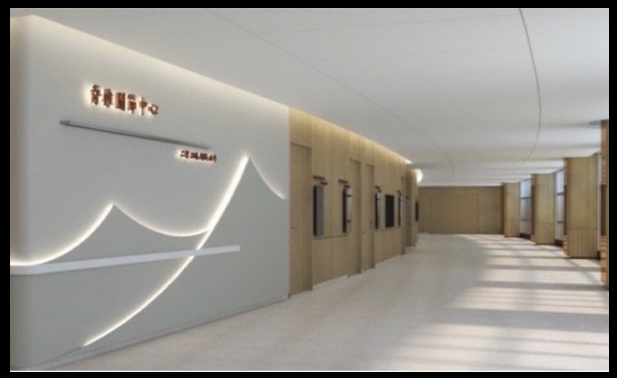
Navigation in C spine surgery: From deformity to revision surgery



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O arm navigation in Cervical spine

- Cervical spine (and High T spine)
- Revision cervical spine
- Endoscopic foraminotomy(PECF)
- Kyphosis correction (percutaneous kyphosis correction)
- High cervical spine surgery

- **Inclusion criteria:**

Patients accept navigation in C spine or high T spine with O arm(C1-T5)

- **Material and methods:**

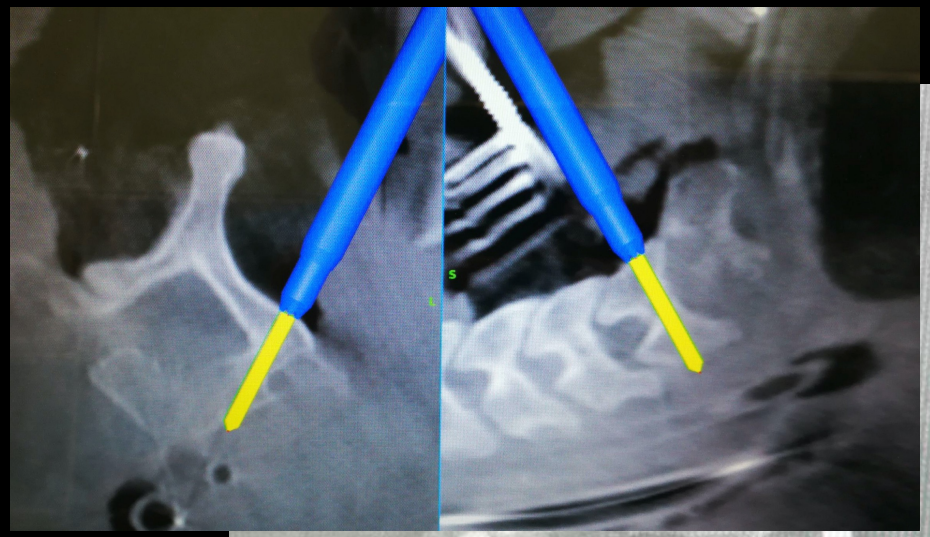
1. 2018 Feb.-2023 Dec.: totally 102 screws in 17 patients
2. Intra-op O arm scan or post operation CT or MRI examination
4. All the patients had regular follow up for at least 2 months
5. No loss follow up

