



Porous Lamellar Titanium Lateral Interbody Cages: Subsidence rates compared to PEEK and early clinical outcomes

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Introduction

- Whilst the elastic modulus of PEEK cages is low, they have been shown to promote fibrosis and an inflammatory reaction.
- Increased rates of non-union and subsidence have been reported.
- Titanium has more favourable biological properties but the elastic modulus and stiffness of solid titanium is much greater than cancellous bone and subsidence has also been reported.
- 3D porous lamellar titanium cages are a less stiff implant and hence combine more favourable biological properties with better implant design.



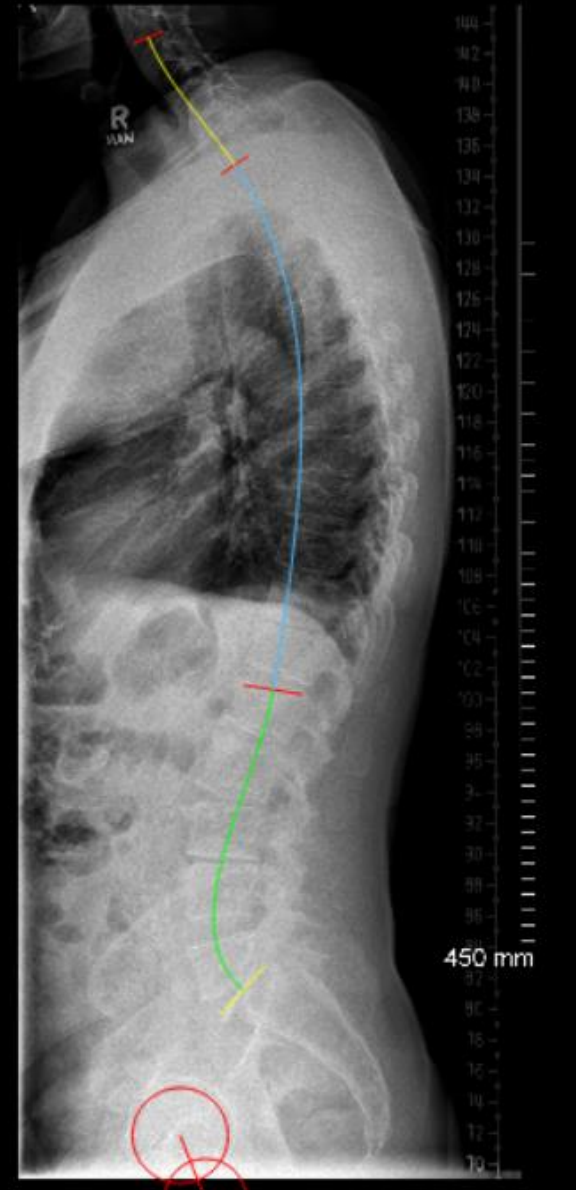
L3/4 Nerve Compression with Mild Scoliosis



- 72 Male
- Severe Left Thigh Pain in L3 distribution
- Minimal Back Pain
- NIDDM
- Normally very active

