

# CERVICAL ARTIFICIAL DISC REPLACEMENT AS A HYBRID CONSTRUCT FOR MOTION PRESERVATION IN CERVICAL PROLAPSED INTERVERTEBRAL DISCS

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## INTRODUCTION

Artificial Disc Replacement (ADR) is a treatment option for anterior cervical discectomy to improve functional outcomes in recent years as compared with spinal fusion. In cases of multilevel degenerative discs, bio mechanical models and cases have shown significant limitation in movement after multilevel fusion and cost issue for multilevel arthroplasty. And therefore hybrid procedures have gained popularity lately. Previous studies also showed that disc height would have a significant impact on the range of movement of the cervical spine. This is a case illustration of a hybrid construct with the FDA-approved 4.5mm artificial disc with an adjacent level fusion demonstrating good surgical outcomes.

## METHODOLOGY

We report a young patient with prolapsed intervertebral disc (PID) over C4/5 and C5/6 causing disabling sensorimotor deficits. Pre-operative Short Form Health Survey (SF-36) and Neck Disability Index (NDI) showed significant impairment. Radiologically, there was broad-based PID over C5/6 causing spinal stenosis more on the right and central PID over C4/5 with cord indentation on MRI. Her neck of motion was preserved at C4/5 level on cervical XR.

