primary- and revision patients.

Results: We included 24 patients (18 primary and 6 revision cases) with a mean of 2.3±0.3 year follow-up. The cohort included 11 boys and 13 girls. There were 5 idiopathic, 7 congenital, 3 syndromic and 9 neuromuscular patients. Mean age at surgery was 8.4 and 11.2 years for primary- and revision patients respectively. Results can be seen in Table 1. In primary patients, main coronal curve was reduced from 65° to 33°, and was maintained at latest follow-up. For revision cases, main curve decreased from 46° to 42° but increased again during follow-up. During follow-up, kyphosis increased 10° in both primary- and revision patients. Mean spring length increase during follow-up was 10mm/year. Primary- and revision patients had similar increases in T1-S1 length (primary: 13mm/year, revision: 14mm/year) and T1-T12 length (primary: 10mm/year, revision: 9mm/year). Nine complications occurred requiring re-operation. In addition, 7/24 patients (29%) had their spring retensioned as their spinal growth exceeded expected growth velocity. Conclusion: Spring distraction may be an effective treatment for EOS to control the curve and guide spinal growth without the need for repetitive distractions.

Fig. 1

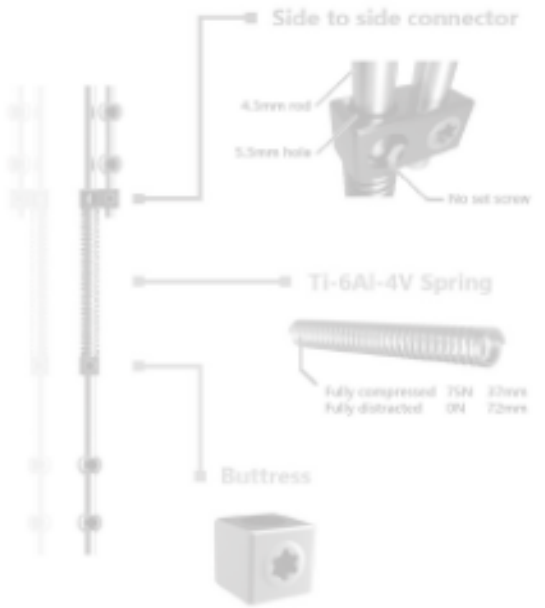

Fig. 2

Table 1 Radiographic results

	Primary cases (N=18)			Revision cases (N=6)		
	Pre-operative	Post-operative	Latest follow-up	Pre-operative	Post-operative	Latest follow-up
Main curve (°)	65.0±16.2	33.2±11.8	35.8±10.6	46.0±23.9	47.4±22.8	59.0±22.8
Secondary curve (°)	34.1±15.2	21.8±14.3	23.1±13.5	28.4±7.86	23.6±9.66	22.5±8.88
T1T12 length (mm)	192±20.7	199±10.9	222±18.8	189±20.6	214±10.6	220±10.9
T1S1 length (mm)	278±45.4	320±37.0	362±44.4	246±34.1	356±34.6	380±46.5
Instrumented length (mm)	-	259±10.0	286±75.1	-	220±19.8	241±41.0
Spring length (mm)	-	72.8±22.2	96.3±31.0	-	58.7±20.4	70.3±25.3
L1-S1 lordosis (°)	47.8±13.6	41.2±10.4	49.6±19.6	52.5±15.2	57.2±14.1	59.5±13.8
T9-T12 kyphosis (°)	9.64±15.0	14.7±18.2	27.0±15.1	10.4±26.2	36.3±26.2	46.0±27.7
Complications requiring re-operations						
Connector failure	0			2		
Anchor failure	2			0		
Rod fracture	1			0		
Implant prominence	2			1		
Deep surgical site infection	1			0		
Retensioning of spring	5			2		

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A Novel Device to Enhance Bone-to-Screw Interface in Spine Surgery: 2-year results in an FIH Safety Study

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Objective: Optimal fixation between screw and bone is essential to achieve successful outcomes in spinal surgery. Currently, enhanced fixation is sought by augmenting a procedure with larger diameter screws and / or bone cement such as polymethyl methacrylate or calcium-based cements.

A new unique braided Polyethylene Terephthalate (PET) sleeve was used to act as a plug in bone prior to the insertion of the pedicle screw, to enhance the quality of screw-to-bone interface particularly in worst case fixation scenarios such as revisions for screw loosening. With biomechanical studies having proven very favorable, the study aim was to investigate the safety profile for the use of such an implant in spinal surgery.

Material/Methods: Following Ethical Committee approval, patients aged 21 to 75 years, undergoing a short-segment lumbar posterior instrumentation for degenerative lumbar spine pathology were approached for participation in a trial conducted at one institution. After completing a structured consenting process, data on age, gender, body mass index (BMI) and co-morbidities was collected. Additional data on visual analogue score (out of 100) (VAS), Oswestry Disability Index (ODI), EQ-5D%, adverse events, X-ray imaging for evidence of radiological loosening, C-reactive protein, and clinical status was collected at baseline, discharge, 6 weeks, 6 months, and 12 months.

After approval for CE registration, the patients were followed for an additional 12 months to collect data on pain scores and identify any potential adverse events. Continuous data below is presented as a mean with the standard deviation (SD) shown in parentheses.

Results: Over the period of 7 months commencing September 2017, seventeen patients were recruited (4 Males / 13 Females) with a mean age of 55.6 (13.7) years and BMI of 28.4 (5.4). Data on patients who completed their 24-month review is presented. Mean scores pre-surgery and at 24-month follow-ups were as follows: for VAS 61.8 (19.2) vs 40.7 (22.5), ODI 48 (18) vs 34.6 (18.3), EQ-5D% 49.9 (21.8) vs 64.8 (20.7). There was no evidence of radiological loosening in any cases reviewed at 12 months, no recorded complication or clinical evidence of local or systemic sensitivity, and no adverse events relating to the implant.

CRP readings were 6.2 (3) pre-surgery, 100.4 (80) at discharge, and 7.2 (5) at 12 months.

Conclusion: The findings after 2 years support this implant system to be a safe augmentation to enhance the bone-to-screw interface in spinal surgery. The design of the implant and technique of insertion will be discussed.

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Conservative treatment of low back pain in lumbar disc herniation: Comparison of three therapeutic regimens

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Introduction: Lumbar disc herniation is one of the most common causes of acute low back pain (LBP). As LBP is associated with low quality of life and various morbidity, proper management should be considered to minimize its health burden (1). Although non-surgical management is considered as the

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