Alignment 1

PT 16°
PI 63°
LL -57°
PI-LL 5°
SVA (C7) 32.16 mm



L3/4 Nerve Compression with Mild Scoliosis





Post Operative Images – Leg pain disappeared



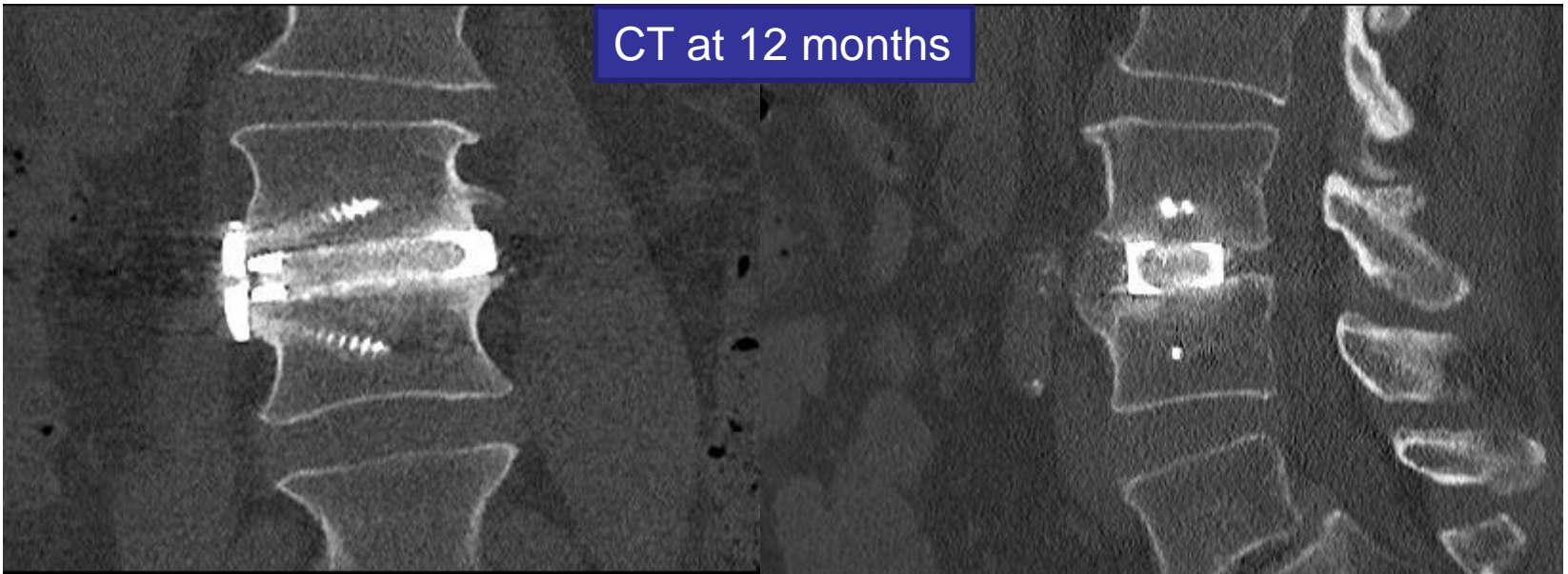
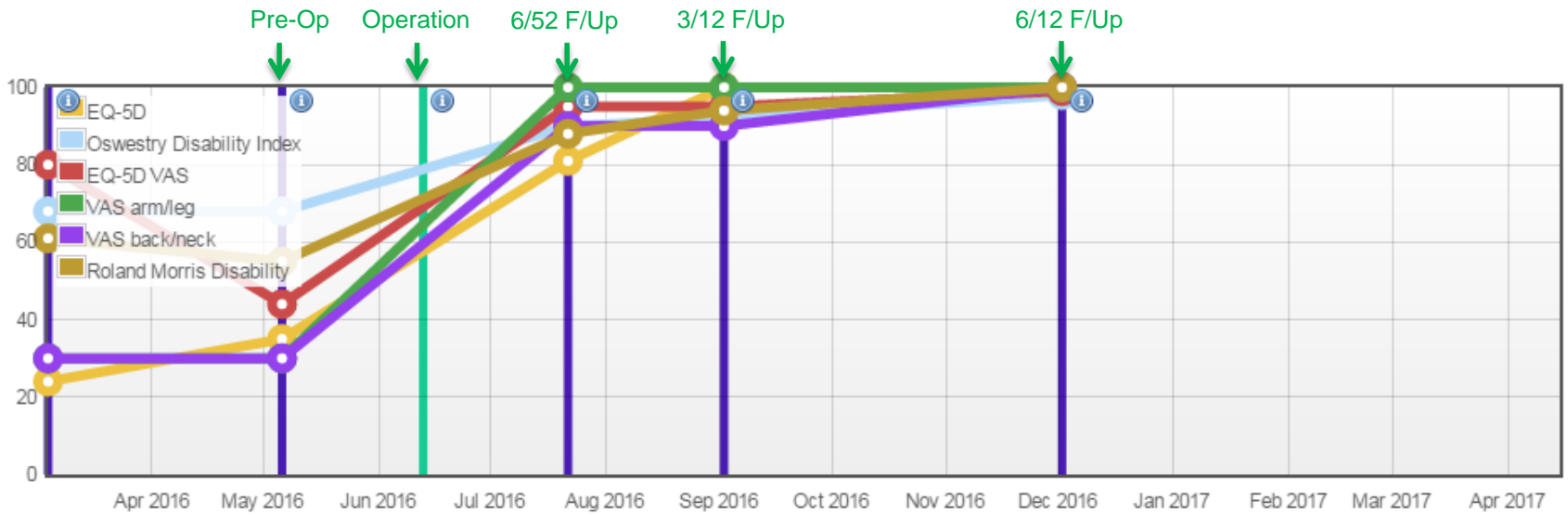
Alignment 1

