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Bony Fusion in a Chronic Cervical Bilateral Facet Dislocation

Authors' Contribution:
Study Design A
Data Collection B
Statistical Analysis C
Data Interpretation D
Manuscript Preparation E
Literature Search F
Funds Collection G

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Conflict of interest: None declared

Patient: **Male, 60**
Final Diagnosis: **Bilateral cervical facet dislocation**
Symptoms: **Neck pain**
Medication: —
Clinical Procedure: —
Specialty: **Neurosurgery**

Objective: **Unusual clinical course**





Background: Cervical facet dislocation injuries typically present shortly after occurrence due to the pain and neurologic deficit that can be associated with this injury. Bilateral dislocations of the facet joint require prompt evaluation, reduction, and surgical intervention. Rare case reports present bilateral dislocations presenting in a delayed fashion.

Case Report: We report the case of a 60-year-old male who presented with mild neck pain 1 year after initial injury. Computed topography of the cervical spine showed healing with bony fusion of a bilateral C6-7 facet dislocation. Given the chronic healed nature of the injury and minimal symptoms, the patient is being followed without intervention.

Conclusions: Although most bilateral facet dislocations present and are treated immediately after injury; this case illustrates that some may be missed during initial evaluation. Once healed, these injuries may be stable without surgical intervention.

MeSH Keywords: **Fracture Healing • Neck Injuries • Spinal Fractures**

Full-text PDF: <http://www.amjcaserep.com/abstract/index/idArt/892173>

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Background

Bilateral facet dislocations of the cervical spine can be devastating cervical injuries that typically present at time of injury [1]. This dislocation is an unstable injury and patients can present with severe neurologic deficits [2,3]. Without prompt treatment, neurologic deterioration is a major risk [3]. The majority of patients undergo closed reduction with traction [3,4]. After reduction patients often require surgical stabilization [5]. When surgical intervention is not an option, conservative measures often include prolonged traction or halo vest placement. Conservative interventions may have satisfactory results, but delayed surgery may be required if conservative therapies fail [1]. As this injury often causes severe neck pain along with neurologic deficits, late presentations are uncommon. Missed

diagnosis occurs in patients with multiple traumatic injuries, those with incomplete adequate radiographic studies, or, least commonly, patients who are asymptomatic at time of injury [6]. Rare reports present patients with bilateral facet dislocation without neurologic deficit weeks to months after initial injury [7–11]. Typically, these late presenting patients are discovered due to severe neck pain with radicular symptoms after an injury. Surgical intervention is indicated in these patients due to the severity of symptoms and lack of fusion [8,9,11]. Even with spontaneous fusion, patients may be symptomatic from deformity or stenosis of the neuroforamina, requiring surgery [10]. Our case illustrates that not providing treatment may be an option for very late-presenting patients with minimal symptoms and radiographic evidence of fusion.

