

Case Report:**Pseudoarthrosis following fracture of left lamina of C2 vertebra causing compressive myelopathy****B.C.M. Prasad,¹ V.V. Ramesh Chandra,¹ G. Varaprasad,¹ A. Krishna Reddy²***Departments of ¹Neurosurgery and ²Anaesthesiology and Critical Care Medicine, Sri Venkateswara Institute of Medical Sciences, Tirupati***ABSTRACT**

Pseudoarthrosis involving lamina of C2 vertebra requiring intervention is very rare. We report the unusual case of a 38-year-old man presenting with pseudoarthrosis of an old fracture involving left lamina of C2 vertebra. The patient presented with progressive spastic quadriparesis and history of sustaining injury to his neck 15 years ago. Imaging showed pseudoarthrosis involving the left lamina of C2 vertebra with significant cord compression. Posterior approach was used and decompressive laminectomy was done at C2 and C3 levels with removal of the affected segment with pseudoarthrosis. The postoperative period was uneventful and the neurological recovery was good.

Key words: *Pseudoarthrosis, Axis fracture, Myelopathy*

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INTRODUCTION

Laminar fractures along with other non-classifiable C2 fractures are grouped as “miscellaneous fractures”.¹⁻⁴ Miscellaneous fractures represent about 20 % of all C2 fractures and most of them are managed conservatively.^{1,2,4} A large published series on miscellaneous fractures of C2 (n=67) reported only one such case requiring surgical intervention.¹ This case report describes pseudoarthrosis involving lamina of C2 vertebra presenting as delayed onset myelopathy requiring surgical intervention.

CASE REPORT

A 38-year-old man was admitted to the hospital with a four month history of neck pain, paraesthesias and progressive weakness involving all four limbs. There was history of sustaining trauma to his neck 15 years ago which was managed conservatively and he was asymptomatic during the intervening period. Neurological examination revealed spastic quadriparesis (grade 4/5) with exaggerated deep tendon reflexes and bilateral extensor plantar response. Computed tomography (CT) revealed fracture involving left lamina of C2 vertebra with non-union forming pseudoarthrosis and segmental canal stenosis (Figure 1). Magnetic resonance imaging (MRI) of the cervical spine showed pseudoarthrosis involving the left lamina

of C2 vertebra. There was evidence of significant cord compression with myelomalacia of the cord at C2/C3 region (Figures 2 and 3). With a diagnosis of delayed onset compressive myelopathy secondary to pseudoarthrosis of C2 lamina, the patient was taken up for surgery. Posterior midline approach was used; laminae of C2 and C3 vertebrae were exposed. Pseudoarthrosis of C2 lamina was identified. Laminae of C2 and C3 were removed along with the segment of pseudoarthrosis using power drill. Normal cord pulsations were noted after the procedure. Postoperatively the patient made uneventful, good neurological recovery.

DISCUSSION

Fractures involving C2 vertebra account for 20% of acute cervical spine fractures.² Most of the C2 fractures come under two major subgroups: odontoid fractures and Hangman’s fracture.^{1,2,4} Hadley³ introduced the term “miscellaneous fractures” to cover the non odontoid and non-Hangman’s fractures.³ These unclassifiable fractures represent about 20 % of all C2 fractures.¹ Miscellaneous fractures of C2 are further classified depending on the part of the vertebra involved. These include (i) fractures involving body of C2 (sagittal/coronal/transverse/burst); (ii) tear-drop and fractures; (iii) non-Hangman’s fracture of

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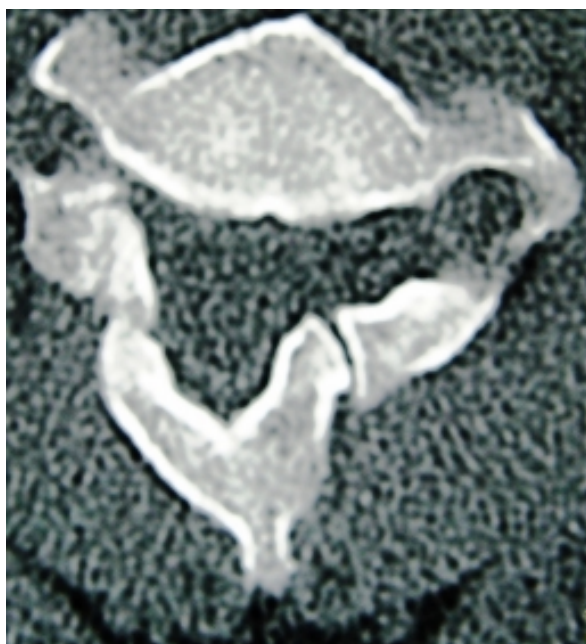


Figure 1: CT axial section showing fracture involving left lamina of C2 Vertebra with pseudoarthrosis and causing segmental canal stenosis



Figure 3: T2-weighted MRI (sagittal section) showing pseudoarthrosis causing cord compression

lamina spinous process; and (iv) fracture through transverse foramen. The incidence of miscellaneous fractures of C2 in literature is variable and depends on the definition of “miscellaneous fractures of C2” adopted by the studies.^{1,2,4} Though these fractures account for twenty percent



Figure 2: T2-weighted MRI (axial section) showing pseudoarthrosis causing cord compression

of C2 fractures they are underreported.² This may be due to the fact that these fractures are mostly managed conservatively and are rarely referred for surgical intervention. Studies solely dealing with miscellaneous fractures of C2 are lacking in literature. Among the miscellaneous fractures of C2, fractures of body are more common.^{1,4} The case reported here is a type of non-Hangman’s fracture involving the lamina of C2. Non-hangman’s fracture involving the lamina of C2 is considered trivial and is usually treated with a hard collar. These fractures are highly underreported as they rarely require referral to tertiary centres.⁴ This case reports a rare type of miscellaneous fracture of C2 requiring surgical intervention for late onset myelopathy.

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