

## Original Article

# Corpectomy A New Indication in the Management of Multilevel Cervical Disc Prolapse

Samina Khaleeq\*  
Khaleeq-uz-Zaman\*\*  
Wasim A. Mir\*\*\*

\*Associate Professor  
\*\*Professor  
\*\*\*Postgraduate Trainee  
Dept. of Neurosurgery  
Pakistan Institute of Medical Sciences,  
(PIMS), Islamabad

**Objective:** To assess the role of corpectomy along with excision of disc in multiple cervical discs prolapse.

**Study Design:** Descriptive Case Series

**Place and Duration:** Department of Neurosurgery, PIMS, Islamabad from 1996 - 2009.

**Materials and Methods:** 48 patients, 46 male & 2 female between age group of 30-65 years under went anterior approach for multiple cervical disc prolapse during 1996-2009. 35 patients had two level disc prolapse while 13 presented with 3 level disc prolapse. 38 patients presented with myelopathy while 10 patients had combined symptoms of myelopathy and brachalgia. Single or two level corpectomy with excision of disc was done in all the cases followed by single graft placement and casper plating.

**Results:** Relief in symptoms of myelopathy & brachalgia were observed in immediate post operative period. Recovery on follow up was remarkable in myelopathy which reached its maximum level of 96% in one year.

**Conclusion:** Corpectomy in multiple cervical disc prolapse provides us with double advantage of adequate decompression, saves hazard of multiple grafts thus giving good neurological results and minimize the complications of graft displacement.

**Keywords:** Corpectomy, Disc Prolapse, Multilevel Disc Prolapse

**Address for Correspondence:**

Dr. Samina Khaleeq  
Associate Professor  
Department of Neurosurgery  
Pakistan Institute of Medical Sciences  
(PIMS), Islamabad

## Introduction

During the last three decades, the anterior approach to the cervical spine has been increasingly preferred in the operative treatment of herniated cervical disc. Anterior approach to the cervical spine has low morbidity, leaves cosmetically acceptable scar and provides direct access to the areas of most pathology.<sup>1</sup> Surgical options include.<sup>2</sup>

- Smith Robinson technique – disc excision with no decompression of the canal and horseshoe graft.
- Cloward technique – disc excision without canal decompression and onlay/chip graft.
- Subtotal vertebrectomy and strut grafting with fibula (autogenous or allograft no difference in fusion rates

in some reports) with or without decompression and with or without internal fixation.

In all these procedures excellent outcome for neck pain (96%) and radiculopathy (97%) was noted,

but an average of less favourable improvement in myelopathy (60%) has been reported.<sup>3</sup>

Literature reports inadequate results with discectomy alone in multiple level cervical disc disease<sup>4-8</sup> so we report a series with an objective to access the role of corpectomy along with excision of disc followed by fusion in these cases leading to very rewarding results.

87-96% patients with multilevel cervical disc prolapse present with myelopathy while those with single level cervical disc prolapse, 94% present with beachalgia.<sup>9</sup> In most of the reported series no difference was observed in patients who underwent anterior cervical discectomy with or without fusion in a single level disc presenting with brachalgia.<sup>10</sup> However, less favourable results have been reported in patients presenting with myelopathy in multiple level disc who underwent discectomy followed by fusion.<sup>11-13</sup> It has been reported that the discectomy is safe and effective procedure for radiculopathy and less for myelopathy.<sup>5</sup>

Corpectomy is usually performed in trauma tumours and caries spine. Our study suggests that it is also useful in multiple level disc disease so there is a new indication, that is 2-3 level cervical disc prolapse where 87-96% patients mostly present with myelopathy

<sup>14, 15</sup>. We recommend corpectomy along with excision of disc a level above and a level below followed by fusion leading to most favourable results especially in myelopathy and high percentage of pain relief in brachalgia.

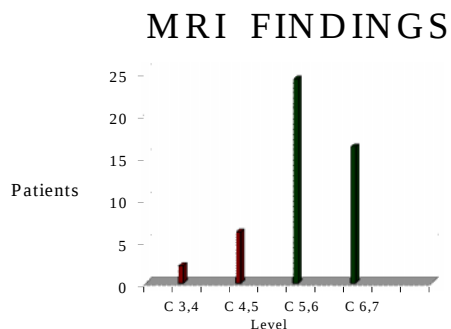
## Materials and Methods

It was a prospective study. 48 patients, 46 male and 2 female with average age of 40 presented to the department of Neurosurgery between (1996-2009).

In our study group 38 patients presented with myelopathy while 10 patients had brachalgia along with myelopathy. Type of surgery was recorded. Results recorded and analyzed to absence of brachalgia and myelopathy.

## Results

48 patients, 46 male, 2 female between age group of 30-65 years presented with multiple disc prolapse during 1996-2009. 35 patients had 2 level disc prolapse while 13 presented with 3 level disc prolapse. 38 patients presented with myelopathy while 10 patients had combined symptoms of myelopathy and brachalgia. MRI findings showed disc prolapse mostly at C5 – C6 level followed by C6 - C7 and C3- C4 level **Figure I**.