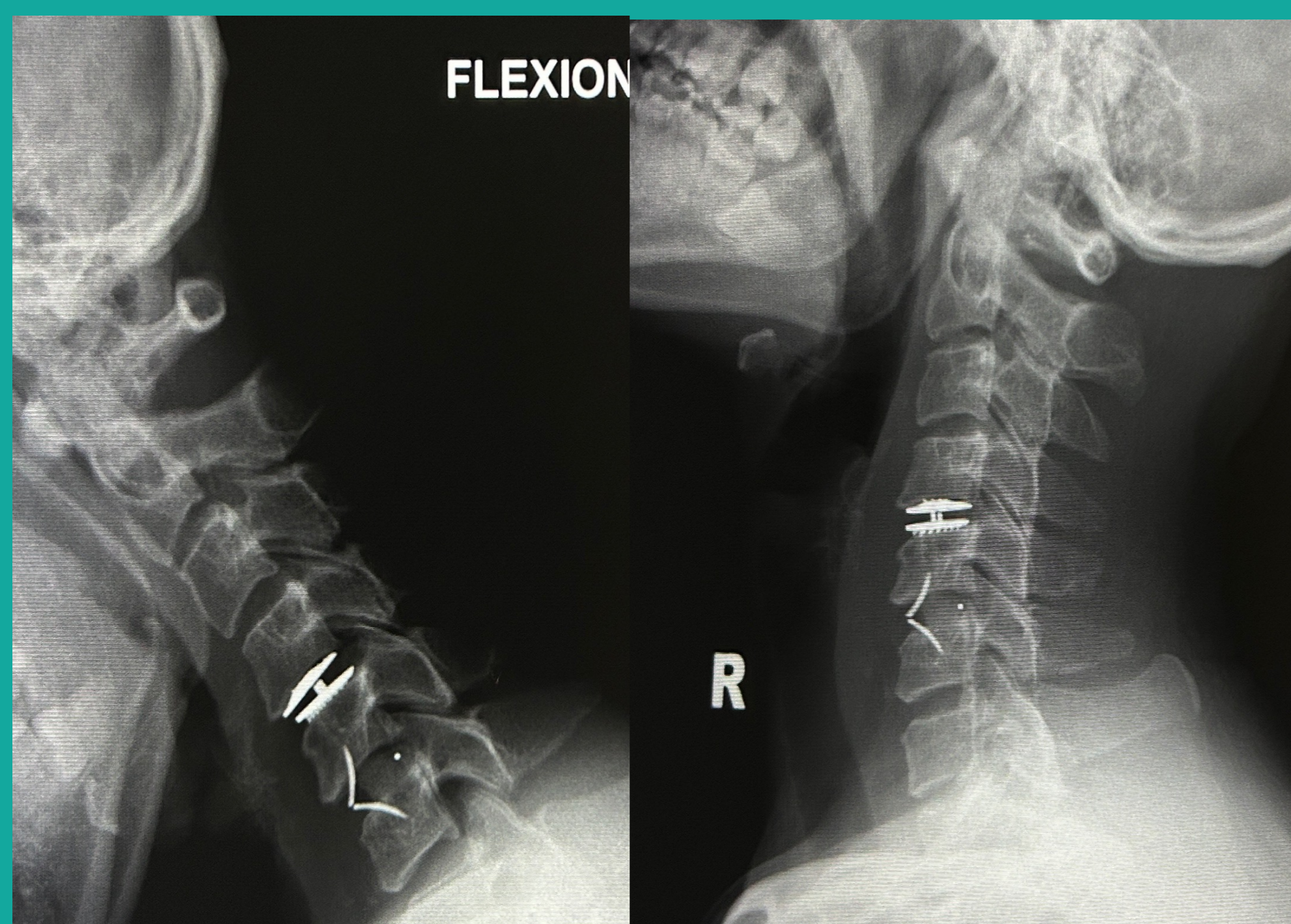


Figure 1. Post-op flexion and extension cervical X rays showed preservation of range of motion

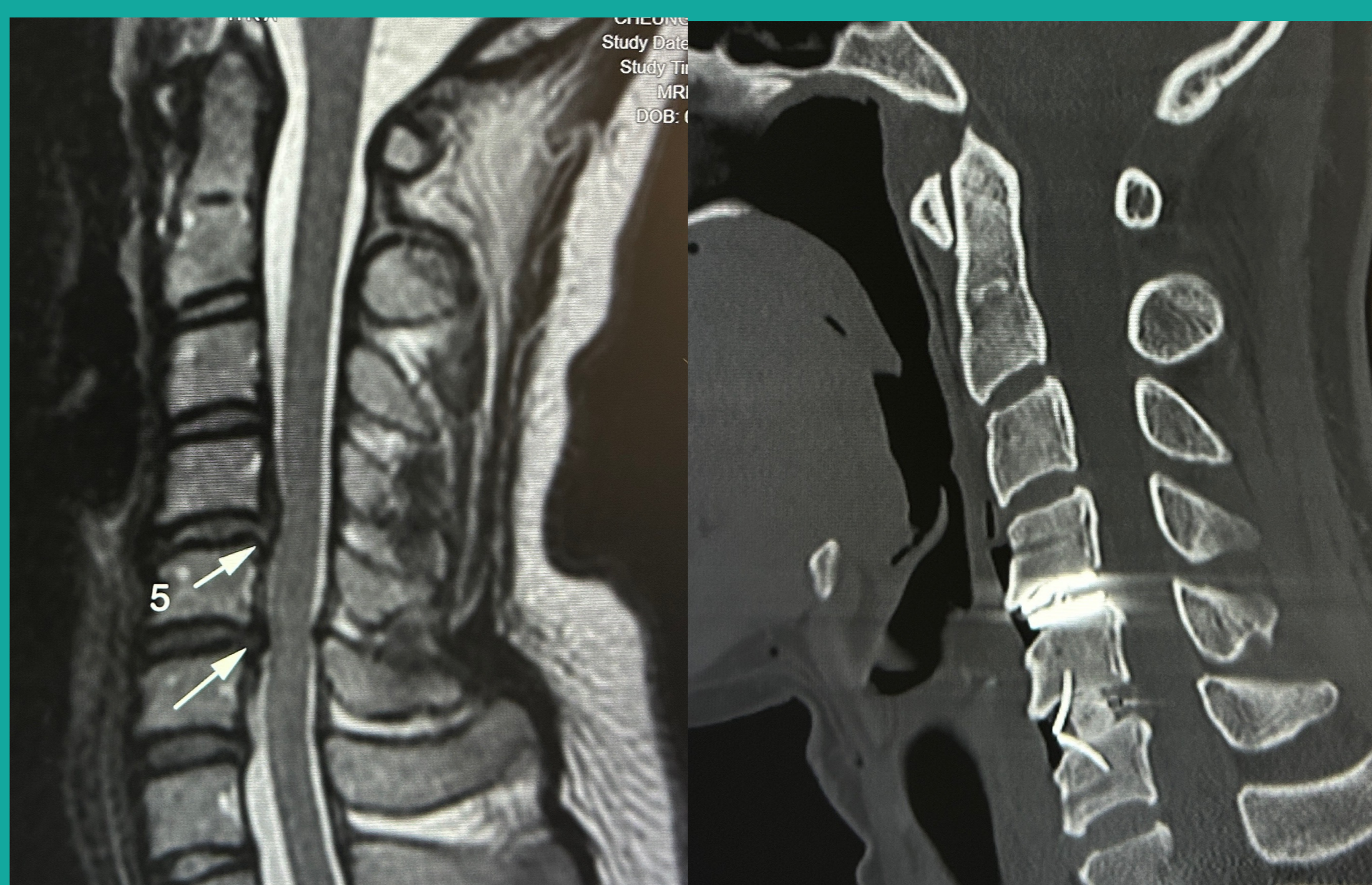


Figure 2. Pre-op sagittal MRI showing the prolapsed disc and Post-op CT showing the in-situ Mobi-C and Roi-C implants

