

New Decompression Device Facilitating a Smaller Procedure in Anterior Cervical Corpectomy and Fusion: Case Series

Michael Millgram, M.D.¹; Daniel Kolsky, BMedSc¹; Richard Guyer, M.D.²; Ran Harel, M.D.³; Ely Ashkenazi, M.D.¹

¹ Assuta Medical Center, Tel Aviv, Israel

² Texas Back Institute, Plano, TX

³ Sheba Medical Center, Ramat Gan, Israel

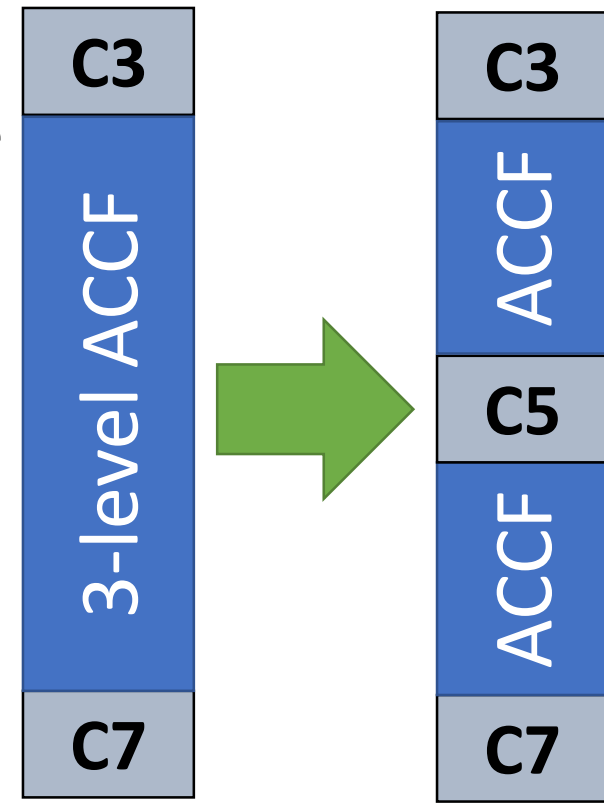
Contact: research@isc.co.il

INTRODUCTION

- Anterior cervical corpectomy and fusion (ACCF) is performed to address cervical spinal stenosis and its resultant myelopathy.
- Posterior osteophytes are hard to access and their proximity to neural structures carries neurological risks.
- Treating cervical compressive pathology at several vertebral levels requires more extensive surgery.

INTRODUCTION – CONT.

- Multi-level ACCF procedures are associated with increased complication and mechanical failure rates and potential instability.
- We previously described the hybrid decompression and fixation technique:
 - A combination of corpectomies and discectomies to preserve a vertebra intact within the area of the decompression
 - Augmenting mechanical stability.



INTRODUCTION – CONT.

- A new drilling device facilitates osteophyte removal in ACCF procedures at levels adjacent to the resected vertebra
 - Reducing the need to address additional surgical levels
 - A safer and shorter procedure
 - Reduced cost
 - Preserving spinal stability.



METHODS – PATIENT SELECTION

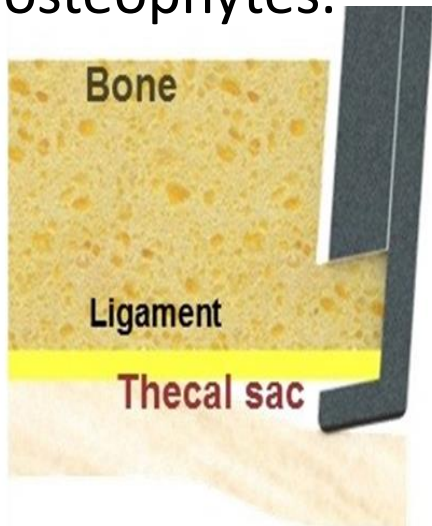
- Retrospective study
- Thirty-one patients who underwent ACCF and osteophyte removal using the device
- Candidates for an additional adjacent corpectomy or discectomy

Age	58.9 years (41-84)
Procedure type	
ACCF	22
ACCF+ACDF	8
Revision ACCF	1
Resected level	
C4	7
C5	12
C6	12

