

A CHANGE IN TECHNIQUE (PARA-CENTRAL PIN INSERTION) IN PLACING DISTRACTOR PINS IN ANTERIOR CERVICAL DISCECTOMY AND FUSION (ACDF) IN 25 CONSECUTIVE CASES

Orthopaedics

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ABSTRACT

INTRODUCTION: ACDF has been considered as gold standard for symptomatic cervical disc degeneration, cervical myelopathy, cervical vertebra fracture and prolapsed intervertebral disc. The procedure is usually done, by placing the distractor pins in Central position. This study shows the surgical and functional outcomes of using a new technique, by placing the distractor pin in Para-Central position while doing ACDF surgery.

MATERIAL AND METHODS: The study is conducted in 25 patients operated consecutively by ACDF. Para-central pin insertion was done while placing the distractor pins. The study was conducted in a tertiary care hospital.

RESULT: There were several advantages of using this technique. First the medial retraction on trachea and oesophagus reduced because the pins inserted para-centrally acted like retractors. This reduced the incident of dysphagia and post-operative throat pain. The same holes of these pins were used for screw placement while fixing the plate reducing the blood loss and surgical timing. The distraction while using this technique was equal as compared to central so it was found to be safe and effective.

CONCLUSION: This change in technique is found to be effective as it reduced the medial retraction by assistant, reduced the blood loss and surgical timing while doing ACDF. Further comparative studies are needed to get better outcome about the effectiveness of this technique.

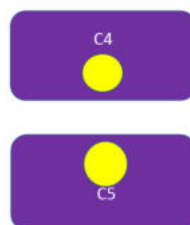
KEYWORDS

Anterior cervical discectomy and fusion, Paracentral pin position, Distractor pins

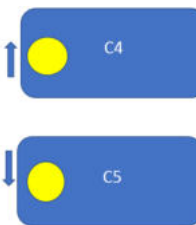
INTRODUCTION :

ACDF has been considered as gold standard for symptomatic cervical disc degeneration, cervical myelopathy, cervical vertebra fracture and prolapsed intervertebral disc. The procedure is usually done, by placing the distractor pins in Central position. This study shows the surgical and functional outcomes of using a new technique, by placing the distractor pin in Para-Central position while doing ACDF surgery. Anterior cervical discectomy and fusion is a gold standard for numerous cervical pathologies. Standard described technique is the central pin placement. The modification in this study is to perform Anterior cervical discectomy and fusion using paracentral pin position.

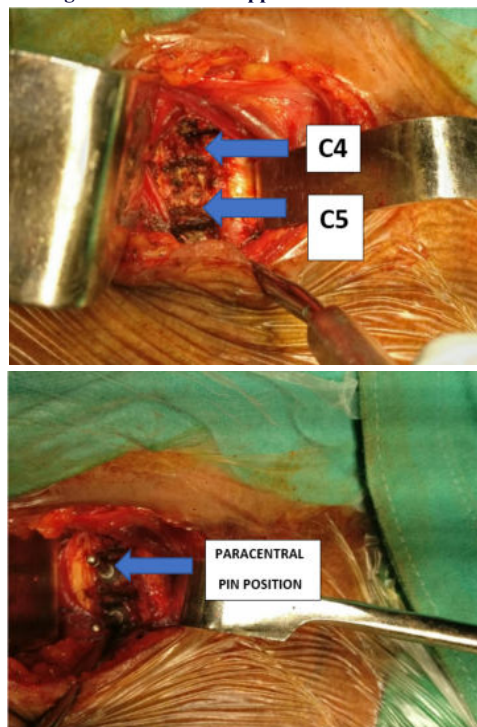
Central Pin Insertion



Paracentral Pin insertion

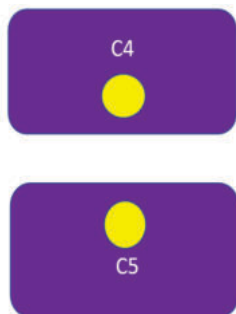


Clinical Images Of Paracentral Approach :

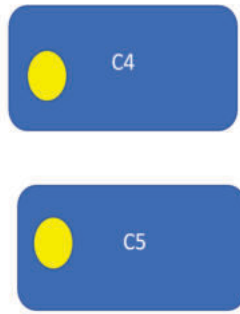


How This Technique Is Different From The Routine?

