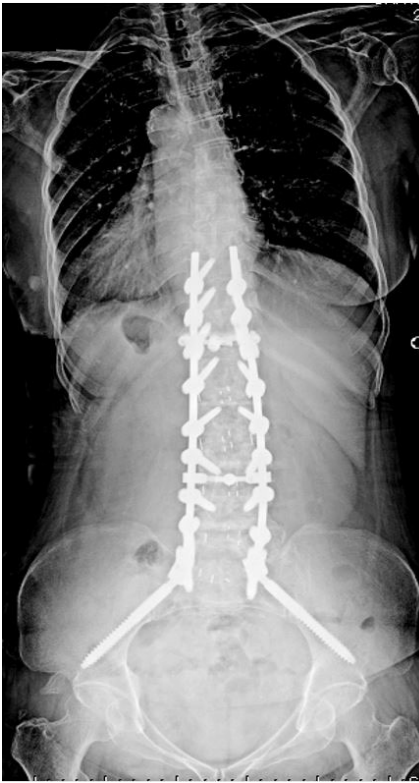
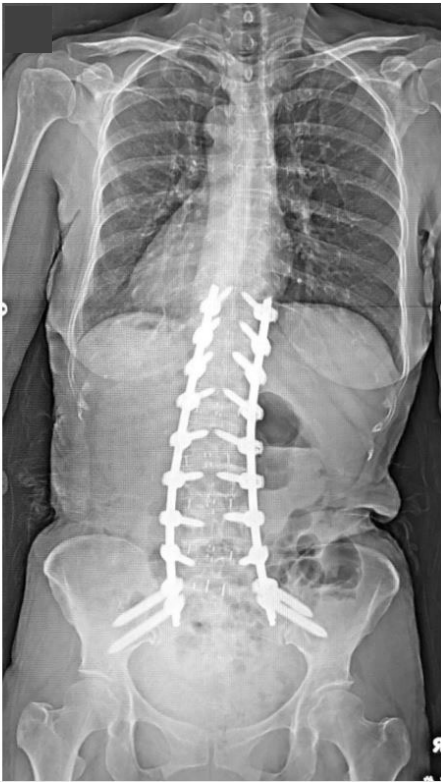


Figure 1.

A)



B)



C)



Figure 2.

