Annular Closure Device: A Report Of Three Years Experience

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• The device that is the subject of this manuscript is not FDA approved for this indication and is not commercially available in the United States. We have no financial association with the manufacturer.
Introduction

Microscopic lumbar disc surgery is well known to significantly relieve radicular symptoms but to lesser extent back pain. However, recurrent disc herniation is estimated to occur in 7% to 24% of patients. Annular closure device (Barricaid) was first introduced to prevent disc re-herniation and maintain disc height. In this procedure only the herniated disc fragment is removed and the Barricaid is utilized to seal the annular defect.
In our retrospective study 51 consecutive patients underwent lumbar micro-sequestrectomy with annular closure device (ACD) implantation between May 2014 - May 2017. They were evaluated for pre and post-operative radiculopathy, back pain, disc re-herniation and implant failure.
Results

Radicular symptoms largely resolved where 88% of patients have reported complete resolution of their radicular pain while around 12% had marked improvement of pain but not a complete resolution. Back pain of varying severity was the most common post-operative complaint and occurred in nearly half the patients (45%). Interestingly, 75% of our patients stopped using analgesics post-operatively despite reporting having back pain.

Until submission of our abstract, a single case of implant failure and recurrent disc herniation at the implanted side was confirmed. Since then, we discovered another case of implant failure upon patient regular follow-up. Three cases underwent further spinal surgery, one spinal stenosis syndrome, and 2 were operated in other hospitals for unknown indications.
### Results

**No follow up**

- Off analgesics
- On analgesics

**Number of patients**

**Leg pain**
- Before surgery
- After surgery

**Back pain**
- Before surgery
- After surgery
First reported case of implant failure with disc herniation. Patient presented with recurrence of radiculopathy and underwent surgical removal of implant and discectomy around 3 weeks later and had complete recovery. (A) show the implant at time of surgery. (B) Follow up X-ray 3 months post op. (C) X-ray 18 months post operative.
Results

Second case of implant failure. Patient is symptoms free and was discovered incidentally upon follow up imaging. (A) show the implant at time of surgery. (B) Follow up X-ray 6 months post op. (C) X-ray 24 months post operative.
Annular closure device implantation is technically safe. Our data suggests that on the long run recurrence and implant failure may occur in around 6% of cases. We are unable assess if this procedure has a significant positive effect on back pain.