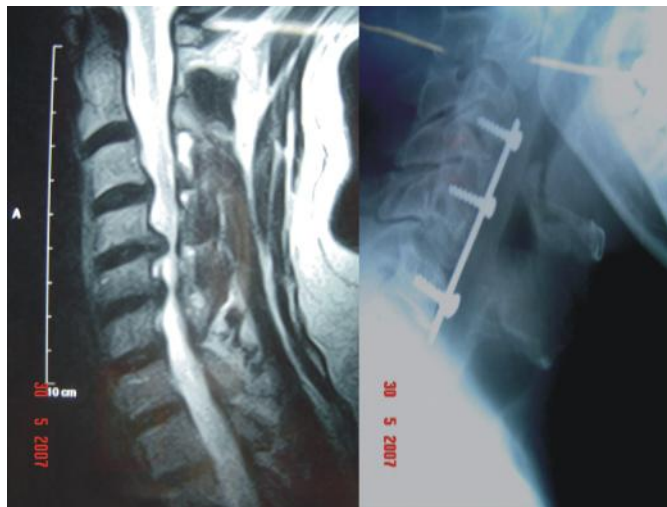


**Figure I: MRI findings among the patient**

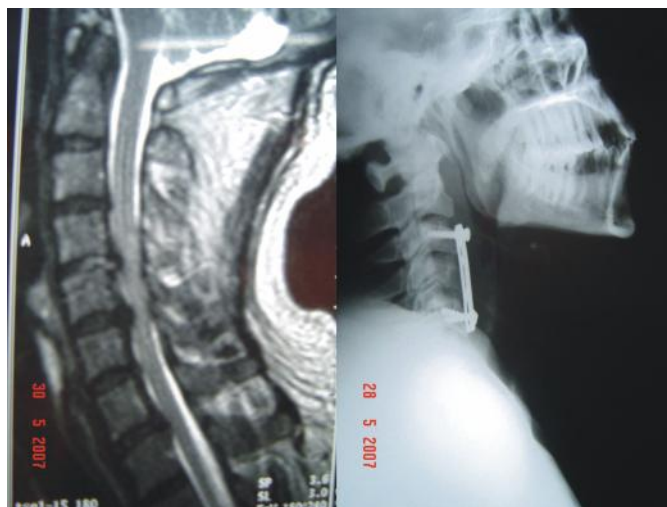
All the patients underwent anterior approach, having 1-2 level corpectomy along with excision of disc above and below in 2 and 3 level prolapsed disc respectively (Figure II & III). All these patients except one had grafting taken from iliac crest followed by casper plating. The patients were mobilized on the 2<sup>nd</sup> post operative day and discharge home after 7 days.

We had graft displacement in one patient which was readjusted. One patient developed tracheocephalic fistula and was treated conservatively. Immediate relief was seen in both the brachalgia and myelopathy post operatively. 92%

showed prompt relief of brachalgia, 56% improvement in myelopathy while 33% in combined symptoms. After one month there was 100% relief in brachalgia and 70% improvement in myelopathy. After 3 months 83% improvement in myelopathy and 100% relief in brachalgia was observed while after 6 months and one year it was 93% and 96% respectively.



**Figure II: Two level prolapsed disc where corpectomy along with disc excision was done**



**Figure III: Three level prolapsed disc**

## Discussion

In multilevel cervical disc prolapse, 87-96% patients present with myelopathy and 67% with combined symptoms of brachalgia and myelopathy<sup>13, 14</sup> in multilevel cervical disc disease the 62% discs are

hard along with formation of osteo-phytes.<sup>15-17</sup> Simple discectomy in such cases is less rewarding as we are not addressing the whole pathology, which is compressing the cord. In multilevel discectomy, people are using multiple grafts, with more chances of graft displacement.<sup>18,19</sup> Some surgeons have tried partial vertebrectomy for adequate neuroforaminal decompression followed by multiple grafts with reported complications of graft displacement and yet less favourable outcome in myelopathy.<sup>15,16</sup> The literature reports 57-73% relief in myelopathy with multilevel disc disease who underwent discectomy with multilevel fusion.<sup>11, 12</sup> We have used the technique of removal of one vertebral body along with excision of prolapsed disc above and below in 2 level prolapse disc and similarly removal of two vertebral bodies along with removal of disc above, below and in between followed by placement of single graft from iliac crest. We had only one graft displacement where we used fibular graft instead of iliac crest graft. This complication of graft displacement is almost negligible as compared to the many reported series in literature that used multiple level grafts in 2-3 level discectomies.<sup>17</sup>

35 patients with 2 level disc and 13 patients with 3 level disc prolapse who underwent single level and 2 level corpectomy along with excision of disc followed by single graft and casper plating showed 96% improvement in myelopathy in comparison to other studies who report 67%, 82% and 87% improvement respectively.<sup>10, 16, 20</sup> We report very favourable results as compared to other series.<sup>18- 20</sup>

## Conclusion

Corpectomy in multiple cervical disc prolapse provides us with double advantage of adequate decompression, saves hazard of multiple grafts thus giving good neurological results and minimize the complications of graft displacement.

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