



## Unilateral facet dislocation : always reduce ?

Richard J. DE JONG, Arnold W. VREELING, Job L.C. VAN SUSANTE

*From the Rijnstate Hospital, Arnhem, The Netherlands*

**A unilateral facet dislocation noted in a 17-year-old boy after an axial cervical trauma proved to be an incidentally encountered preexisting lesion, most likely originating from a forceps delivery at birth. The surgical treatment initially considered was converted to a conservative approach, with full clinical recovery.**

**Keywords :** cervical spine ; facet dislocation ; birth trauma ; treatment options.

### INTRODUCTION

Unilateral facet dislocations of the cervical spine are treated with closed or open reduction, sometimes with subsequent facetectomy and fusion. We report on a patient in which this approach would have resulted in serious over treatment of an aberrant but benign facet joint appearance.

### CASE REPORT

A 17-year-old boy was referred for surgical treatment seventeen days after a 30-kilogram box had fallen on his head. He complained of local tenderness in the cervical spine region. Palpation revealed tenderness over the dorsal cervical spine area ; no torticollis or spinous process step-off was noted. Auscultation revealed no stridor or other abnormalities. There were no accompanying neurological symptoms.

The patient was referred with conventional radiographs and a CT scan of the cervical spine. Standard oblique radiographs, sagittal and three-dimensional CT reconstruction images clearly indicated a unilateral dislocation of the right C5-C6 facet joint (Fig. 1A, B & C). The spinal canal had kept its normal contour and the ipsilateral neuroforamen C5-C6 was relatively wide. On closer examination the dislocated superior facet of C6 appeared to have a rather rounded and sclerotic appearance on CT images, atypical for a recent traumatic dislocation. Suspicion arose that we were dealing with a non-acute lesion. Further questioning revealed that the cervical tenderness had started only two days after the incident, which is more indicative for myogenic pain after distorsion. Subsequently an additional MRI was performed and indeed no ligamentary lesions or haematoma were found, which should have been present in case of an acute facet dislocation. On MRI there was a clear widening of the right neuroforamen C5-C6

- 
- Richard J. De Jong, MD, Resident.
  - Arnold W. Vreeling, MD, Orthopaedic Surgeon.
  - Job L.C. Van Susante, MD, Orthopaedic Surgeon.  
*Orthopaedic Department, Rijnstate Hospital, Arnhem, The Netherlands.*
- Correspondence : Job L.C. van Susante, Orthopaedic Department, Rijnstate Hospital, Wagnerlaan 55, Postbus 9555, 6800 TA, Arnhem, The Netherlands.  
E-mail : JvanSusante@rijnstate.nl  
© 2012, Acta Orthopædica Belgica.



**Fig. 1.** — **A.** Standard oblique radiographs of the cervical spine, which clearly indicate a unilateral dislocation of the right C5-C6 facet joint; **B.** Sagittal view of CT scan shows the unilateral dislocation of the C5-C6 facet joint; **C.** Three-dimensional reconstruction of CT of the cervical spine with unilateral dislocation of the C5-C6 facet joint; **D.** MRI of cervical spine shows widened right neuroforamen of C5-C6.

together with an asymmetric aspect of the lamina (Fig. 1D). Especially the asymmetric aspect of the lamina could not be posttraumatic and could only be the result of gradual growth adaptation on a pre-existing lesion, for example a facet dislocation.

Since we were now convinced that we were dealing with an old lesion we treated the patient conservatively with a soft cervical collar. At 3 weeks follow-up he was completely asymptomatic with unrestricted symmetric rotation and lateroflexion of the cervical spine. There were no signs of torticollis. In depth questioning on possible traumatic incidences in the past revealed a complicated delivery with forced extraction using forceps on the patient's head. According to his mother, the boy had been crying for days during his first days of life especially during diaper exchange. To date no plausible reason was ever found. Although highly speculative, we believe it is likely that this patient sustained a unilateral facet dislocation at birth and that we were now confronted with the late

asymptomatic post-traumatic changes of this event. Closed reduction would never have been possible and a subsequent posterior facetectomy with single level fusion would have been over treatment.

