



Neglected Cervical Facet Dislocation without Neurological Deficit: A Simple Solution to a Complex Problem—A Case Series and Review

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Abstract

Cervical facet dislocation is a disastrous injury. Delayed presentation is not uncommon owing to various reasons in developing countries. Autofusion and a halt in progression are seen in spondylolysis and spondylolisthesis. Conservative treatment with close observation can be offered to the carefully selected patients with neglected cervical facet dislocations with intact neurology, as the injury is stable after autofusion. We registered eight male patients with cervical facet dislocation with delayed presentation for various reasons. Dynamic radiographs, computed tomography (CT) scan, and magnetic resonance imaging (MRI) were done to rule out any instability, cord compression, or bony fusion. Patients were followed up for 6 months clinically and radiologically. A total of eight patients presented with cervical facet dislocation, with a mean delay in presentation of 33 weeks (range: 14–54 weeks). Postinjury, all the patients were neurologically intact, with the only complaint of cervical pain at presentation. Dynamic radiographs did not show any instability. No cord compression or changes were noted on the MRI. Conservative management was advised for all eight patients. A subsequent follow-up CT scan demonstrated bony fusion at the dislocated facets in three of these patients. All the patients remained neurologically intact, with no further progression of the deformity. Surgical management is the mainstay of treatment for neglected facet dislocations. A combined approach has been advocated in most of the studies for proper reduction and alignment in these cases, which is quite extensive and has its own morbidity. A trial of conservative treatment can be offered to selected patients with intact neurology.

Keywords

- ▶ cervical facet dislocation
- ▶ neglected cervical injury
- ▶ autofusion
- ▶ nonsurgical management
- ▶ delayed presentation

Introduction

Bilateral facet dislocation in the subaxial spine is a flexion distraction injury that usually culminates in weakness of the limbs and respiratory distress.¹ In acute injuries, closed or open reduction and spinal fixation are routinely advocated treatments.² But in third-world countries, neglected spinal injuries are not uncommon owing to the lack of facilities, delayed diagnosis, and poor socioeconomic status.³ Patients

presenting after 3 to 8 weeks of injury are considered delayed or neglected facet dislocation.⁴ Previous studies have advocated surgical management in view of developing neurological deficits and progressive deformity over time.^{5–7} Although spontaneous fusion is documented in spondylolisthesis in the lumbar spine, there are not many studies suggesting the same in the cervical spine. We present our experience of eight cases of neglected cervical facet dislocation with no neurological deficit and managed conservatively with careful observation.

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Material and Method

We registered patients with cervical facet dislocation from June 2021 to May 2022 who presented to us after more than 3 weeks of initial trauma. Informed consent was obtained from all the participants. All radiological investigations done and treatments received were reviewed. A thorough clinical examination was carried out on all patients.

On presentation, all patients had dynamic cervical radiographs, computed tomography (CT) scans, and magnetic resonance imaging (MRI) to rule out cervical instability and cord compression. CT scan was assessed for cervical fusion. All the patients had residual axial cervical pain at presentation. After a thorough clinical and radiological assessment, all the patients were put on anti-inflammatory medications and physiotherapy. Patients were counseled regarding the need for surgical management based on their worsening deformity or neurology. All the patients were followed up for 6 months after their initial presentation to us for worsening symptoms or progression of deformity.

Results

We registered in total eight male patients with neglected cervical facet dislocation in this study. The mode of injury was a fall from height in six cases and a road traffic accident in two cases. All the patients had intact neurology at the time of injury and had only cervical pain. Low suspicion of injury and delayed presentation to the health care facility were the main factors of the missed injury. The mean delay in



Fig. 2 Magnetic resonance imaging (MRI) of the same patient depicting no significant cervical cord compression at C4–C5.

presentation was 33 weeks (range: 14–54 weeks). All the patients presented with cervical pain. The neurological examination was unremarkable. The cervical spine range of motion was within normal limits in all patients (► **Fig. 1**). Dynamic X-rays, a CT scan, and an MRI were done to detect any instability, bony fusion, or cord compression. No



Fig. 1 A 40-year-old man with C4–C5 facet dislocation after 3 months of injury with normal cervical range of motion.



Fig. 3 Computed tomography (CT) scan imaging at final follow-up with no instability and bony fusion at C4–C5.

instability or cord compression was noticed in any patient on dynamic radiographs and MRI (►Fig. 2). Bony fusion was evident in three patients on CT scan (►Fig. 3). Patients were managed conservatively and explained the need for surgical intervention if deformity increased or any neurological compromise developed. Patients were followed for

6 months. At the final follow-up, all the patients had decreased cervical pain. We did not notice any significant increase in the kyphotic deformity or the development of any neurological deficit on follow-up.