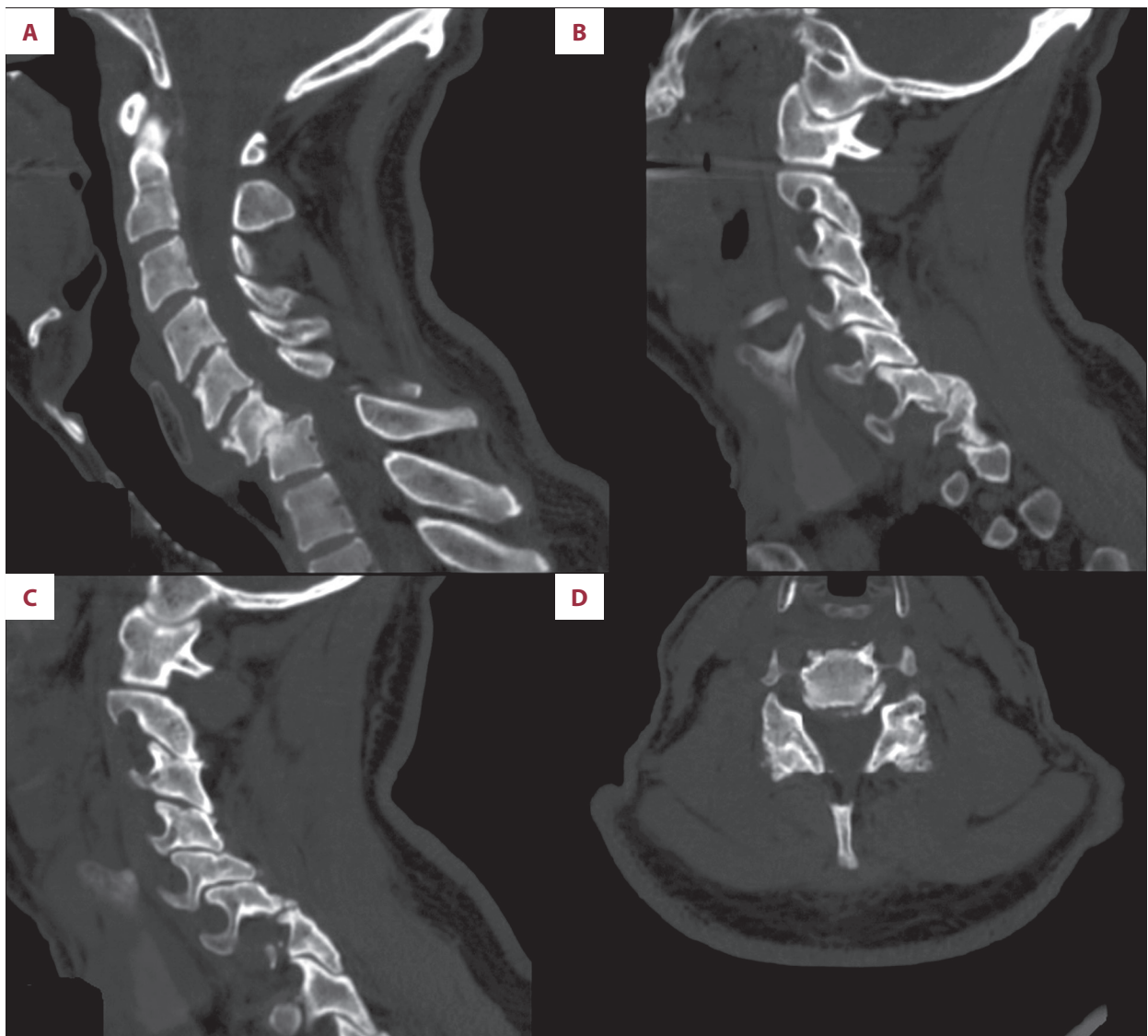


Figure 1. CT imaging (A) sagittal view of bilateral facet dislocation with bony fusion of C6 on C7, (B) sagittal view of right jumped facet with fusion, (C) sagittal view of left facet with bony growth, (D) axial view of fused dislocated facets.



Figure 2. T2 sagittal MRI showing chronic dislocation of C6-7 without signal changes within the spinal cord.

Case Report

A 60-year-old male with neck pain and no significant past medical history was admitted to the hospital for treatment of depression. He had a significant bicycle accident 1 year prior in

which he developed sudden-onset severe neck pain. At that time, he was evaluated at a community emergency department, where cervical x-rays were performed and reported as normal. He was released with pain medications and no cervical collar. The patient described his neck pain then as severe and constant, requiring him to be on bed rest at home. The pain gradually diminished over time to a dull ache. He also noted intermittent numbness in his right first and second digit over the last year. He felt less coordinated than usual but still able to walk normally, ride his bicycle, and continue his active lifestyle. Two weeks prior to his admission, he had a minor bicycle accident that worsened his chronic neck pain. He did not notice any new neurologic symptoms. He described the pain as a stiffness that improved with oral pain medications.