Central Pin Insertion



Paracentral Pin insertion



MATERIALS AND METHODS :

1. We Studied 25 consecutive cases
2. Single and double level ACDF surgeries were included.
3. Pathologies like cervical radiculopathy and cervical myelopathy needing anterior approach were included.
4. Cases of trauma spine and infection spine were excluded.
5. Patients were evaluated in parameters like- operative time, blood loss during surgery, postoperative dysphagia and ODI scoring (Oswestry Disability Index).

Distraction Was Equal In Both Techniques- As Measure With Ruler Intraoperatively

Advantages Of Paracentral Pin Insertion Technique Over Routine Central Pin Insertion Technique :

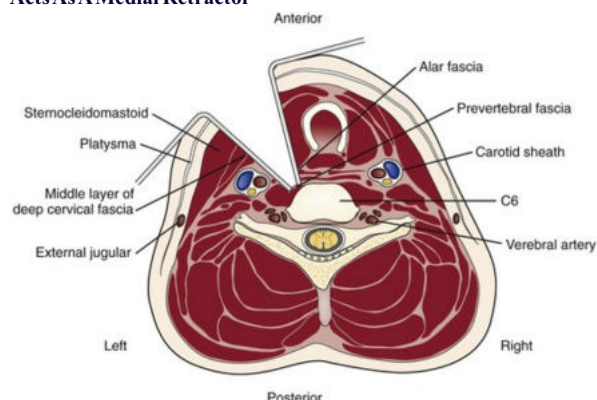
Reduces The Blood Loss

In paracentral pin insertion technique the same drill hole made for distraction is the same that would then be used for screw fixation thereby reducing blood loss that would otherwise occur because of the additional drill hole created in the center of the vertebra for distraction in the routine technique.

Reduces Surgical Time

As there is no need for additional central hole creation for distraction of the vertebrae

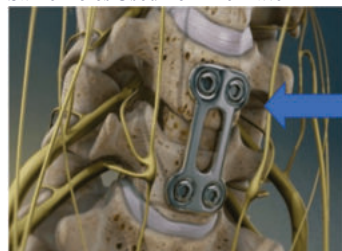
Acts As A Medial Retractor



Wide Exposure Of The Disc To Be Operated.

Because The Pins Are Paracentral The Exposure Of The Disc Is Better Which Helped Us In Better Decompression As Compared To Central Pin Placement.

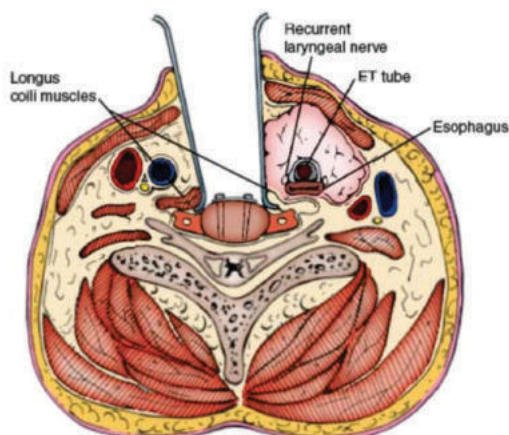
Same Holes Used For The Plate



THE HOLE MADE FOR PIN INSERTION IS USED FOR PLACEMENT OF THE PLATE

Reduces Postoperative Dysphagia As The Para-centrally Inserted Pins Act As Retractors And Reduces The Work Of An Assistant

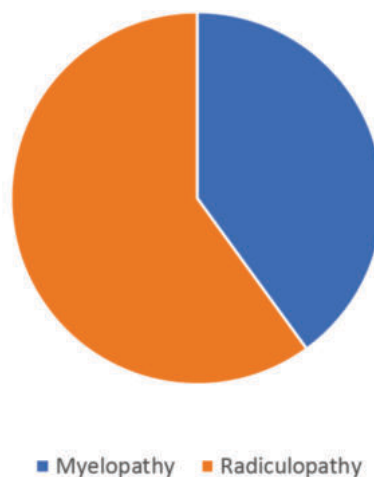
Para centrally placed pin would not directly compress the centrally placed esophagus and the trachea to the same extent as centrally placed pin would.



