Revision Anterior Cervical Interbody Fusion Using Porous PEEK Implant in a Single Patient

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Introduction
In 2016, 20 consecutive patients undergoing anterior cervical fusion surgery received porous PEEK cervical interbody devices. There were 5 men and 15 women in this series with an average age at surgery of 54 years (Range: 42 to 78 years). The majority of these patients had multilevel fusions: thirteen (65%; 13/20) had 2- or 3-level fusions and 7 (35%; 7/20) had single-level fusions. Approximately half of these patients had undergone previous fusion surgeries (45%; 9/20) with eight of these (40%; 8/20) involving revision surgery directly adjacent to a previously fused level. There have been no complications following the use of these implants.

Case Report
A 64-year-old female had undergone two prior cervical fusions in 1982 and 1997. She had developed adjacent segment degeneration at the C3-4 cervical level. Lateral radiograph shows disc space collapse, radial osteophyte formation and sagittal plane malalignment (retrolisthesis and kyphosis) at C3-4 (Figure 1).

The patient underwent an anterior C3-C4 anterior cervical discectomy and fusion using a porous PEEK implant (COHERE®, 12 x 14 mm footprint, 7 mm height, 7° lordosis) with iliac crest autograft. Plates and screws were used for anterior fixation.

At 3 months following surgery, lateral radiograph showed restoration and maintenance of anatomic disc space height, segmental lordosis, and normal sagittal alignment (Figure 2). Most importantly, there were no lucencies around the porous PEEK implant. An uninterrupted, continuous column of bone could be seen through the central portion of the porous PEEK implant with complete integration of the bone graft to the bony endplates of the adjacent vertebra.

Conclusions
This case report illustrates the successful use of a porous PEEK interbody fusion device in a challenging healing environment. The index surgical level was adjacent to a two-level fusion in a female.