His primary service ordered a computed topography (CT) scan of his neck to further evaluate his pain given his history of a bicycle accident. Physical exam showed no deficits. The CT revealed a bilateral facet dislocation of C6 on C7 with evidence of bony fusion suggesting a chronic nature (Figure 1). MRI was performed, which showed no spinal cord injury (Figure 2). Flexion and extension x-rays of the cervical spine were stable (Figure 3). Surgical intervention was discussed, including a 3-stage posterior-anterior-posterior surgical approach. In the first stage, we would release the posterior healed facet joints and fusion mass and perform a laminectomy for decompression and then we would proceed to the second stage to release the anterior fusion mass, reduce the dislocation, and

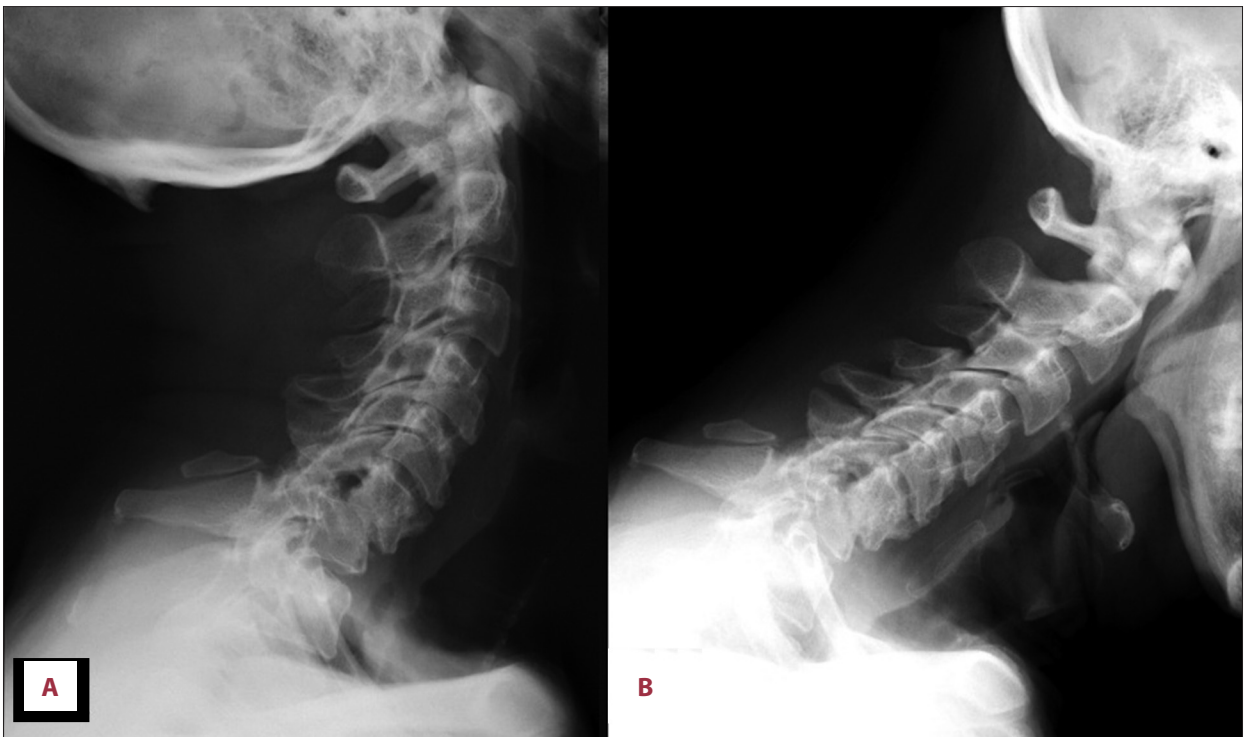


Figure 3. Lateral cervical spine x-rays with (A) extension view, (B) flexion view was obtained and showed stability of the dislocation.

Table 1. Previous reports of untreated bilateral cervical facet dislocations that presented in a delayed fashion.