Discussion

Cervical facet dislocation is a very disastrous injury, often resulting in quadriplegia. A delayed presentation of cervical facet dislocation is not uncommon, especially if it is not associated with a neurological deficit. Bohlman noted that one-third of cervical spine injuries are not recognized initially. Lack of infrastructure and skilled spine surgeons contributes to this burden further.⁸ Poor health infrastructure, lack of proper radiology, and low suspicion are the most important factors for the missed cervical facet dislocation injuries.^{9,10} Closed reduction with surgical stabilization is the established treatment protocol for acute injuries. Early decompression and fixation offer the best chance of neurological recovery and rehabilitation.^{11,12} The management of cervical facet dislocations presenting more than 3 weeks after the initial trauma is uncertain and complicated. Surgical management is further complicated by the choice and sequence of approaches.^{13–17} Here we have reviewed published literature on both surgical (►Table 1) and nonsurgical (►Table 2) management of neglected cervical facet dislocations.

Many published studies emphasized surgical intervention in neglected facet dislocations due to the imminent risk of deformity progression and development of neurological deficit. Although the choice of approach and use of initial closed reduction are debatable, most of the authors have stressed the need for both anterior and posterior approaches

Table 1 Published studies on surgical management of neglected cervical facet dislocation

| Study | N | Delay in diagnosis | Preoperative neurological deficit | Approach | Outcome |
|-----------------------------------|----|--------------------|-----------------------------------|---|---|
| Bartels and Donk ¹⁴ | 3 | 3 mo | Present | Posterior-anterior-posterior release and fusion Anterior-posterior-anterior release and fusion | Neurological improvement |
| Hassan ¹⁶ | | 3.5 mo | Absent | Posterior + anterior release and fusion | Neurological improvement + bony fusion |
| Payer and Tessitore ¹⁰ | 1 | 2.5 mo | Absent | Anterior-posterior-anterior | Bony fusion |
| Rajasekaran et al ⁶ | 1 | 2 mo | Present | Closed traction + posterior fixation | Neurological improvement + bony fusion |
| Goni et al ⁷ | 6 | 8.5 wk | Absent | Closed traction + posterior + anterior fixation | Neurological deterioration in one patient |
| Basu et al ⁵ | 19 | 21 d | Present | Preoperative traction + anterior/posterior fusion | Neurological recovery |
| Srivastava et al ²⁴ | 1 | 14 mo | Absent | Posterior-anterior-posterior release and fusion | Bony fusion |
| Farooque et al ¹⁵ | 2 | 4 mo | Absent | Anterior-posterior-anterior | – |
| Prabhat et al ¹² | 15 | 63 d | Present | Closed reduction + ACDF/posterior anterior | Neurological recovery |

Table 2 Studies with nonoperative management and their outcome in neglected cervical facet dislocation

| Study | N | Delay in diagnosis | Management | Outcome |
|-------------------------------|---|--------------------|------------------|--|
| Shah et al ²¹ | 2 | > 2 y | Physiotherapy | Bony fusion; no neurological worsening |
| Bodman and Chin ²² | 1 | 1 y | Oral medications | Bony fusion; no neurological worsening |
| Sulla and Mach ²³ | 1 | 4 wk | Oral medications | Bony fusion; no neurological worsening |

for alignment and stabilization.¹⁸ The extensive combined approach increases the duration of the surgery, blood loss, length of hospital stay, and risk of neurological injury. A high rate of dysphagia has been seen in the combined anterior and posterior approaches.¹⁹

A halt in progression is seen in the natural history of lumbar spondylolysis and spondylolisthesis, thus ruling out the need for surgery in many cases.²⁰ Fibrosis and bony fusion around facet joints, vertebral bodies, and uncovertebral joints have also been found in neglected cervical facet dislocations.¹⁷ Shah et al reported two cases with delayed presentation of cervical facet dislocation and observed autostabilization without any progression of deformity.²¹ Bodman and Chin and Sulla and Mach made similar observations.^{22,23} They concluded that once healed, these injuries are stable without surgical intervention. In this study, we managed eight patients who presented late after cervical facet dislocation with careful observation, anti-inflammatory medication, and physiotherapy. Although we informed the patient that surgery would be necessary if their neurology got worse or the deformity progressed, we never saw any of these in any of our patients. At the last follow-up, bony fusion was visible in three patients.

Conclusion

Although surgical intervention is strongly indicated in delayed cervical facet dislocations, keeping in view the risks of instability and late progression of the deformity, a trial of conservative management with closed observation can be given in carefully selected patients with intact neurology. Many of these patients develop autofusion and stabilization over the course of time, with no further increase in kyphosis.

Informed Consent

Informed consent was obtained from all the participants and attached to their case file. Patients who did not wish to give informed consent were not included in this study.

Authors' Contributions

VK and SD analyzed and interpreted the patient data. AR and VK drafted the manuscript. All authors read and approved the final manuscript.

Conflict of Interest

None declared.

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