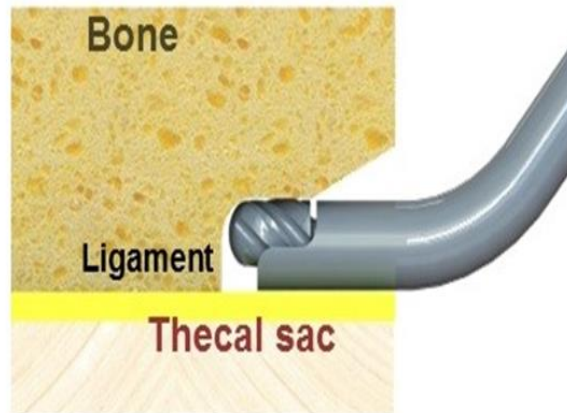
Patient characteristics

METHODS – SURGICAL TECHNIQUE

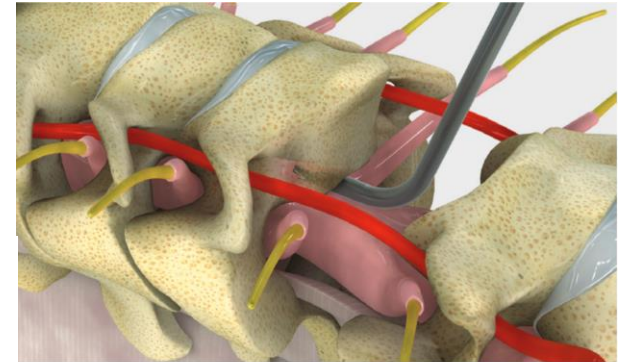
Following vertebral body removal, the device was inserted via the vertebral trough anterior to the posterior longitudinal ligament and used to drill parallel to the thecal sac, into the osteophytes.



Traditional tools: The osteophyte is removed with some manipulation of the thecal sac, posing a risk to neural structures



New device: The device is used to drill **into the osteophyte**, while the neural structures are protected by the shield.

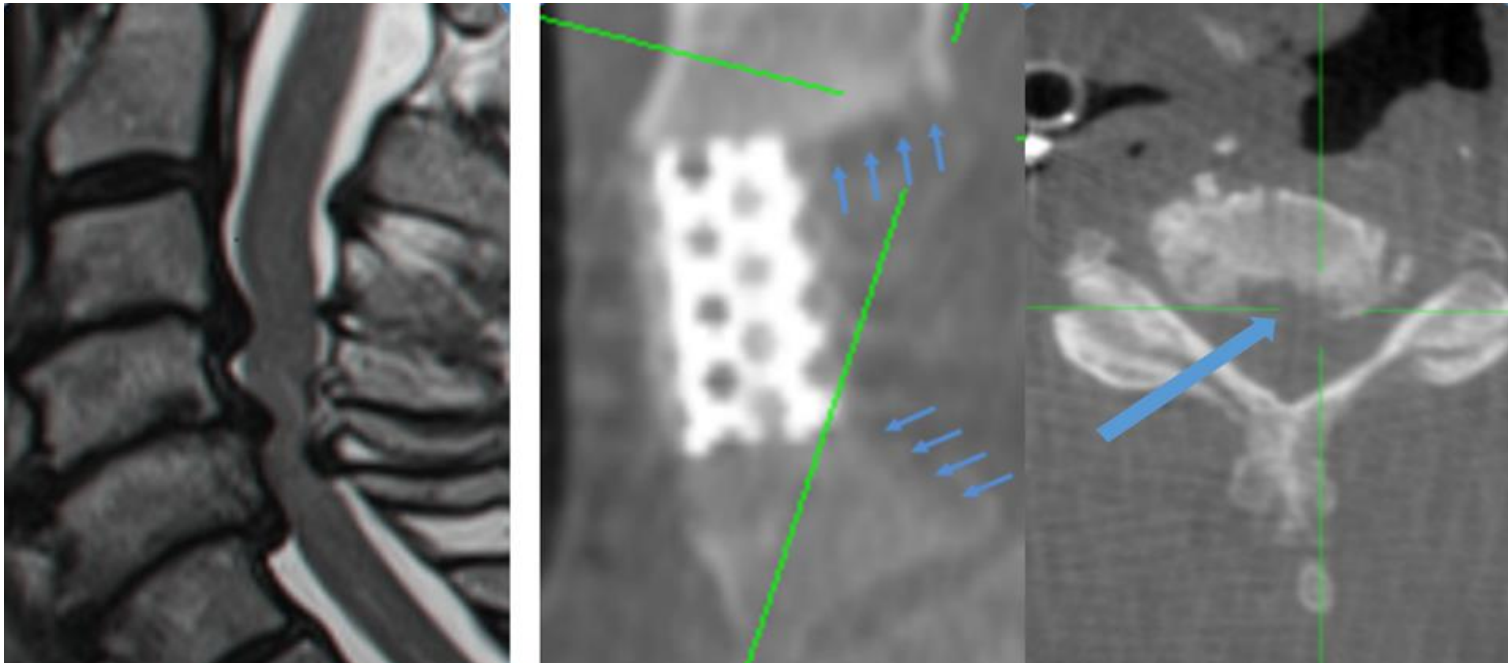


RESULTS

- All procedures were uneventful and without major complications.
- Average surgery time: 75 minutes.
- Average hospitalization: 3.5 days.
- Average back VAS score improvement: 1.6.
- Average arm pain VAS score improvement: 1.53.
- Patient disability was improved: SF36 scores increased in 8 out of 9 domains.

