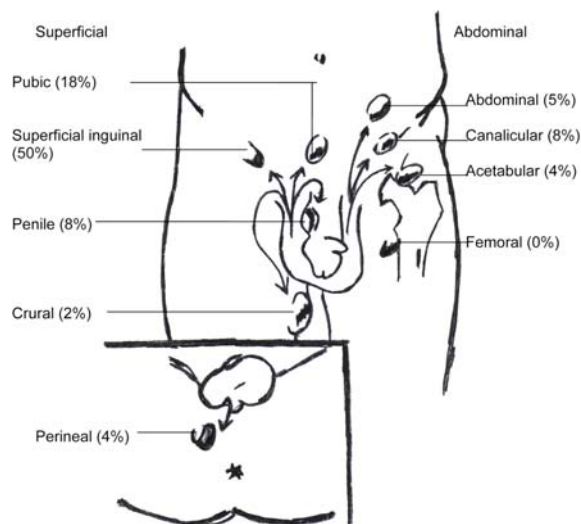
Fig. 1 The left testis displaced in to the left inguinal area



Fig. 2 Viable testis during operative reduction

dislocated testis and hypothesized that if the testis was freely mobile and the external ring was intact, the testis could be located anywhere along a circle with its radius being spermatic cord and its center being the external ring<sup>(1,4,9)</sup>. The possible location of ectopic testis, in order of frequency of occurrence, included superficial inguinal, pubic, canalicular, penile, intra-abdominal, perineal, and crural<sup>(4)</sup>. The presented patient was unilateral superficial dislocation of testis.

Previously, the mechanism of dislocation of testis in many cases was the result of the accident in which a wheel ran over the scrotum, falling injury, or a kick to the perineum. In most recent reports, this mechanism has been replaced by the straddling injuries from motorcycle accidents<sup>(7-13)</sup>. The sudden deceleration of motorcycle lets the rider's testicle be pushed against a smooth wedge gasoline tank and displaced in a lateral and superior direction according to the direction of



**Fig. 3** Possible sites and reported frequency of testicular dislocation (Picture adapted from Schwartz SL, Faerber GJ. Dislocation of the testis as a delayed presentation of scrotal trauma. *Urology* 1994; 43: 743-45.)

force during the impact<sup>(1,7,11,13)</sup>. Most reports have recommended initial manual reduction for treatment of choice. Sedation and muscle relaxant may be needed to enhance patient's co-operation and to facilitate the procedure. If manual reduction fails at the time of presentation or if there was considerable edema, second manual reduction should be tried again on the third or fourth day after injury when edema subsided, and before the adhesions have developed<sup>(1,2,9,12,15)</sup>. The main risk of delayed reduction was that torsion of the dislocated testis could be missed and an originally viable testis could become gangrenous<sup>(1,10)</sup>. The orchietomy rate in delayed exploration is higher than that in early exploration. Del Villar et al found a 45% orchietomy rate with delayed exploration vs. a 9% orchietomy rate with early operation<sup>(1,8)</sup>. Edson and Meek recommended an operative intervention for 1) difficulty in determining the integrity of dislocated testis, 2) possibility of torsion, 3) failure of close reduction, and 4) minimal morbidity of an inguinal exploration<sup>(1,2,4,7,13,14)</sup>. Prolonged extrascrotal location of these testicles all resulted in some degree of infertility due to prolonged exposure to elevated temperature. Delays in reduction can result in irreversible testicular changes e.g. the absence of spermatids, decrease in spermatogonia, and relative increase in Sertoli cells<sup>(1,7,11)</sup>. Malignant changes are

another risks of prolonged ectopic location of the testicle<sup>(1,2)</sup>.

### Conclusion

Manual reduction is the treatment of choice for acute traumatic dislocation of the testis. Sedation and muscle relaxant may be needed to enhance the patient's co-operation and facilitate the procedure. Open reduction is indicated for delayed case. Early operation decrease the orchietomy rate. Furthermore, early operation is necessary when there is 1) difficulty in determining the integrity of dislocated testis, 2) possibility of torsion, 3) failure of close reduction, and 4) minimal morbidity of an inguinal exploration.

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รายงานผู้ป่วย 1 ราย โดยการผ่าตัดรักษาการบาดเจ็บของอวัยวะที่มีการเคลื่อนออกจากถุงอัณฑะที่ได้รับการวินิจฉัยภายหลังการบาดเจ็บเป็นเวลานาน

สามารถ ภูวไพโรศิริศาล, มีชัย แซ่ลิ้ม, วีรพัฒน์ สุวรรณธรรมมา

ผู้ป่วยชายไทยอายุ 27 ปี เข้ารับการรักษาด้วยอาการปวดบริเวณขาหนีบซ้าย และรู้สึกว่ามีอวัยวะข้างซ้ายหายไปเป็นเวลา 3 สัปดาห์ ภายหลังจากได้รับอุบัติเหตุจักรยานยนต์ โดยไม่ได้รับการวินิจฉัยการบาดเจ็บของอวัยวะที่มีการเคลื่อนออกจากถุงอัณฑะระหว่างการรักษาที่ได้รับมาก่อนหน้านี้ ผู้ป่วยได้รับการผ่าตัดรักษาเอาอวัยวะกลับเข้าที่โดยปราศจากภาวะแทรกซ้อนภายหลังการผ่าตัดเป็นระยะเวลา 3 เดือน

การบาดเจ็บของอวัยวะที่มีการเคลื่อนออกจากถุงอัณฑะพบได้น้อย การวินิจฉัยขึ้นอยู่กับแพทย์ที่จะสงสัยว่ามีภาวะดังกล่าวหรือไม่ โดยอาศัยการตรวจร่างกายเป็นหลัก การตรวจเพิ่มเติมทั้งเอกซเรย์คอมพิวเตอร์และดอปเปลอร์-อัลตราซาวด์มีประโยชน์ในการบอกตำแหน่ง และภาวะการขาดเลือดของอวัยวะ การรักษาสามารถต้นกลับได้ในระยะเฉียบพลัน การรักษาโดยการผ่าตัดกระทำในรายที่มีอาการ มาเป็นเวลานาน หรือ มีข้อบ่งชี้ในกรณีดังต่อไปนี้ 1) ไม่สามารถบ่งบอกถึงความสมบูรณ์ของอวัยวะได้ 2) มีการบิดตัวของอวัยวะ 3) ไม่สามารถต้นกลับได้ 4) การผ่าตัดที่จะกระทำมีอัตราตายต่ำ