

Bilateral three level 'mirror-image' femoral fractures

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Citation

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Abstract

Bilateral femoral fractures are almost always associated with high velocity trauma. We report an unusual combination of injuries: bilateral femoral 'mirror-image' intertrochanteric and segmental shaft fractures. We discuss the pre-operative and intra-operative management issues associated with this challenging injury pattern.

A 49 year old male patient was involved in a motor vehicle accident and suffered bilateral closed 'mirror-image' femoral fractures at three levels (figure 1, 2), an open fracture of the right humeral shaft, a closed fracture of the right ulnar shaft, a closed multifragmentary fracture of the right patella, and a diastasis of the pubic symphysis (figure 3).

Figure 1

Figure 1 & 2



Figure 2

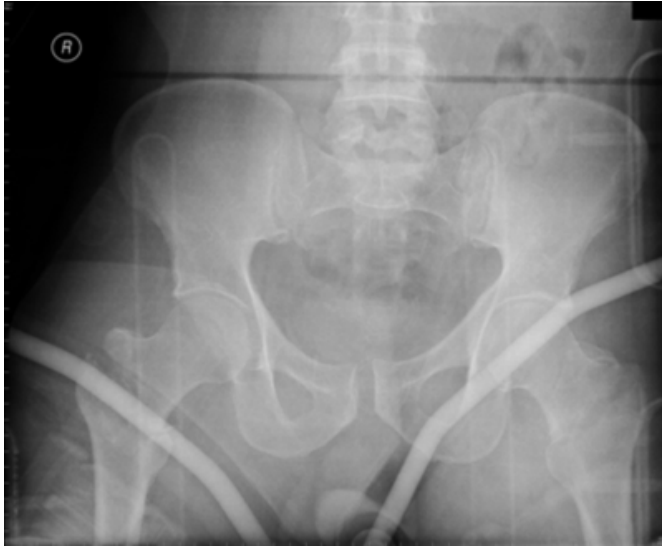
Figure 3



He was initially managed along ATLS guidelines, including a pelvic harness for the pubic symphysis diastasis, and bilateral Donway traction splints for the femoral fractures (figure 4).

Figure 3

Figure 4



Following initial resuscitation and stabilisation, a CT scan of the chest, abdomen and pelvis revealed no disruption of the sacro-iliac joints or any other visceral injury. The bilateral femoral fractures were treated operatively using intramedullary nails (long Gamma).

The positioning of the patient on the traction table for IM nailing of the femurs was a difficult issue because of the bilateral nature of the injuries and the pubic symphysis diastasis.

During long Gamma nailing, we usually flex, abduct and externally rotate the contralateral hip with the knee flexed, to allow room for the image intensifier to obtain an adequate lateral view of the femoral neck. This manoeuvre was not possible in this case as the contralateral femur was unstable. We overcame this potential problem by using in-line traction and abduction of the contralateral leg. The pubic symphysis was screened and found to be stable in this position.

The pubic symphysis diastasis was later managed with symphysis plating as there was no haemodynamic instability. The patient made an uneventful recovery but required interval bone-grafting of both femoral shafts at 3

months.

DISCUSSION

Bilateral femoral fractures are almost always associated with other orthopaedic and visceral damage and have a very high mortality and morbidity^{1,2}. This is the first reported case of bilateral three level 'mirror-image' femoral fractures.

These patients should initially be managed along the ATLS guidelines, and once stable, surgical intervention should be contemplated. Bilateral femoral fractures should be seen more as a circulatory problem rather than as an isolated orthopaedic problem, so emergency stabilisation may be necessary. This particular case has a unique injury pattern, which was adequately managed by careful surgical planning, and adaptation of our usual techniques for intramedullary nailing. We were able to predict the possible difficulties that might be encountered and create contingency plans within our capabilities. These included patient positioning with bilateral unstable femoral fractures and the treatment options in case of worsening pubic symphysis diastasis (eg. the pelvic external fixator kit was available in case of increasing diastasis of pubic symphysis and resulting haemodynamic instability following in line traction of the leg).

This case demonstrates the surgical dilemmas faced with a unique fracture pattern and stresses the importance of surgical planning, a major factor in managing a poly trauma patient.

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