THE RESULTS OF METAL CAGES IN POSTERIOR LUMBAR INTERBODY FUSION

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Introduction

Chronic low back pain is the most common symptom of spondylolisthetic or degenerative lumbar segmental instability. Posterior lumbar interbody fusion (PLIF) is the standard and frequently used surgical treatment for degenerative disc disease. The lumbar interbody cage allows inter-vertebral height restoration, thus restoring segmental lordosis through adequate interbody fusion and maintaining stability. The interbody cage is considered stable when it remains secured in place between the adjacent vertebral bodies with adequate bony fusion.

Different interbody cages are used like polyetheretherketone (PEEK), titanium, and tantalum.

Cage design, for use in the lumbar spine, has continually evolved. The most frequent disadvantage of metallic implants is the mismatch in stiffness as compared to the surrounding bone, which can lead to the subsiding of the cage into the endplates. Computed tomography (CT) is the preferred method of assessing interbody fusion

Aim of the work

The aim of this study was to assess the result of metal cages in PLIF.

Patients and Methods

Patients:

This is a retrospective study included 42 patients with 52 levels treated with PLIF and metal cages. Patients were operated in the spine unit at El-Hadara University Hospital in the period between January 2018 and January 2021.

Patients with a minimum 6-months follow-up were included in this retrospective study.

Inclusion criteria:

Patients with lytic listhesis, degenerative listhesis, degenerative disc disease (DDD), lumbar disc prolapse, or lumbar canal stenosis undergoing PLIF with metal cages after at least 6 months of surgery.

Exclusion criteria:

Patients with a vertebral fracture, spinal tumor, severe kyphosis, spondylodiscitis, or calcification in the disc space were excluded.

Methods:

1)Postoperative radiological assessment:

The CT was examined by two independent spine surgeons to assess fusion.

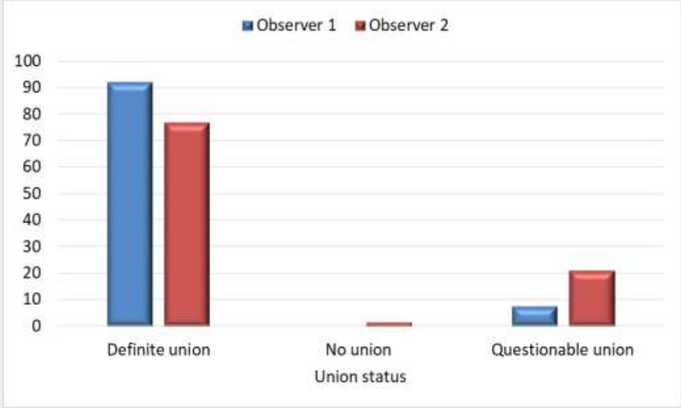
2) Statistical analysis of the data:

Data were fed to the computer using IBM SPSS software package version 24.0.

Results

Fusion rate and presence of cavities according to the follow-up

Duration of follow up (moths)	Criteria	Observer 1	Observer 2	P value
<12	Definite fusion	5/5 (100.0)	4/5 (80.0)	
	Cavity present	0/5 (0.0)	1/5 (20.0)	0.562
12-24	Definite fusion	23/26 (88.5)	17/26 (65.4)	
	Cavity present	7/26 (26.9)	9/26 (34.6)	0.107
>24	Definite fusion	10/11 (90.9)	9/11 (81.8)	
	Cavity present	2/11 (18.2)	2/11 (18.2)	0.331



Comparison between the two observer regarding fusion status.

Conclusion

Our study reported that the radiographic findings of endplate cavities were observed in a substantial rate of patients following metal cage placement after PLIF procedures. They tend to be small (<5mm) in size and might be associated with non-union. Details of endplate cavities are presented. Furthermore, our study reflects the limited interobserver reliability of the radiological assessment of both the fusion status and endplate cavities morphology after metal PLIF cage placement, despite use of clear definitions among observes. A more reliable definition or method for this assessment should be formulated in future studies.