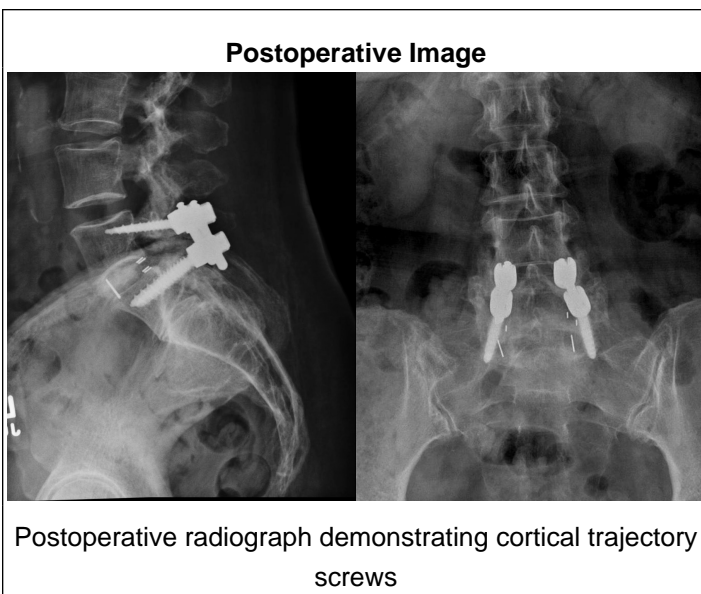


## Introduction

Placement of lumbar fixation screws using the cortical bone trajectory (CBT) is a novel and potentially valuable technique. Numerous studies have demonstrated similar biomechanical properties and clinical outcomes of CBT screws as compared to traditional pedicle screws. We describe our cohort of patients who underwent minimally invasive midline lumbar fusion (MIDLF) with CBT screws.



## Methods

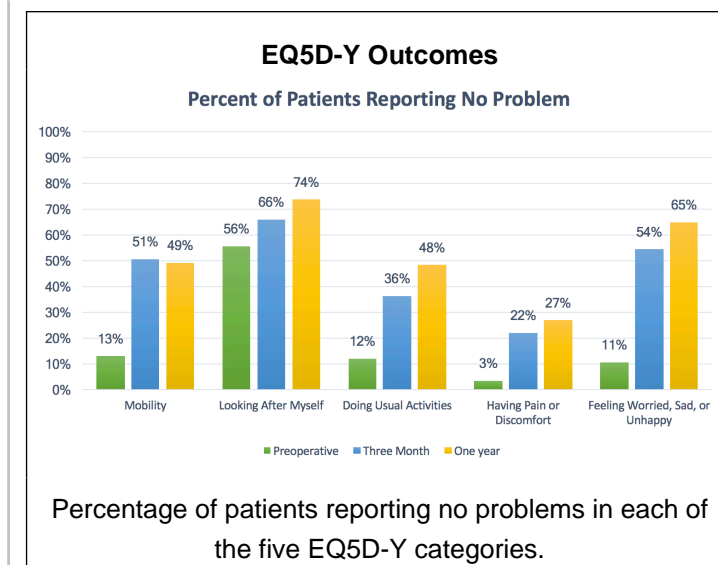
This is a retrospective study of patients who underwent 1- or 2-level MIDLF using CBT screws by the senior author between 1/1/2013 and 12/30/2015. Patients with greater than 11-month follow-up were included. Patients completed the EQ5D-Y questionnaire at preoperative, 3-month, and 12-month follow-up visits.

## Conclusions

We describe the largest reported cohort of patients who have undergone MIDLF with CBT screw placement. Outcomes and complications were comparable to more widely adopted techniques. This study demonstrates that CBT screw placement is an effective technique that can be learned quickly and mastered over time.

## Results

A total of 139 levels were identified in 118 patients (50 male, 68 female; median age 64 years) with an average follow-up time of 18 months (median 13 months). Of these 139 levels, 97 were 1-level fusions while 21 were 2-level fusions. 56 procedures were performed for degenerative spondylolisthesis, 38 for degenerative disc disease, 19 for lytic spondylolisthesis, 14 for adjacent level disease, 8 for degenerative scoliosis, and 4 for other indications. There were four complications: two infections, one pseudoarthrosis, and one CSF leak. Fifteen patients developed adjacent level disease requiring additional surgery from 1 to 42 months (mean 18 months) after the index surgery. Operative duration decreased with total number of procedures performed, with the first eighteen months of patients having an average operative time of 166min/level and the second eighteen months of patients 136min/level ( $p=.00011$ ). Postoperatively each of the five EQ5D-Y dimensions showed substantial improvements as compared to preoperatively (Image).



## Learning Objectives

By the conclusion of this session, participants should be able to: 1) Describe the trajectory used for cortical bone trajectory screw placement, 2) Describe the current biomechanical and clinical literature supporting the use of CBT screws, 3) Describe indications for CBT screw placement, 4) Describe the roll of hybrid constructs with S1 pedicle screws