## DISCUSSION

Unilateral facet injuries, commonly caused by motor vehicle accidents (49%) and sports injuries (31%), represent around 6 percent of all cervical spine injuries; the C6-C7 level is involved in 60 percent of cases (2). In the young paediatric population facet subluxation or dislocation in the absence of significant spinal fracture is an unusual finding (6). Unilateral facet injuries lead to pain and disability and, if combined with fractures, have a worse outcome if treated conservatively rather than operatively (2).

These unilateral cervical facet dislocations and subluxations are the result of a distraction-flexion force applied to the spine along with a rotational component (6). An axial trauma, for example the fall of a box on the head as was seen in the case presented, does not commonly cause a facet dislocation. The forced extraction delivery on the other hand clearly mimics the described trauma mechanism for unilateral facet dislocation. Accompanying fractures of the ipsilateral pedicle or lamina do occur after facet dislocations (1,2) and, when present simultaneously, lead to a "floating lateral mass" (2), which has a worse prognosis. When there is a bony injury of the contralateral facet, or when the vertebral subluxation nears or exceeds 50% of the subjacent vertebral body, the injury is more accurately termed a bilateral facet injury. This distinction is often a fine line (2). Despite the dislocation, cervical alignment is generally maintained (4). Some degree of rotational instability is thought to be involved as the injured facet and lateral mass complex rotates around the intact contralateral facet. This leads to a widened neuroforamen. Associated nerve root symptoms after a facet dislocation, when present, are more likely caused by nerve root distraction rather than compression (3). Such a typically widened neuroforamen with unilateral dislocation was also clearly visible on MRI in our patient (Fig. 1D).

There is poor agreement on the treatment of facet dislocations (bi- and unilaterally) (5); diagnostic workup, timing and technique of open or closed reduction and the multitude of available treatment options all lack consensus (2). When surgery is indicated there is no consensus on the best surgical approach and optimal technique of stabilization (2). There is consensus on the fact that a facet dislocation should be reduced at all times.

In contradiction to this consensus we believe we have shown with this case report that a unilateral facet dislocation does not have to be reduced in all cases. The unilateral facet dislocation described in this 17-year old probably originated at birth. Adaptive remodeling of the pars interarticularis and the lamina was clearly visible both on CT and MRI, indicative for a prolonged presence of this lesion. Closed reduction of the dislocation would never have been possible and open reduction would have been over treatment. The spontaneous recovery proves our case. We also suggest that, in light of the described case, when confronted with a profound unease and crying of a baby after a forced extrac-

tion delivery, a facet dislocation be remembered as a possible cause.

## REFERENCES

1. **Andreshak JL, Dekutoski MB.** Management of unilateral facet dislocations : a review of the literature. *Orthopedics* 1997 ; 20 : 917-926.
2. **Dvorak MF, Fisher CG, Aarabi B et al.** Clinical outcomes of 90 isolated unilateral facet fractures, subluxations, and dislocations treated surgically and nonoperatively. *Spine* 2007 ; 32 : 3007-3013.
3. **Ebraheim NA, Liu J, Ramineni SK et al.** Morphological changes in the cervical intervertebral foramen dimensions with unilateral facet joint dislocation. *Injury* 2009 ; 40 : 1157-1160.
4. **Hott JS, Feiz-Erfan I, Kim LJ, Rekate HL, Sonntag VK.** Nonsurgical treatment of a C6-7 unilateral locked facet joint in an infant. Case report. *J Neurosurg* 2004 ; 100 (2 Suppl Pediatrics) : 220-222.
5. **Nassr A, Lee JY, Dvorak MF et al.** Variations in surgical treatment of cervical facet dislocations. *Spine* 2008 ; 33 : 188-193.
6. **Parada SA, Arrington ED, Kowalski KL, Molinari RW.** Unilateral cervical facet dislocation in a 9-year-old boy. *Orthopedics* 2010 ; 33 : 929.