



## CASE REPORT

### EMERGING CERVICAL SPINE SURGERY IN CHITWAN MEDICAL COLLEGE: A CASE SERIES

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#### ABSTRACT

We report 10 consecutive patients who underwent anterior cervical disectomy and fusion (ACDF) or anterior cervical corpectomy and fusion (ACCF) from Nov 2015. Nine of these patients sustained fracture or dislocation of cervical spine and one patient had tuberculous spondylitis. Eight patients improved by at least one grade (Frankel spinal scoring system) post operatively while 2 patients who had respiratory distress pre-operatively expired on 3rd and 21st post operative day.

**Key words:** ACDF, ACCF, Cervical fracture and dislocation, Tubercular spondylitis.

#### INTRODUCTION

Most of the Nepalese population are dependent on agriculture for their livelihood. Thus farm accidents such as, fall from tree or hills trying to harvest leaves for livestock are common occurrence. Consequently cervical trauma due to fall from height is a familiar scenario to most orthopedic surgeons.

Though orthopedic surgery has improved leaps and bounds all over the country, cervical spine surgery is still in its introductory stage. This could be due to lack of technical expertise, overlooked diagnoses, poor accessibility to healthcare and socioeconomic factors.<sup>1</sup>

#### MATERIAL AND METHODS

From November 2015, ten patients were operated for cervical spine, out of which nine patients were of traumatic cervical fracture dislocation and one of cervical tubercular spondylitis. On arrival, patients were accessed and scored according to Frankel spinal scoring system. Among traumatic patients, two patients were with Grade A, three with Grade B, two with Grade C and three with Grade D injury. Patient with TB spondylitis had Grade C score.

All Patients underwent plain X-ray, CT scan and MRI

of cervical spine.

Acute closed reduction was done with increasing weight suspended in crutch field traction for patients with dislocation.<sup>2</sup>

All patients were operated from anterior approach. Patient with dislocation underwent anterior cervical disectomy and fusion (ACDF) and patient with fractures underwent anterior cervical corpectomy and fusion (ACCF). Bone graft was harvested from iliac crest and cervical plate was used to further stabilization.<sup>3</sup>

Patient with TB spondylitis under went through debridement bone grafting from iliac crest and cervical plating (Hong Kong Operation).<sup>4</sup>

#### RESULTS

Among traumatic patients, eight patients had fracture or dislocation due to fall from height while one due to road traffic accident. There were eight male and one female patient aged between 24 to 70 years. Five patients had dislocations and four patients had fractures of cervical spine. Patient with TB spine was a female aged 50 years.

Two patient one with dislocation and one with fracture (Grade A score on arrival) expired post operatively on 3<sup>rd</sup> and 21<sup>st</sup> day. Both of these patients had respiratory distress prior to surgery.



**Figure 1**

Remaining nine patients, eight with trauma and one with TB spondylitis improved at least by one grade (Table 1 and 2). Fusion was achieved in all patients between 14 to 18 weeks.

**Table 1**

Patient number (in fractures)	Initial Frankel grade	Final Frankel grade
1	Grade B	Grade E
1	Grade C	Grade D
1	Grade D	Grade E

**Table 2**

Patient number (in dislocations)	Initial Frankel grade	Final Frankel grade
2	Grade D	Grade E
1	Grade B	Grade C
1	Grade C	Grade D

**DISCUSSION**

Anterior approach to cervical spine fracture and dislocation has gained popularity among spine surgeons throughout the world.<sup>3</sup> Most authors recommend anterior approach to remove the fractured vertebra (corpectomy) and remove the

disc, which is seen compressing the spinal cord. The results reported have been satisfactory in most literatures.

In our series, 7 out of 9 trauma patients improved by at least one Frenkle grade. This amounts to vast change in patients daily activities. It could mean out of bed and mobilization in wheel chair, from wheel chair to walking with aid and the ultimately, walking with a normal gait.

Various methods of reduction of cervical spine dislocation have been reported, such as closed manipulation under anesthesia.<sup>2,5,6</sup> However, the neurological deterioration after closed manipulation is very high. Acute closed reduction with gradual increment of weight in awake patient yielded good result.<sup>2</sup> In our series we achieved acute closed reduction with gradual increase of weight under general anesthesia for all the five patients. No deterioration of neurological symptoms were noted.

High mortality and morbidity rate has been reported for cervical spine injuries involving level C4 and above.<sup>7</sup> Both the patient in this series, who expired had cervical level involvement (C4 burst fracture and C4-5 dislocation).

Early surgical intervention, high tidal volume ventilation and tracheotomy are reported to yield satisfactory outcome.<sup>8</sup> In our series, tracheotomy was done only after 5 days for one patient.

Hong Kong operation (radical debridement and fusion) has been reported to yield very good results et al.<sup>4,9</sup> We also followed the same protocol in our patient and result has been more than satisfactory.

**CONCLUSION**

Anterior cervical dissectomy/fusion yields a satisfactory result in cervical spine injury. Acute closed reduction under anesthesia with gradual increment of weight is safe. Radical debridement and fusion for TB spondylitis should be done with patient with failed non operative or worsening neurological symptoms.

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