

CASE REPORT

Diastasis of the pubic symphysis peculiar to horse riders: modern aspects of pelvic pommel injuries

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Diastasis of the pubic symphysis is a well documented injury typically associated with high energy trauma. Three cases in horse riders are here described, emphasising the appropriate modern investigation, including computed tomography, and orthopaedic and urological management.

A report by Flynn¹ described diastasis of the pubic symphysis occurring in two horse riders who landed astride the pommel of the saddle, having been thrown vertically when the horse bucked. He described good outcomes but used the normal conservative management of the time (bed rest, pelvic slings), definitive treatments not typically used now. There have been no other specific reports of this injury since then.

CASE REPORTS

Patient one, a 55 year old man, a recreational horse rider, was injured when his horse bucked several times, the patient landing on the pommel of the saddle. He sustained extensive scrotal and perineal bruising but was haemodynamically stable on assessment in hospital. An ultrasound examination of the pelvis was performed after radiographs revealed the nature of the injury and showed a suprapubic haematoma. Suprapubic catheterisation was performed, and a retrograde urethrogram showed a normal penile and bulbar urethra but extrinsic compression of an intact membranous urethra by haematoma. His symphysis was reduced using an external fixator, with pins in both iliac crests, and he was mobilised the next day. The external fixator was removed after six weeks, and the suprapubic catheter was removed at eight weeks.

Patient two, a 57 year old recreational horse rider, struck the pommel of the saddle as his horse landed after jumping a



Figure 1 Anteroposterior radiograph of pelvis showing wide diastasis of the pubic symphysis.



Figure 2 Anteroposterior radiograph after open reduction and internal fixation with a dynamic compression plate and screws.

fence (fig 1). He also had extensive scrotal and perineal bruising and was haemodynamically stable. A retrograde urethrogram showed a normal urethra, and a urethral catheter was passed. Operative fixation was by means of a four hole dynamic compression plate and screws (fig 2); a minor superficial wound infection ensued, which was resolved with oral antibiotics. He was mobilised on crutches the day after fixation. The urinary catheter was removed after four days.

Patient three, a 65 year old professional jockey, was galloping on a horse and lost control, landing two to three times on the pommel before falling off. The typical pattern of bruising was present and he too was catheterised. A cystogram showed no extravasation of urine. Reduction of the symphysis was achieved using an external fixator. He was mobilised the next day without difficulty, but developed one pin site infection after four weeks, which settled with oral antibiotics and dressings, with the fixator being removed at six weeks.

All the patients had a computed tomography scan after admission and all had similar findings: anterior haematoma and diastasis with no evidence of sacral fracture, sacroiliac joint disruption, or other destabilising posterior injuries. During follow up, routine regular radiographs of the pelvis were taken at one, two, six, and 12 weeks, to check for satisfactory reduction and healing. The patients were then reviewed clinically and radiographically every three months for one year to check for late instability or degenerative changes in the symphysis. There was no evidence throughout the period of follow up of any previously occult or progressive associated injury, and no patient experienced any significant loss of reduction. At final review one year after injury, none of the patients complained of pain, and all had returned to all activities except horse riding, with only one (patient three) resuming his activity.

DISCUSSION

Diastasis of the symphysis pubis and open book injuries of the pelvis are typically associated with high energy trauma to the pelvis such as a motorcyclist hitting the saddle or tank during sudden deceleration, forcing apart the ischial tuberosities.² These injuries are often associated with other fractures of the pelvic ring, in particular posteriorly, affecting the sacroiliac joints and sacrum.^{3,4} In our series, the history was almost identical in each case, with the mechanism of injury being related to the pommel of the saddle splitting the symphysis, as previously reported.¹ However, we have been able to expand on the previous description of this injury by showing no evidence on plain radiography or computed tomography of any of the typical associated pelvic injury patterns. As these injuries are not therefore associated with posterior instability, they have proved eminently suitable for either external fixation or anterior open reduction and internal fixation allowing early mobilisation and minimising hospital stay.^{2,5,6}

Proper clinical and radiographic assessment of these patients is critical to correct management. A diastasis of less than 2.5 cm can be managed non-operatively.⁶ In all the cases in our series, the diastasis was more than 3 cm, so they required fixation. The advantages of external fixation include ease and speed of application in the acute setting. It is suitable as the definitive management only where there is no posterior instability. Disadvantages include pin tract infections, awkwardness for the patient, and the possible need for later adjustments of the frame.⁷ Internal fixation is the alternative method of fixation for such diastasis injuries, as for patient two here, giving the advantages of accurate open reduction with rigid fixation.⁸ However, it should be avoided in cases where suprapubic cystostomy or catheterisation is required, as for patient one, because of the risk of infection. If it is performed in these situations, it is essential that the urinary drains be placed well away from the incision over the symphysis.⁶ Our third patient was managed definitively with external fixation, as the original reduction achieved was very accurate and required no further adjustments.

The vulnerability of the urethra in these cases, with secondary compression by local haematoma occurring in one case, leads us to recommend routine immediate combined orthopaedic and urological assessment and management of these cases.

The typical occurrence of this injury in the sixth and seventh decades in our patients suggests that there may also be an underlying predisposition to this pattern of injury with age. Physiological changes in the symphysis have been shown

Take home message

Pommel injuries in middle aged horse riders can lead to diastasis of the pubic symphysis with the possibility of secondary urological injury. Definitive treatment is by open reduction and internal fixation or external fixation, either method being reliably associated with good patient outcomes.

with increasing age with associated decreased flexibility, and this may be responsible for the incidence of diastasis in these patients.⁹ In this regard, softening or other modifications of the pommel of the saddle and protective gear for older riders should possibly be considered, and may be an area for further study. The possibility of this injury should be borne in mind by riders in this age group.

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