Cages at Risk: The Role of Anterior Column Release in Preventing Cage Dislodgement in Spinal Fusion Surgeries By: Zaynab Khemmich

Abstract

Spinal fusion surgery is a widely performed procedure that uses interbody fusion cages to stabilize the spine and treat various spinal conditions. With the introduction of these cages into the medical field, there has been a significant improvement in surgical outcomes. However, complications such as cage migration, dislodgement, and subsidence remain a great concern. Anterior column release (ACR) is a common surgical technique used by a majority of spinal surgeons to correct spinal deformities. During this minimally invasive technique, the anterior longitudinal ligament (ALL) is cut or loosened. As a result, this may increase the chance of the cage shifting out of place after surgery. Therefore, anterior stabilization is considered the predominant goal. While surgeons commonly use anterior plating to provide extra protection of the cage from dislodgement, the necessity of additional anterior plating to prevent cage dislodgement remains debated.

This study assesses the safety of ACR by analyzing the rate of postoperative cage dislodgement and evaluating whether cutting the anterior longitudinal ligament and placing an interbody cage is sufficient for spinal fusion, or if additional anterior plating is required to prevent cage migration or dislodgement. This study will also evaluate potential risk factors for increased percent migration. Some of the outcomes measured include: Cage dislodgement, Percent cage migration, Osteophytes, Revisions, and Hardware failure.

As a result, the study found no significant need for anterior plating to prevent cage migration after anterior longitudinal ligament release. Additionally, osteophyte formation was found to act as a natural barrier to prevent cage dislodgement. Factors such as age, osteoporosis, and smoking were briefly examined as well, with smoking showing a positive trend toward increased migration. However, BMI was not associated with migration outcomes.