PT 14°
PI 63°
LL -63°
PI-LL -1°
SVA (C7) 22.02 mm





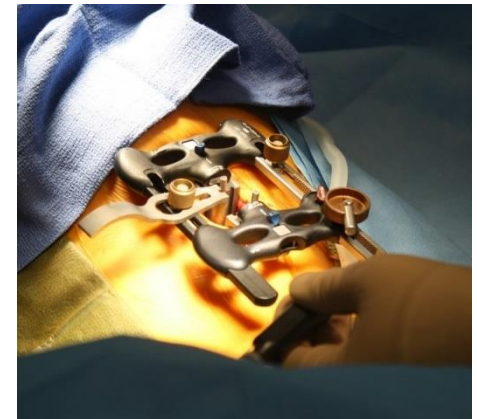
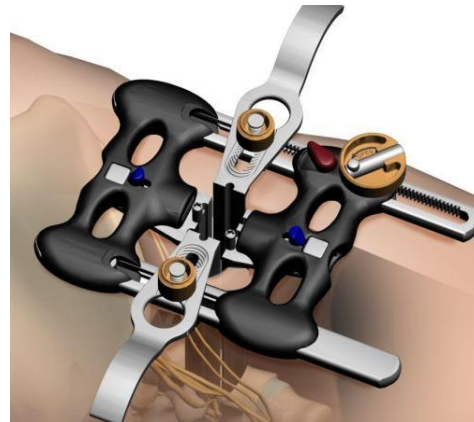
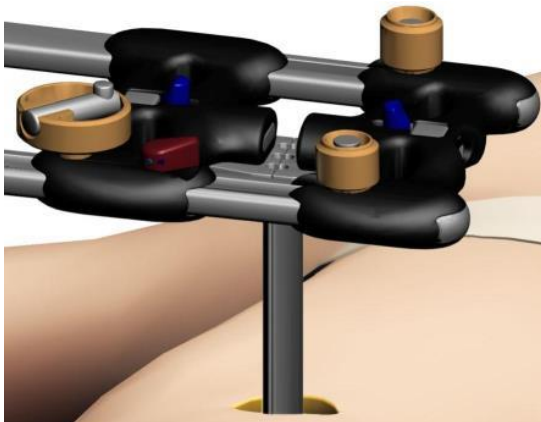
Outcome Data





Patients and Methods

- Review of prospective data - single surgeon series
- There were 2 matched groups with 20 patients in each group: PEEK (Group 1) and lamellar titanium (Group 2).
- A retrospective review of prospectively collected outcome data (VAS leg, VAS back, EQ-5D, EQ-5D VAS and ODI) was then performed and radiographs reviewed for subsidence immediately post op, 6 week post op and 6 months post op.
- K2M Ravine retractor was used in all patients
- K2M Cascadia Lateral Cages in Group 2 and Aleutian PEEK Lateral Cages in Group 1.
- All cages were filled with Inductigraft.





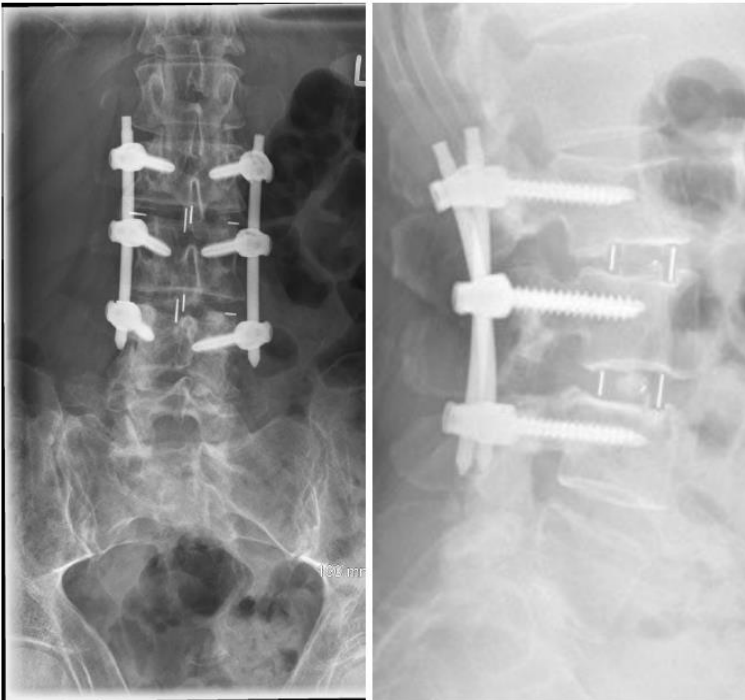
Results

- Two groups of 20 patients
- Each patient group had similar diagnoses including degenerative scoliosis and spondylolisthesis.
- 43 lateral cages were inserted in each group with 1 level in 7 patients, 2 levels in 6 patients, 3 levels in 4 patients and 4 levels in 3 patients.



Results

- No subsidence at 6 months with 3D Lamellar Titanium (Cascadia)
- Average 2mm subsidence on PEEK group



| | PEEK Lateral | Cascadia Lateral |
|-----------|--------------|------------------|
| VAS Leg | 2.4 | 1.5 |
| VAS Back | 2.9 | 2.0 |
| ODI | 37 | 18 |
| EQ-5D | 26.5 | 23.5 |
| EQ-5D VAS | 71.9 | 82.3 |



Conclusions

- 3D porous lamellar titanium lateral interbody cages (Cascadia) show no subsidence and compared to PEEK lateral cages with better ODI and EQ-5D VAS outcome scores at 6 months.
- The lack of subsidence may be due to the decreased stiffness of lamellar titanium.
- Subsidence can lead to loss of lordosis and loss of indirect decompression.



Disclosures

- Speaker's Bureau/Honoraria: K2M, Medtronic, DePuy, Stryker
- Advisory Board: K2M, Medtronic, Signus