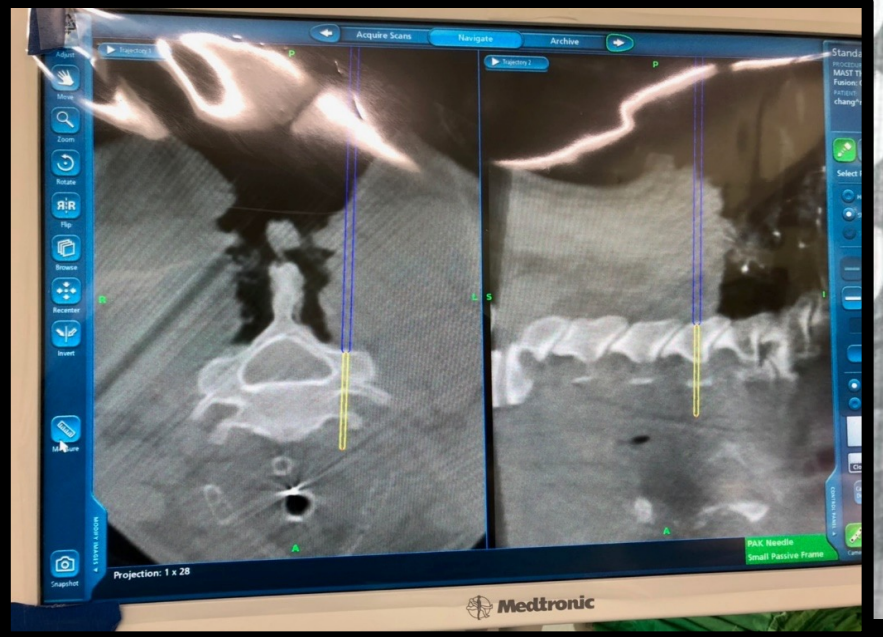
Results: Screw distribution

	C1	C2	C3	C4	C5	C6	C7	T1	T2	T3	T4	T5	Numbers
Case1									2	2			4
Case2										2	2		4
Case3											2	2	4
Case4										2	2		4
Case5								2	2	2	2	2	10
Case6					2	2	1	2	2				9
Case7												2	2
Case8									2	2	2		6
Case9										2	2		4
Case10				2	2	1		2	2				9
Case11									2	2	2	2	8
Case12						2	2	2	2	2			10
Case13										2	2	2	6
Case14									2	2	2	2	8
Case15		2	2	2									
Case 16	2	2											
Case17					2	2							
	2	4	2	4	6	7	3	8	16	20	18	12	102

Results

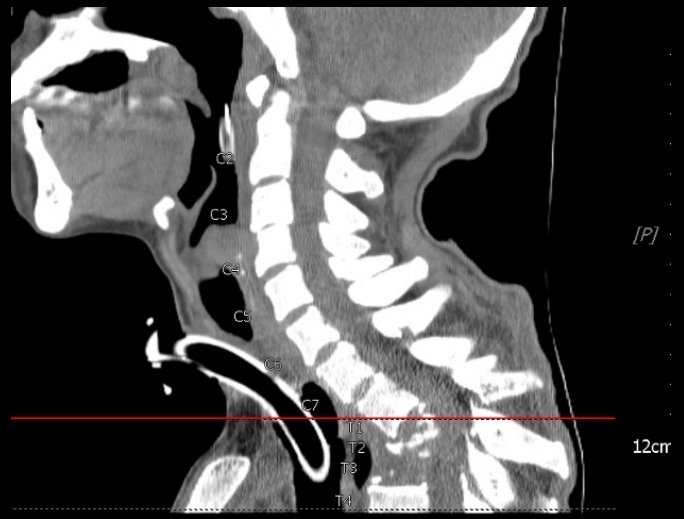
	Case number	Screw numbers	%
Nerve injury	0	0	
Revision surgery	0	0	
Infection	0		
Post op mortality	0		
Screw revise	1	2 (T)	2.27%
Screw outliner	2	5 (T)	5.60%



