AUGMENTATION OF PEDICLE SCREWS WITH CEMENT HELPS TO PREVENT MECHANICAL FAILURE IN ELDERLY PATIENTS WITH >5 LEVELS INSTRUMENTATION: A CT ANALYSIS OF 688 PEDICLE SCREWS

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# AUGMENTATION OF PEDIATRIC SCREWS

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INTRODUCTION

The aim of this study is to analyse the efficacy and complications of cement augmentation in elderly patients with long (>5 levels) instrumentation.

ORIGINAL ARTICLE

Pulmonary Cement Embolism: A Complication of Percutaneous Vertebroplasty

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MATERIAL & METHODS

✓ A retrospective analysis of 55 patients who had cement augmented PS was performed.

✓ All patients had CT scans taken minimum 2 years after index operation.

✓ CT’s were analysed to determine PS loosening, cement leakage and fusion rates at augmented levels.
Standart vertebroplasty technique was used for augmentation.

Prior to cement injection, mechanical aspiration of the vertebral bodies was done through working cannula to prevent cement emboli.

Cement injected was 4cc/lumbar and 2cc/thoracic vertebrae. Screws were placed immediately after cement injection.
RESULTS

- There were 688 cement augmented PS with a mean f/up of 45 (24-116) months.
- Average age (40 F, 15M) was 69 (50-85) years.
- Diagnosis were spinal stenosis in 41, trauma in 1, infection in 5 and revision surgery in 8 patients.
- Av. number cement-augmented screw/patient was 13 (4-32).
- Interbody fusion was done in 37 patients (100 levels).
- There were 10 (1.4%) loose screws in 7 (%12.7) patients.
- None had pulled out.
- Screw loosening was at fused levels in all except one with pseudoarthrosis.
RESULTS

- All loosed screws were at the levels without interbody fusion.
- One patient with pseudoarthrosis had rod breakage and underwent a revision operation.
- There was no vertebral body fracture at the augmented levels.
- Extravasation of cement was seen in 7 (%12.7) patients, none in spinal canal.
- 3 (%5.4) patients had asymptomatic pulmonary cement emboli.
- 3 (%5.4) patients had deep wound infection, they were treated successfully with debridement and antibiotic therapy with no need to instrument removal.
Deg. Scoliosis with Severe Spinal Stenosis

Preop 2 Years F/up

43° 5°

36° 26°

55° 42°
Spondylodiscitis

Preop  3 Years F/up

Preop  3 Years F/up
Anterior Support

Deg. Spinal Stenosis with Rheumatoid arthritis

Preop 2006  2011  2011  2012  Last F/up 2013

15°  13°  4°  4°  4°
Anterior Support

AD, 69Y, F, Deg. Spinal Stenosis with Rheumatoid arthritis

Preop 2006

2011

2011

2012

Last F/up 2013

Anterior Support

62°

57°

58°

94°

59°
CONCLUSION

Cement augmentation of PS in elderly osteoporotic patients prevents screw pull-out.

Screw loosening can be seen with a very low rate and at the levels without interbody fusion.