First author, year of publication	Number of patients	Time from injury to presentation	Symptoms	Treatment
Thompson, 1978*	1	10 days	Mild neck pain	None, healed spontaneously
Bartels, 2002	3	10 weeks to 8 months	Pain, hyperreflexia, weakness, loss of sensation, deformity, 1 patient had been previously treated with rigid cervical collar	Surgical fixation in all patients. Anterior-posterior-anterior approach in 2 patients, posterior-anterior-posterior approach in 1 patient
Payer, 2007	1	10 weeks	Progressive neck pain	Surgical fixation with anterior-posterior-anterior approach
Jain, 2010	4	4 to 24 weeks	Neck pain, limited range of motion, 3 patients had myelopathy and decreased grip bilaterally	Surgical fixation, posterior-anterior approach
Shimada, 2013	1	8 weeks	Neck pain, right arm radiculopathy	Surgical fixation, posterior-anterior approach
Srivastava, 2014*	1	14 months	Deformity, Pain, and impaired horizontal gaze	Surgical correction, posterior-anterior-posterior approach

* Only 2 cases reported healed fusion of the dislocation. Case series that included unilateral injuries or previous attempts at conservative treatment are excluded.

perform an anterior fusion. The final stage would be fusion of the posterior elements. After discussing risks and benefits of surgery with the patient, he elected to continue with conservative management of his neck pain because he felt that with minimal symptoms the risks of surgery outweighed the benefits. At 9-month follow-up he continued to do well without intervention.

Discussion

Patients with bilateral facet dislocations that remain without diagnosis and treatment are rare in the literature. We present here a patient with spontaneous fusion after bilateral cervical facet dislocation 1 year prior, having his diagnosis missed and receiving no treatment for his injury. In 1978, Thompson and Hohl presented a case of a 72-year-old male with alcoholism who had a healed bilateral C5/6 dislocation that presented 10 days after injury [7]. Since then, scattered case reports of undiagnosed bilateral facet dislocations that present several weeks or more after initial injury have been published (Table 1). Surgical intervention was indicated in these cases due to symptoms related to the injury [8–10]. Hassan et al. reported patients whose surgery was delayed up to a year, but the injury had been previously recognized and attempts at conservative therapies had failed [12].

Late presentations of bilateral cervical facet dislocations are challenging to treat. One of the difficulties in treating this entity is the inability to reduce the dislocation at more than 72 hours

after the injury [4]. One case series reviewed 19 patients with cervical facet dislocation whose presentation was delayed from 7 to 21 days after injury; 5 of these patients had bilateral dislocations. Closed reduction was attempted first on all patients, followed by surgical intervention. Of the 5 patients with bilateral dislocations, 4 required anterior-posterior repair after closed reduction failed [14]. One author suggests a posterior-anterior-posterior approach based on their institution's experience. In their series of 3 patients, no attempt at closed reduction was made because the patients presented at several days, 10 weeks, and 8 months after injury. In 2 of the 3 patients, the anterior-posterior-anterior approach failed to achieve adequate reduction, requiring the patients to have a fourth procedure from a posterior approach. With the third patient, the posterior-anterior-posterior approach was used with success [15]. In the case reports and series that included chronic bilateral facet dislocation, surgery was necessary because the patients continued to have severe symptoms from the injury. Unlike chronic bilateral facet dislocations, chronic unilateral facet dislocations have been followed with no intervention and without neurologic deficits on follow-up [16]. A study of long-term outcomes comparing patients treated conservatively with those treated surgically would aid in managing this complex situation, but would be difficult given the rarity of this presentation.

Conclusions

The case presented indicates that the diagnosis of bilateral facet dislocations may be missed initially, then remain untreated

in patients who have no or minimal symptoms. In certain patients, spontaneous fusion can occur. In patients presenting with chronic healed dislocations and who are neurologically intact with minimal or no symptoms, surgical intervention may not be necessary.

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Conflicts of interest

The authors report no conflicts of interest.