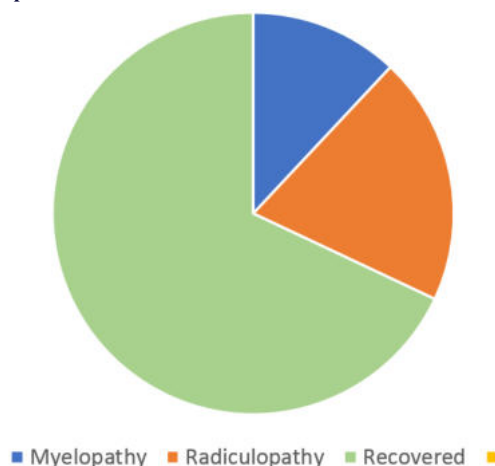
RESULTS:

1. 25 cases were operated with this technique
2. There were no pin related complications
3. Blood loss and surgical time was less as compared to the cases done with central pin placement.
4. Average blood loss - <100ml
5. Incidence of dysphagia was less.
6. Oswestry Disability Index (ODI) showed comparable improvement with patients done by para-central pin placement.
7. Male/ female ratio- **15:10**
8. Surgical time – **120-150mins**

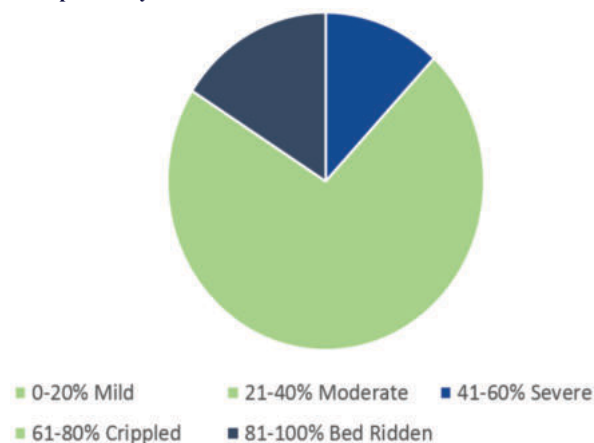
Pre-Operative

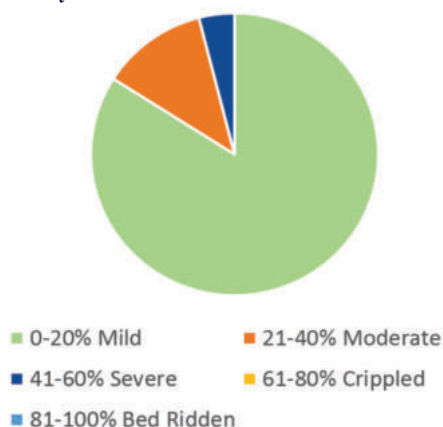


Post Operative



ODI Score Oswestry Disability Index Pre-operatively



Post Operatively**DISCUSSION :**

- Anterior cervical discectomy and fusion is currently the most commonly selected surgical approach for the treatment of cervical disc herniation or degeneration because it is effective at achieving immediate stability, restoring the normal lordotic curve, and increasing fusion rates.
- It is also safer as compared to posterior approach in cervical region as there is higher risk of inadvertent spinal cord injury in posterior approach as compared to anterior approach.
- Anterior cervical discectomy and fusion (ACDF) is an established procedure for the treatment of patients with cervical radiculopathy and/or myelopathy secondary to degenerative disc disease. Many technological modifications and postoperative degenerative changes have been reported since the technique was originally described by Smith and Robinson¹
- Routine way of doing acdf is the placement of distractor pins in the central position, following which another hole is to be made for plate insertion in para central position.
- Paracentral pin placement has not been described in literature previously
- While comparing this to standard technique we observed many advantages as described above
- While the functional outcomes are comparable in both

CONCLUSION:

The use of Paracentral Pin insertion in ACDF surgeries is found to be an effective technique in terms of:

- Reduction of medial retraction thus reducing post-operative dysphagia.
- Reducing blood loss during surgery
- Reducing surgical time
- Better Exposure of the disc.
- Reduce fatigue of the assistant.

The Functional Outcomes Operated By This Technique Is Comparable To The Standard Technique.

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