RESULTS – CONT.

- Bone removal was satisfactory in all cases, as assessed by intraoperative imaging.

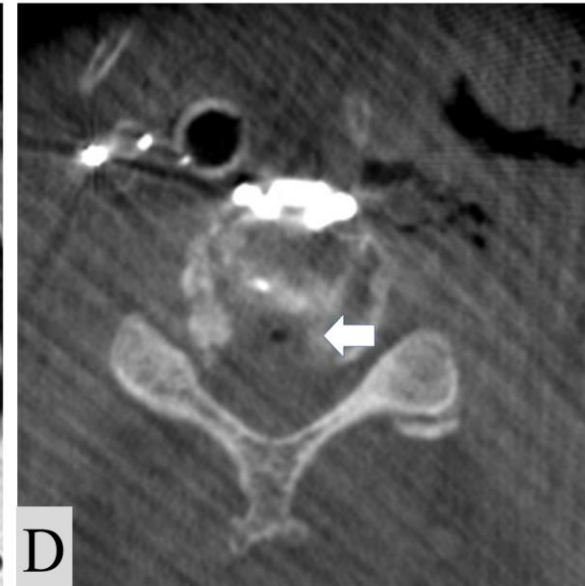
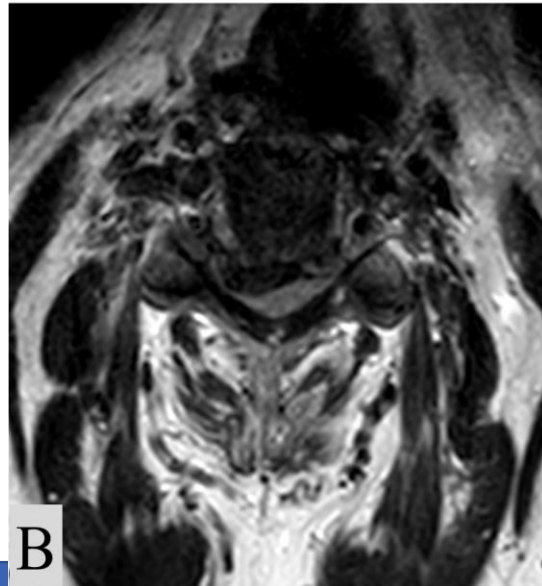
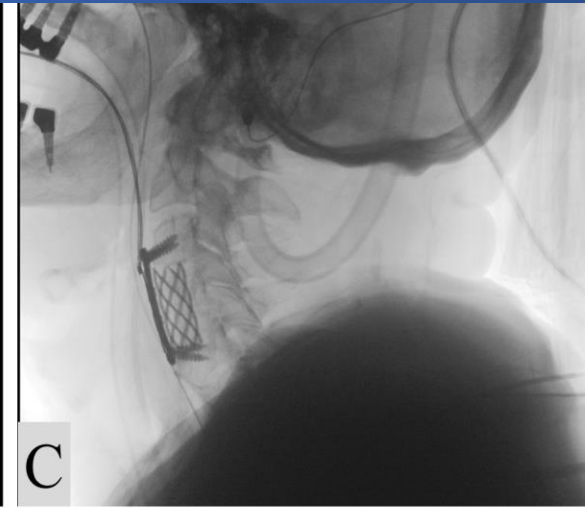


Imaging scans of a patient treated for C3-C6 stenosis. Left: pre-operative scan. Right: Intraoperative scans, showing the implant and the areas treated using the device (marked by arrows).

RESULTS – CONT.

84YO male treated for C3-C6 stenosis

- A: Preoperative MRI, sagittal view
- B: Preoperative MRI, transverse view
- C: Intraoperative scan, sagittal view
- D: Intraoperative scan, transverse view of the treated region



CONCLUSION

The presented device enabled safe and efficient removal of osteophytes sparing adjacent vertebral removal in ACCF procedures, thus improving the clinical outcome.