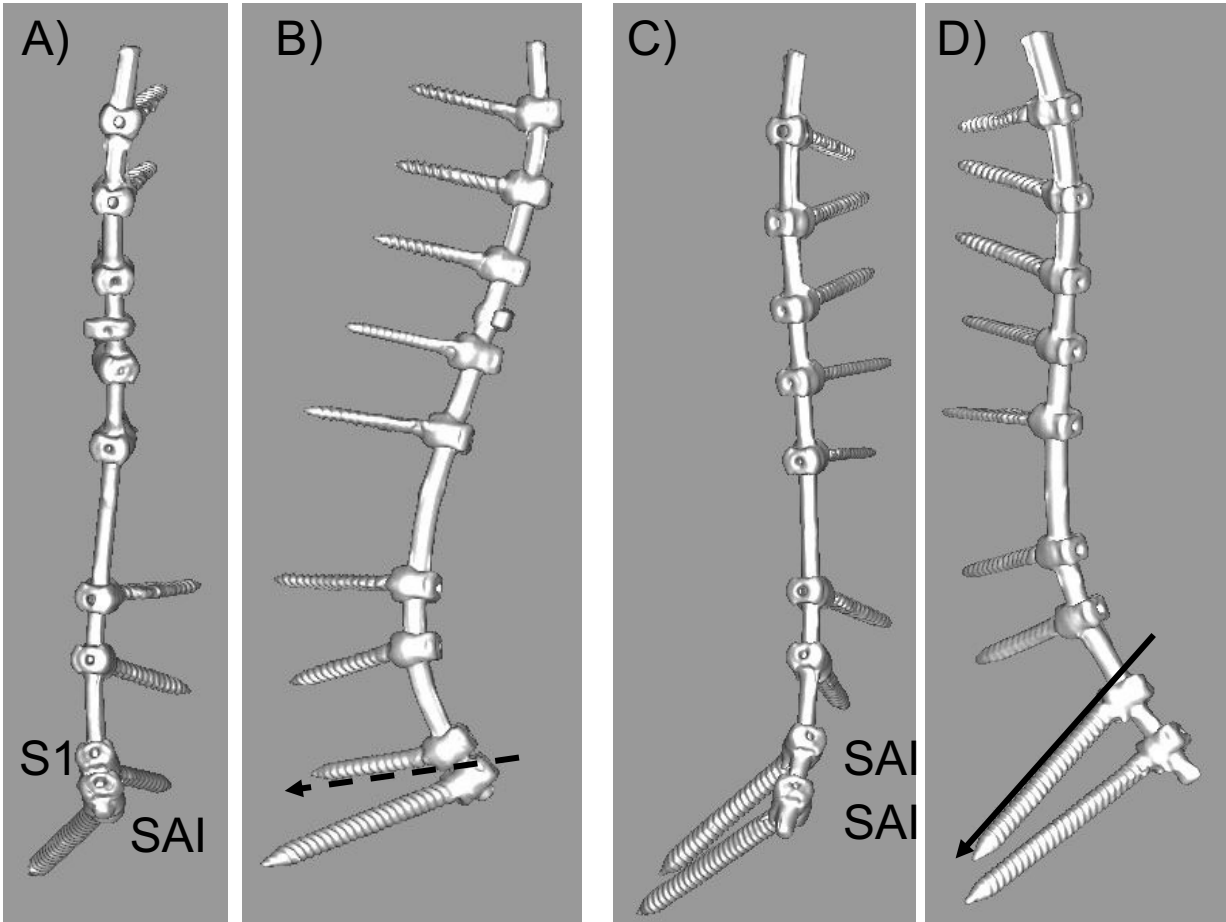


Table 1. Kappa coefficients for intraobserver and interobserver reliability

	Intraobserver	Interobserver
T10 screw loosening	0.79	0.66
SAI screw loosening	0.81	0.71
S1 screw loosening	0.89	0.78

SAI: sacral-alar-iliac

Table 2. Patient demographics

	Group S	Group D	<i>P</i>
Cases	17	22	-
Gender (male : female)	1:16	2:20	1.00
Mean age	71 ± 5.6	70 ± 7.2	0.60
Follow-up (months)	27.8 ± 7.7	25.5 ± 6.4	0.32
cMIS v.s. hybrid MIS	11 : 6	8 : 14	0.11
Operation time (min)	282 ± 40.1	306 ± 72.2	0.22
Blood loss (ml)	745 ± 357.8	918 ± 612.6	0.31
PPS (cases)	11	8	0.11
Number of rods			
Two (cases)	17	7	<0.05
Three (cases)	0	15	
Material of rod			
Cobalt chrome (cases)	17	20	0.50
Titanium (cases)	0	2	

cMISS: circumferential minimally invasive spinal surgery

PPS: percutaneous pedicle screw

Table 3. Pre- and post-operative global alignment in each group

	Pre-OP			Post-OP		
	Group S (SD)	Group D (SD)	<i>P</i>	Group S (SD)	Group D (SD)	<i>P</i>
Cobb angle (°)	24 ± 22	33 ± 17	0.16	11 ± 9	13 ± 10	0.62
CSVL (mm)	30 ± 20	37 ± 27	0.34	20 ± 16	14 ± 11	0.14
LL (°)	19 ± 20	10 ± 17	0.60	50 ± 9	49 ± 11	0.24
PI-LL (°)	31 ± 22	38 ± 22	0.36	0.4 ± 13	-0.6 ± 13	0.81
PT (°)	33 ± 11	32 ± 12	0.82	15 ± 10	13 ± 9	0.52
SVA (mm)	86 ± 45	95 ± 59	0.60	7 ± 30	21 ± 40	0.24

CSVL: center sacral vertical line, LL: lumbar lordosis, PI: pelvic incidence, PT: pelvic tilt, SVA: sagittal vertical axis

Table 4. Postoperative complications

	Group S (N=17)	Group D (N=22)	<i>P</i>	Power
PJK (%)	35	50	<i>0.52</i>	<i>0.50</i>
T10 loosening (%)	47	46	<i>1.0</i>	<i>0.057</i>
S1 loosening (%)	29	-	<i>N.A.</i>	-
SAI loosening (%case)	65	27	<i>0.026</i>	<i>0.99</i>
Rod breakage (%)	12	0	<i>0.17</i>	<i>0.68</i>
Reoperation (%)	24	18	<i>0.71</i>	<i>0.21</i>

PJK: proximal junctional kyphosis

Table 5. Postoperative patient reported outcome measurement

	Group S (SD)	Group D (SD)	<i>P</i>
ODI	41 ± 14	38 ± 24	0.72
JOABPEQ			
Low back pain	69 ± 33	74 ± 35	0.64
Lumber function	28 ± 24	39 ± 27	0.22
Walking ability	42 ± 22	53 ± 31	0.21
Social life function	42 ± 16	50 ± 23	0.20
Mental health	45 ± 16	53 ± 21	0.22
VAS			
Low back pain	4.2 ± 2.6	3.2 ± 2.5	0.21
Buttock pain	4.2 ± 2.3	4.2 ± 2.8	0.95

ODI: oswestry disability index, JOABPEQ: Japanese orthopaedic association back pain evaluation questionnaire, VAS: visual analog scale