Trans-Osseous cervical Nucleotomy in 100 Patients with anterior cervical disc prolase
Introduction

- At present the gold standard of treatment for cervical disc prolapse is either fusion or implantation of an artificial disc.

- Trans-osseous decompression operation is a new method to remove the Cervical disc prolapse without complete discectomy or bony fusion in acute unilateral soft cervical disc prolapse.
Indications

- All patients met the following inclusion criteria (indications):
  - Cervical soft disc herniations (shown CT and MRI).
  - No instability
  - Lateral disc prolapse with cervical nerve root compression.
Contraindications for this method include:

1. Instability
2. Central cord compression
3. Fractures of the cervical spine

Relative contraindication
4. Advanced degeneration with osteophytes
Technique

- The patient is positioned with his face rotated slightly towards the normal side
- Position of incision is determined by an anteroposterior X-ray view
- Small incision of the skin followed by Platysma muscle splitting
- The anterior approach is continued between the sternocleidomastoid muscle and carotid artery laterally and the trachea and larynx medially
- Till reaching the anterior surface of the spine and the intervertebral disc.
- Splitting of the prevertebral fascia is done to expose the anterior surface of the spine.
- Insertion of a working tube. Through it a 6 mm drill tube is used to make a transosseous channel through the proximal vertebral body.
  - directed from cranial to caudal and from ventral surface targeting the dorsal aspect of the intervertebral disc,
  - this is done under real time guidance all through the drilling process with lateral x-ray control
  - The ideal posterior exit of the trans-osseous channel must contain at least half of the circumference in the disc to be operated upon. At this stage the operative microscope is brought in
  - After reaching the posterior longitudinal ligament we divide it and with small ball tipped angled probes we mobilise the disc prolapse and it is removed using small nucleotomes
The bone cylinder is coated with fibrin glue and is repositioned into the vertebral body. The working channel is gradually retracted. There should be bleeding along the tract, it can be easily stopped by bipolar coagulation. One single intracuticular suture is usually sufficient for closure.
Results

- Mean operation time / segment was 64.4 min.
- Blood loss ranged from 0 to 350 ml with the mean of 82.04 ml.
- Two patients underwent re-operation (the same minimal invasive method).
- Hospitalization period ranged from 2-3 days.
- Patients were mobilized at the same day of the operation.

- Mean NDI was significantly improved from 34 to 4.6
- The mean Oswestry Score was also significantly improved from 16.4 to 1.6
- Corresponding improvement of VAS for neck and arm pain was also recorded
Regarding the postoperative stability of the operated segment

in the one year functional radiographic assessment there was no evidence of significant stability impairment of the operated segment according to the criteria of White and Panjabi (1987, 1990)
Conclusion

- The main advantages of our technique include:
  - minimal surgical trauma
  - little or no effect on spine’s stability and hence avoidance of fusion
  - rapid rehabilitation
  - minimal blood loss
  - short operation time
  - short hospitalization period
  - excellent cosmetic outcome

- From these clinical results, the trans-osseous approach seems to be a promising and an effective alternative for the treatment of cervical disc prolapse.

- In an average follow up period of 12 months, the majority of patients were symptom free. Hospitalization period was much shorter than in fusion procedures and returning to light work, literally could be started few days after surgery.