

## Introduction

The minimally invasive midline space utilizing cortical screws has become a popular approach due to the familiarity with the exposure, limited dissection, and associated decreased morbidity. The midline approach is well suited for a bilateral “inline” cage placement after bilateral facetectomies. Many surgeons prefer to utilize a single cage for midline fusions to save time, decreased exposure, and lower cost. This is the first paper to look at the cage position for a unilateral cage utilizing the minimally invasive midline approach.

## Methods

A retrospective chart review was performed on 16 consecutive patients who underwent a midline lumbar fusion utilizing a single expandable interbody device. Post-operative radiographs were examined to determine device position relative to the vertebral bodies. Device positioning was graded A, B, or C based on the presence of device midline in the medial, middle, or lateral third of the superior vertebral body (see figure). Demographic information including age, sex, and BMI as well as estimated blood loss, infection rate, and 30-day return to surgery/re-admission rate.

## Results

All surgeries were performed by the senior author. 16 patients, 9 male and 7 female underwent a lumbar fusion utilizing a single expandable interbody device through a transforaminal approach. 15 patients had a

one level fusion. 1 patient had a two level fusion. 9 devices were graded "A"; 8

devices were graded "B". None received a grade of "C"

## Conclusion

The minimally invasive midline fusion allows the placement of cortical screws and interbody cages through the midline approach. We have previously published and presented on this procedure. Many surgeons have preferred to utilize a single cage for minimally invasive fusions. The use of a single cage presents a significant challenge as it is difficult to obtain a 30-45 degree angle in order to position the cage in the middle third of the vertebral body. Our personal experience with static cages utilizing this midline approach has not allowed for optimal positioning of the cage. We have made some technical modifications for disc preparation, retractor considerations and facetectomy to obtain the correct angles for cage placement without increasing the exposure. The advantage of the expandable lordotic oblique cage for this procedure is the placement of the cage in the optimal radiographic position prior to expansion. Further research examining subsidence and fusion rates as well as segmental lordosis utilizing this modified midline fusion procedure requires exploration.