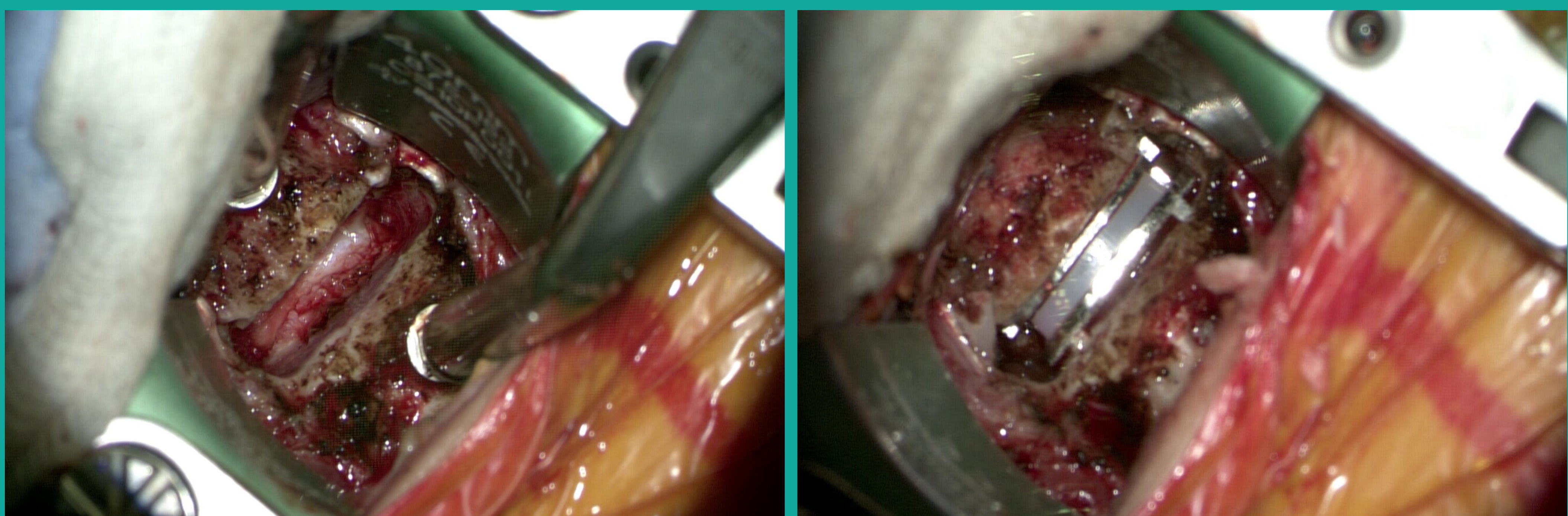


Figure 3. Intra-op images showing the successful implantation of the 4.5mm Mobi-C artificial disc

## RESULTS

- After 4 months of failed conservative treatment, our team performed a C4/5 Artificial Disc Replacement with C5/6 Anterior Cervical Discectomy and Fusion for her.
- A 6mm ACDF cage was inserted into C5/6 and a 4.5mm Artificial Disc was inserted into C4/5.
- All implants were confirmed fluoroscopically in-situ and they were MRI-safe.
- Postoperatively her limb function and activities of daily living greatly improved immediately.
- She experienced no complications such as intraoperative CSF leak, infection, or bleeding.
- The patient remains symptom-relieved 1 year after the operation.
- Dynamic X-ray showing motion-preservation of the cervical spine 1 year post-operatively.

## CONCLUSION

- Hybrid cervical surgery with disc replacement and adjacent spinal fusion can yield good surgical and mobility outcome.
- The newly FDA approved 4.5mm artificial disc is a safe option for disc replacement.
- Large-scale long-term study for hybrid construct would be beneficial for future surgical decision making.

## REFERENCE

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