Contiguous Lower Lumbar Fracture-dislocation plus Morel-Lavallee Lesion.

N.S. Motsitsi
University of Pretoria, Department of Orthopaedic Surgery,
Kalafong hospital, Pretoria, Republic of South Africa.
Email:silas.motsitsi@up.ac.za

Background: ***Burst fractures constitutes up to one-fifth of spinal fractures. The mechanism of injury is axial compressive force. Additional forces may be involved, like flexion, extension and rotation. The thoraco-lumbar junction is the area commonly involved. Neurological injury occurs in 8% to 18% of cases. Multiple burst fractures occur in about 10% of cases and about 53% of these are non-contiguous. Contiguous burst fracture-dislocations of the lower lumbar spine are very rare: one case has been reported so far.***
Case Report: ***We report a case of a young female who sustained a contiguous fracture-dislocation in the lumbo-sacral area plus extensive closed degloving injury of the spine. The mechanism of injury was a direct force. A computed tomography scan showed burst fractures of the lower lumbar spine. Magnetic Resonance Imaging demonstrated mechanical compression of the cauda equina. Fracture-dislocations were confirmed intra-operatively. Decompression, posterior fixation and bone-grafting were done. Post-operative recovery was uneventful. She made full neurological recovery within a year.***

Keywords: contiguous, burst, lumbar, dislocation, Morel-Lavallee.

Introduction

Burst fractures that result from axial compression represent about 10% to 20% of all spinal fractures [1]. The area most commonly affected is the transitional thoraco-lumbar region. Burst fractures of the lower lumbar area (L3 to L5) are extremely rare. Fracture-dislocations of the lumbo-sacral area are very rare: only case reports have been reported [2]. Such injuries are caused by high-energy trauma and there is usually extensive soft tissue damage, haemorrhage, shock and injuries to multiple organs[3].

Cases of contiguous fracture-dislocations of the lumbo-sacral area are extremely rare. To the best of this author's knowledge, only one case has been reported in the English orthopaedic literature[4]. We present a case of a young female who sustained a direct trauma to the lumbar spine and presented to us with contiguous fracture-dislocation of the lower lumbar spine. She also had an extensive Morel-Lavallee lesion in the spine. It extended from the level of T8 to S1.

Case Report

A 28 year-old female was hit in the back by a waste-disposal delivery truck while she was foraging at a dumping site. She presented at the emergency department complaining of backache and weakness of the lower limbs. She was referred to Spinal Unit five days after the accident.

On examination, she had extensive abrasions in the thoraco-lumbar area plus Morel-Lavallee lesion covering the mid-thoracic, lumbar and the upper part of the sacral regions. Neurologically, she had sensory deficits involving the lumbo-sacral plexus (L5 to S4). Motor power on the left was L5-^{0}/5 and S1-^{2}/5. The right side had better power, L5-^{3}/5 and S1-^{3}/5. Per rectum examination showed decrease sensation and weak sphincter tone. She was not continent of urine or faeces. There were no any other injuries.

X-rays of the lumbar spine showed a compression fracture of the fifth lumbar spine. The computed tomography scan demonstrated the full extent of the injuries. These were fractures involving the facets, the spinous processes, the laminae, the vertebral bodies plus retropulsion of L4 and L5 (Figure 1). Magnetic resonance imaging confirmed compression of the cauda equina by the fragment from L5 (Figure 2).

