

# Study of 40 Cases of Anterior Cervical Discectomy with Cylindrical Titanium Cage Fusion

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**Abstract:** Prospective Study Was Done in 40 Patients with Degenerative Cervical spine disease during a 6 month period of which all patients had clinical features of cervical spine disease and underwent surgery for the same. The main objective of the study was to study the most common presenting clinical features and the effectiveness of the surgical procedure over the clinical features. The immediate post op results with respect to patient satisfaction of the surgery, morbidity and mortality along with unexpected complications have been analysed.

**Materials and methods:** all 40 cases were analyzed from single institution and done in a single unit. None of the traumatic spine injuries were taken into study. All patients of ASA GRADE 2 were taken into study. Most of our patients were in age group around 50. All patients were neurologically intact before surgery with respect to mobility and were able to perform their regular work except that few had increased spasticity who were unable to perform their work.

**Conclusion:** All patients had relief of pain in immediate post op period. Some patients had postop complications and there was also a mortality due to post op haemotoma in neck. The advantages and disadvantages of this technique over the previous technique of iliac crest bone graft was analysed.

**Keywords:** Degenerative cervical spine disease. Analysis of pre-op and post-op clinical features and patient satisfaction, effectiveness of surgical technique.

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## 1. INTRODUCTION

Cervical degenerative disease is characterised by degeneration of disc material by loss of water content due to constant strain and movement of a particular level of vertebrae. There is formation of osteophyte at the particular level due to constant degeneration caused by synovitis and annular tears. Brain and Fryholm were the pioneers who stressed the importance of ischaemia to the cord caused by radicular arteries as the cause of motor symptoms produced by compression of cervical cord.

Robinson and Smith were the first to describe cervical interbody fusion which has evolved today to various types in market. Initially the technique of iliac crest bone graft was used by evolution even chips of clavicle were being used for cervical interbody fusion (6) and now various materials like interbody cylindrical and PEEK CAGES are used. Perforated cages with plasma pore coating are the latest ones used in market today because of they initiate better bony fusion.

## 2. MATERIALS AND METHODS

All patients are from neurosurgical OPD who presented with neck pain and motor symptoms. They were evaluated with X-ray and MRI scans. All patients who had annular tear with disc bulge with thecal sac compression in MRI were subjected to surgery. MRI was used as the standard investigation in selecting patients for surgery. X-ray was used for better definition of osteophyte and for pre-op identification of appropriate level and to compare with pre-op X-ray. There were only a few patients subjected to nerve conduction study (NCS). They had undergone the study even before coming to our surgical OPD.

### 3. SURGICAL TECHNIQUE

Patient was placed in supine position with neck extended. The hands were pulled down and tied to lower end of table. Transverse incision was used for 2 level surgery and longitudinal incision for three level surgery. we usually operate from left side and found no injury to recurrent laryngeal nerve in few cases we operated on right side. The carotid sheath identified underneath and was retracted laterally while the pretracheal fascia was dissected. The omohyoid muscle was encountered at the C5 –C6 levels. It was separated and then reapproximated at the end. The prevertebral fascia identified separated and appropriate disc space marked. The anterior osteophyte was removed and the soft disc was removed. The hard portion was drilled out. The osteophyte was nibbled with no. 1 Kerrison punches. Wash given and ball hook probed in all directions. The space was then fused with no. 8mm or 10 mm cylindrical cages. Postop x-ray for cage position was checked and wound closed after thorough haemostasis.

### 4. DISCUSSION AND CONCLUSION

The following are the results with respect to clinical features and the surgical post op results analysed symptomatically. The commonest age group affected was 51-60 years. It was 40% males constituted 85% and females 15%. 75% of the people had regional neck pain alone without any radiation. Only 25% of patients had radiation when paracentral disc was present to one side. 22 patients had duration of clinical symptoms for a period of 6 months. 40% of the population had preoperative power of 4/5 as per Nurick grading. Spinal canal diameter was less than 11mm in 70% at the affected level. Posterior osteophytes were present in 80% at the affected level. MRI showed the commonest space to be affected was C5-C6. The mean operating time was 80 min for single level and 120 min for 2 levels. The common cylindrical cage for single fusion was 8mm and 10 mm for 2 level fusions.