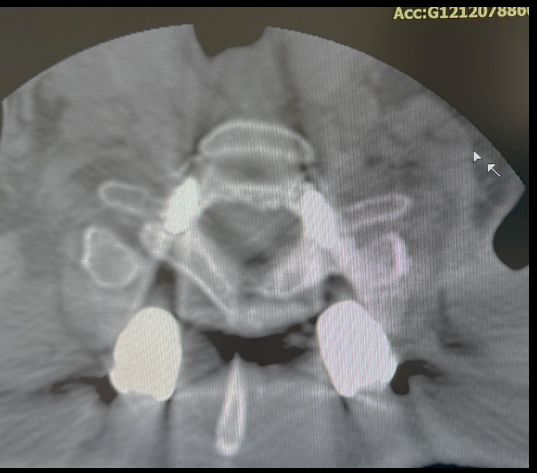

Acquire Scans
Navigate
Archive
Projection: 1 x 28
Medtronic

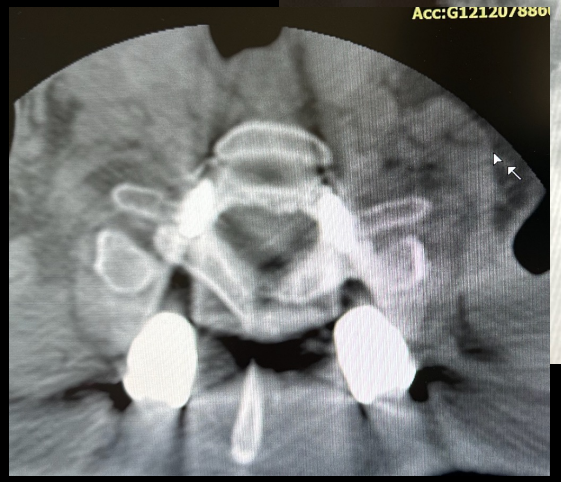
Srs:1
Img:1
8cm
Zoom : 82.60%
WL : 2048

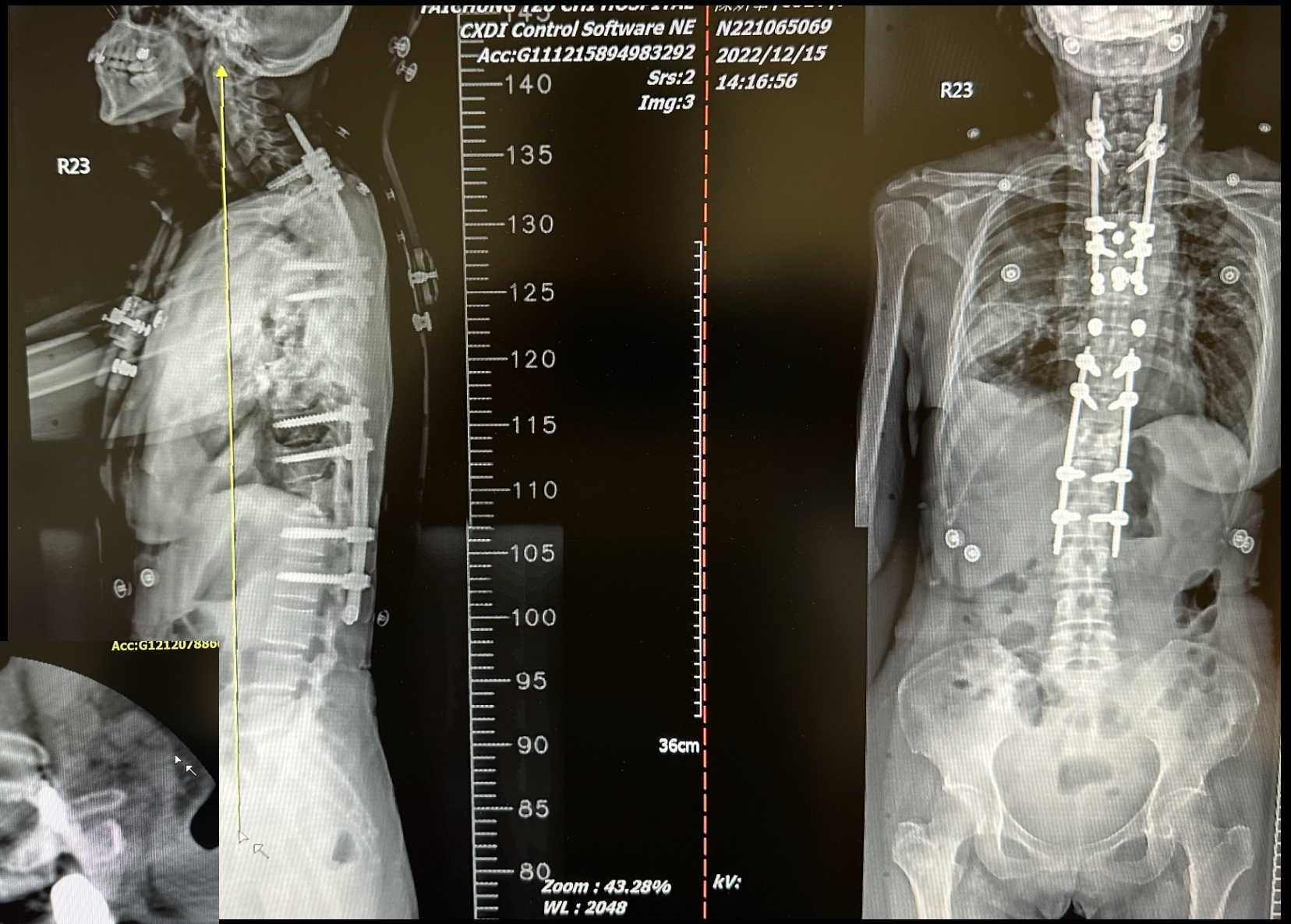

16:19:27
LATERAL
kV:
Zoom : 64.96%
WL : 3536
WW : 3350



1. Cachexia
2. Poor wound healing over whole body







Intra op:

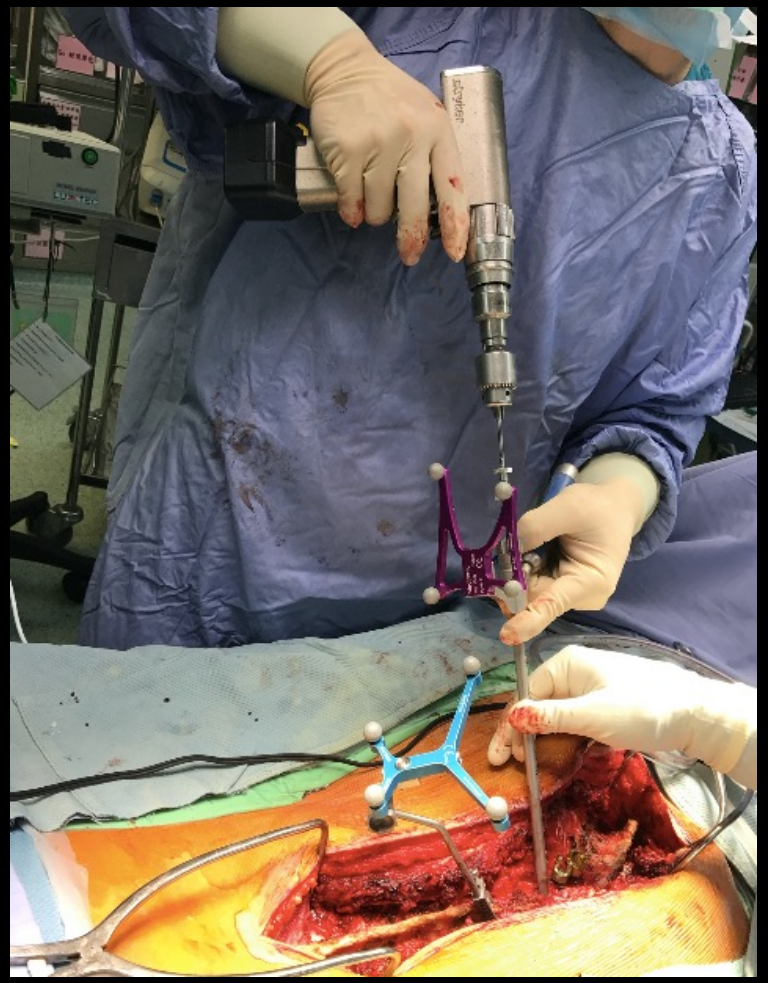
- Open surgery

1. pilot hole
2. drill

- Percutaneous pedicle screw:

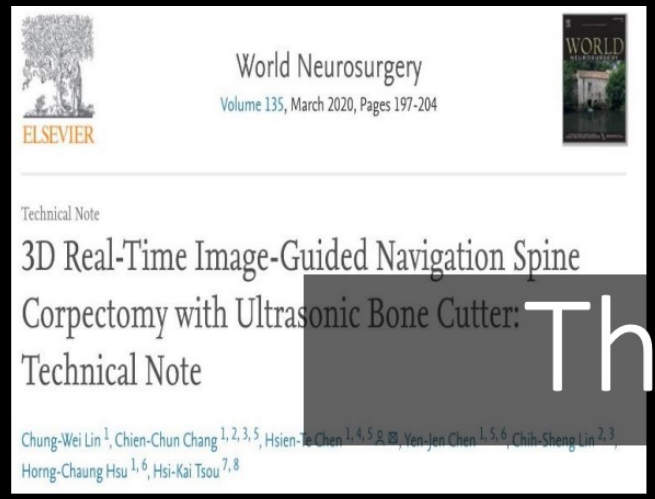
1.Drill usage

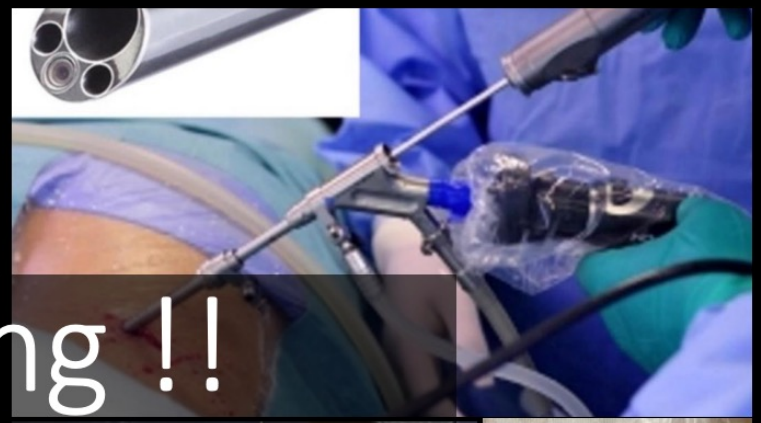
2.Feel the bone



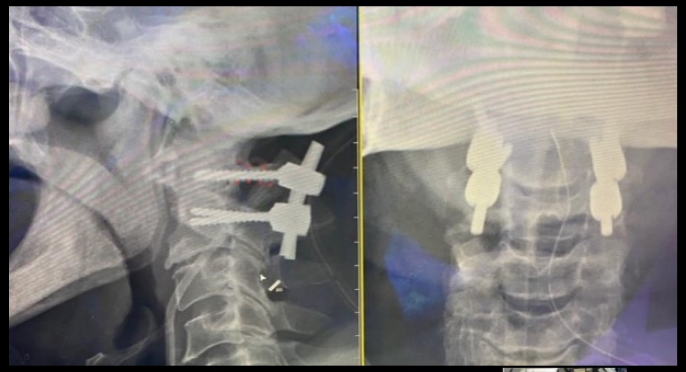
Conclusions

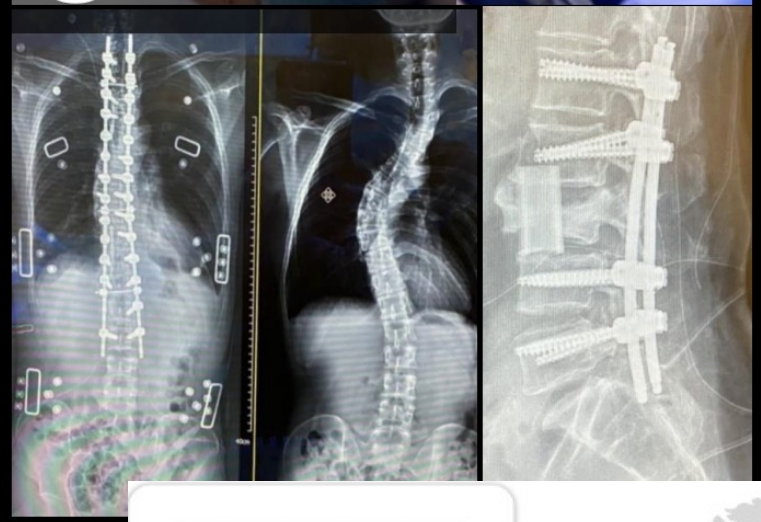
- Navigation in C spine and high T spine is available using O arm
- The accuracy is about 94.4%, should aware of screw length (mostly depth and lateral breach)

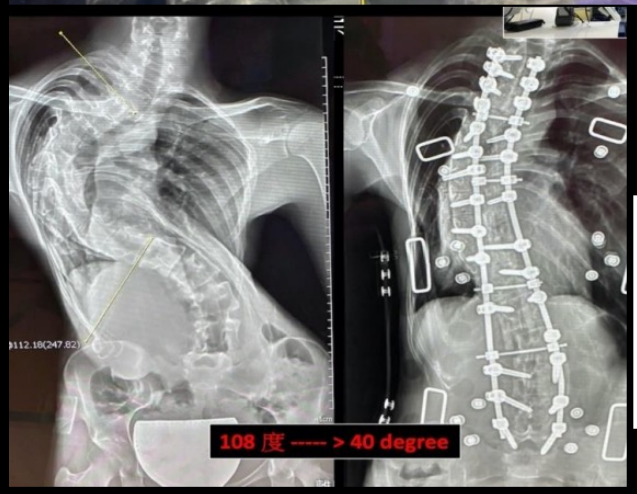




Thank you for listening !!







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