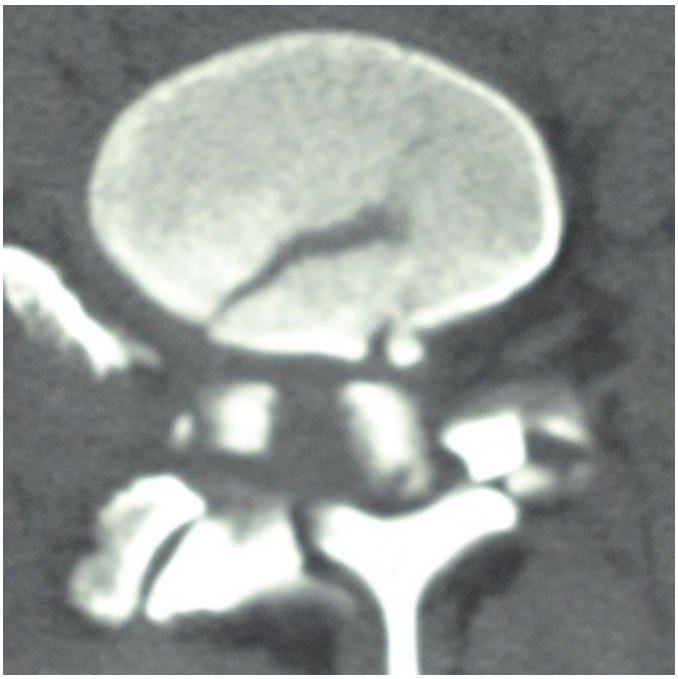

Figure 1. Computed tomography scan of the fifth lumbar spine shows fractures of the vertebral body, the facets, the lamina and comminution.

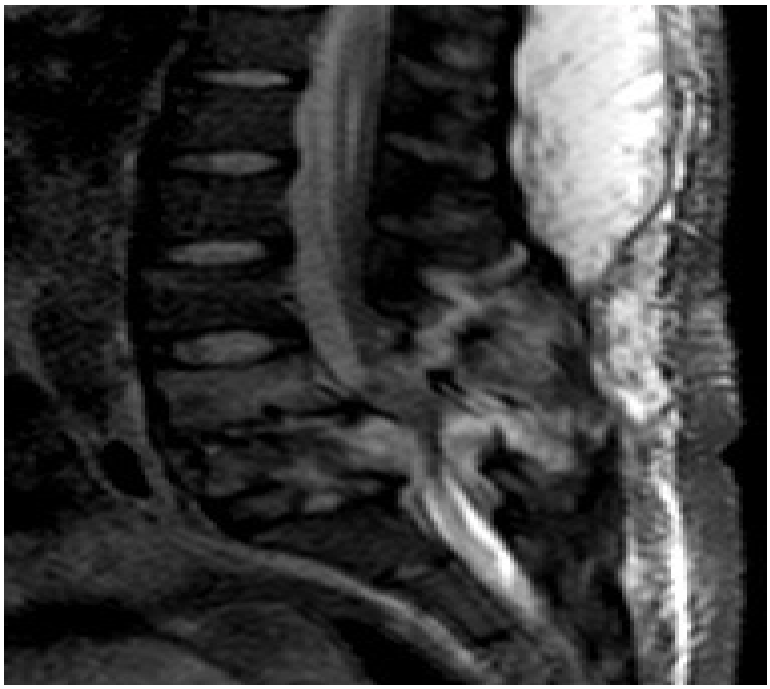

Figure 2. Stir image of the lumbar spine shows severe compression of the cauda equina at the level of the fifth lumbar vertebra.

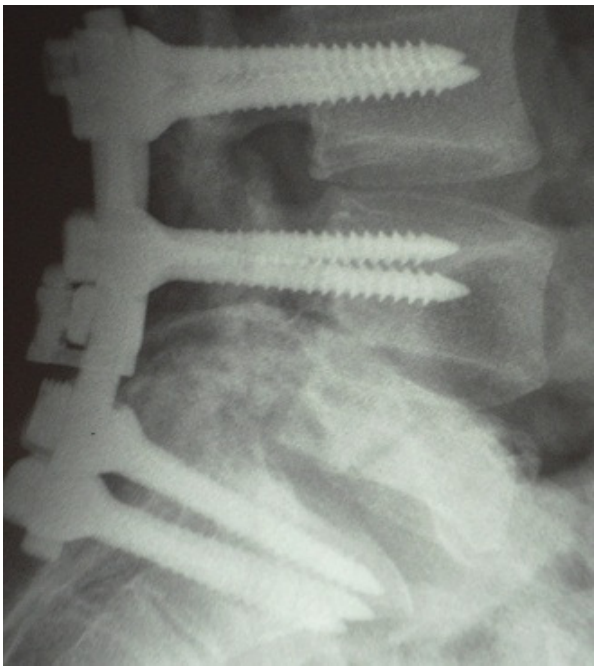

Figure 3. X-rays done a year later show partial collapse of the fifth lumbar vertebra.