All the patients had symptomatic pain relief postoperatively. Patients on questioning had a 30 – 50% pain relief in 5<sup>th</sup> post op day (3). Motor improvement we found was that anyone with power of 4/5 preoperatively had power of 4/5 in post op with pain relief. People who had 3/5 had similar power in immediate post op period. Because of no long term follow up and our aim is to study immediate post op results we found no improvement in people below 3/5. Statistics show that patients with more than age 45 had better patient satisfaction of surgery than patients below 45 (5). Surgical techniques followed by literature shows that cylindrical cage fusion with plate and screw had poorer outcome in maintaining cervical lordosis rather than using cylindrical cages alone (12).

Patients with power 3/5 and below were dependent on others for their daily activities and were morbid. We had an immediate post-op complication where the patient complained of neck pain and difficulty in breathing during 4 hrs post op. We found a neck hematoma where we removed the stitches in ward. There was a fall in saturation for which intubation was tried but couldn't. We had a pinhole done in trachea and tracheotomy later date. He developed ventilator associated pneumonia and expired 5 days after the event (4).

There was one more case of 65 years old man who became quadriparetic after 2 level surgery. The post op power was 3/5 and pre op power was 5/5. He had a big osteophyte which required long hours of drilling and the heat produced could have caused the morbidity. He was discharged with the same power.

The images are included below.

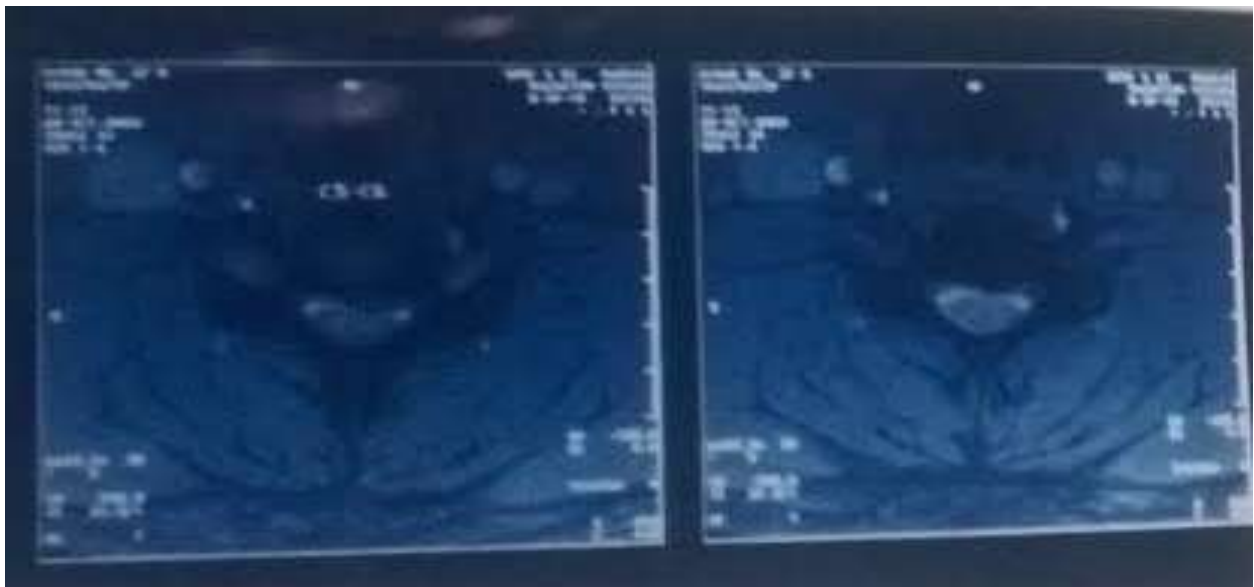


NORMAL LATERAL VIEW OF CERVICAL SPINE

**SAGGITAL IMAGE OF MRI OF CERVICAL SPINE SHOWING C<sub>5</sub>-C<sub>6</sub> DISC PROLAPSE**



**AXIAL IMAGE SHOWING C5-C6 DISC COMPRESSING THE SPINAL CORD**



**PATIENT POSITIONED WITH A VERTICAL INCISION OVER THE NECK**



**THE DISC SPACES MARKED WITH PINS FOR CONFORMATON**



**THE INSTRUMENTS USED FOR INSTALLATION OF THE TITANIUM CAGES**





**RETRACTORS, CURETTES AND DRILL SYSTEM USED IN CERVICAL DISC SURGERY**



**THE TITANIUM CAGES USED IN THE SURGERY**



**POST OPERATIVE CERVICAL SPINE X-RAYS SHOWING THE TITANIUM CAGE IN-SITU**





**POST OP X RAY WITH CAGE IN-SITU.**

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