Dislocations of L4/L5 and L5/S1 were confirmed intra-operatively. Decompression at L5 was accomplished by impaction of the vertebral fragment into the vertebral body. Posterior fixation was done from L3 to S1. The fifth lumbar vertebra was not incorporated into the fixation. The Morel-Lavallee lesion was drained, washed out and antibiotics continued for a week. The dead space was managed by drainage.

She was rehabilitated and she made good recovery. The degloving injury healed without any complication. At one year follow-up, she had full neurological recovery. The Oswestry Low Back Pain Disability score was 15%. X-rays showed good spinal alignment and partial collapse of the fifth lumbar spine (Figure 3).

Discussion

The mechanism of injury in fracture-dislocation of the lumbo-sacral spine is complex. The forces are multidirectional, there are compression and shear forces in the posterior structures plus tension forces in anterior structures[5]. They are unstable injuries. Associated neurological deficits are variable[5,6,7]. Optimal surgical strategy is unknown. In principle, the options are posterior surgery or a combined anterior and posterior surgery. We did the former and the short-term result in this patients is satisfactory.

Management of Morel-Lavallee lesion is challenging. It is potentially septic, up to 30% of such lesions are. There are many management options available. We managed our case conservatively, we evacuated the haematoma, washed the dead space, drained the area and cover the patient with a seven day course of antibiotics. The lesion did not become septic and there was no skin breakdown. Recently, Dawre et al[9] has suggested an algorithm for the management of this lesion. We are awaiting clinical results of this approach.

References

1. Bhandutia AK, Gruskay JA, Helgeson MD et al. Treatments and outcomes for lower lumbar (L3-L5) burst fractures. Contemporary Spine Surgery. April 2011; 12(4):1 -8.
2. Wangtaphan W, Oo M, Paholpak P, Wang Z, Sakakibara T, Kasai Y. Traumatic lumbosacral Spondyloptosis treated five months after injury occurrence. Spine.2012; 37(22):E1410-E1414.
3. Liu HC, Chen YZ, Sang XG, Qi L. Management of lumbosacropelvic fracture-dislocation using lumbo-iliac internal fixation. Injury, In. J. Care Injured. 2012; 43:452-457.
4. Kaplan SS, Wright NM, Yundt KD, Lauryssen C. Adjacent fracture-dislocation of the lumbosacral spine: case report. Neurosurgery. May199; 44(5):1134-1137.
5. Cho SK, Lenke LG, Hansen D. Traumatic non-contiguous double fracture-dislocation of the lumbosacral spine. The Spine Journal. 2006; 6:534-538.
6. Schmid R, Reinhold M, Blauth M. Lumbosacral dislocation: a review of the literature and current aspects of management. Injury, Int. J. Care Injured. 2010; 41:321-328.
7. Vialle R, Charosky S, Rillardon L, Levassor N, Court C. Traumatic dislocation of the lumbosacral junction diagnosis, anatomical classification and surgical strategy. Injury, Int. J. Care Injured. 2007; 38:169-181.
8. Bomela LN, Basson H, Motsitsi NS. Morel-Lavallee lesion: a review. South African Orthopaedic Journal. 2008; Autumn: 34-37.
9. Dawre S, Lamba S, Sreeka H, Gupta S, Gupta AK. The Morel-Lavallee lesion: a review and proposed algorithmic approach. Eur J Plast Surg. 2012;35:489-494