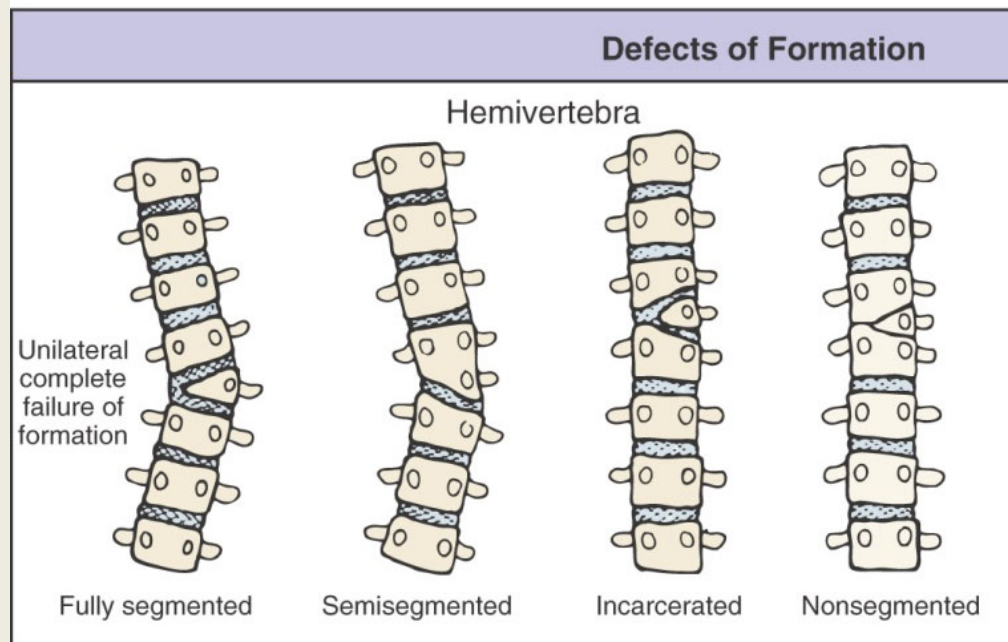


Lesson Learned: Hemivertebrae Resection



Charles E. Johnston MD
ICEOS Utrecht 2016

DB dob 4/9/12
1st seen at 1+4

PMH: Twin - identical
brother unaffected (dx in
utero)

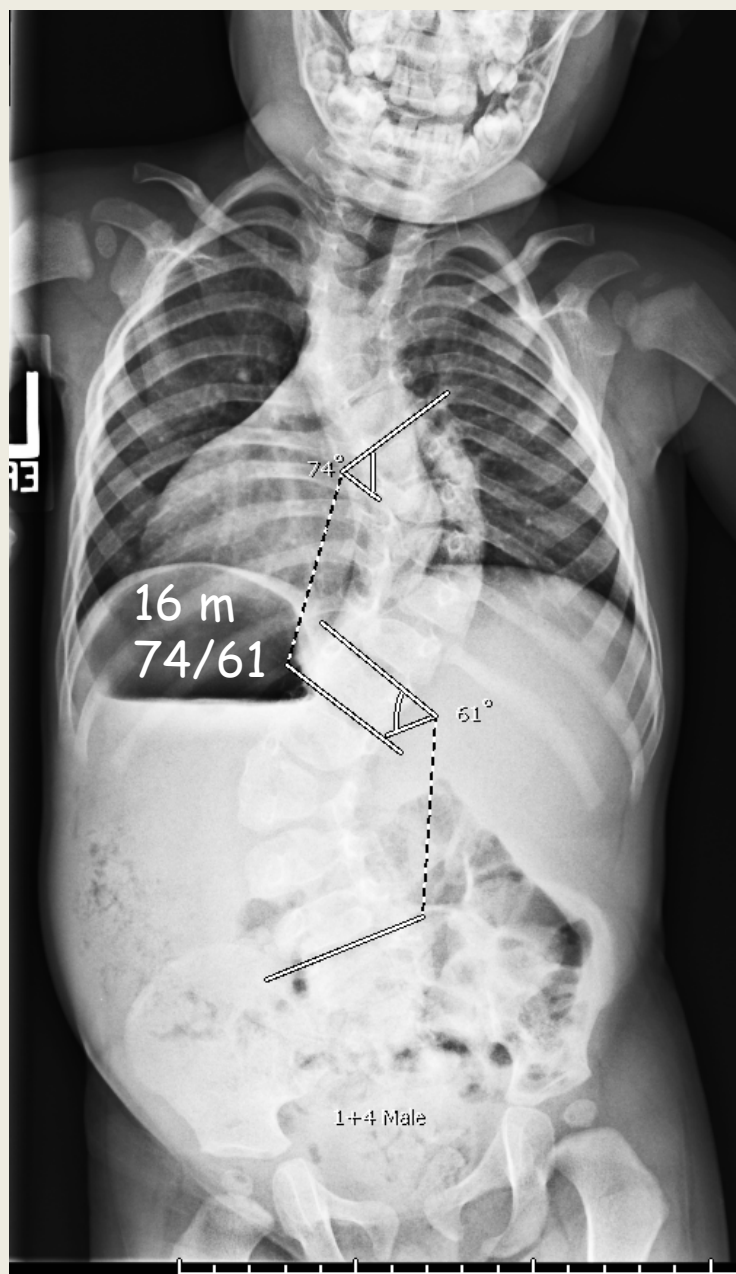
No other abnormality
(-MRI, -U/S)

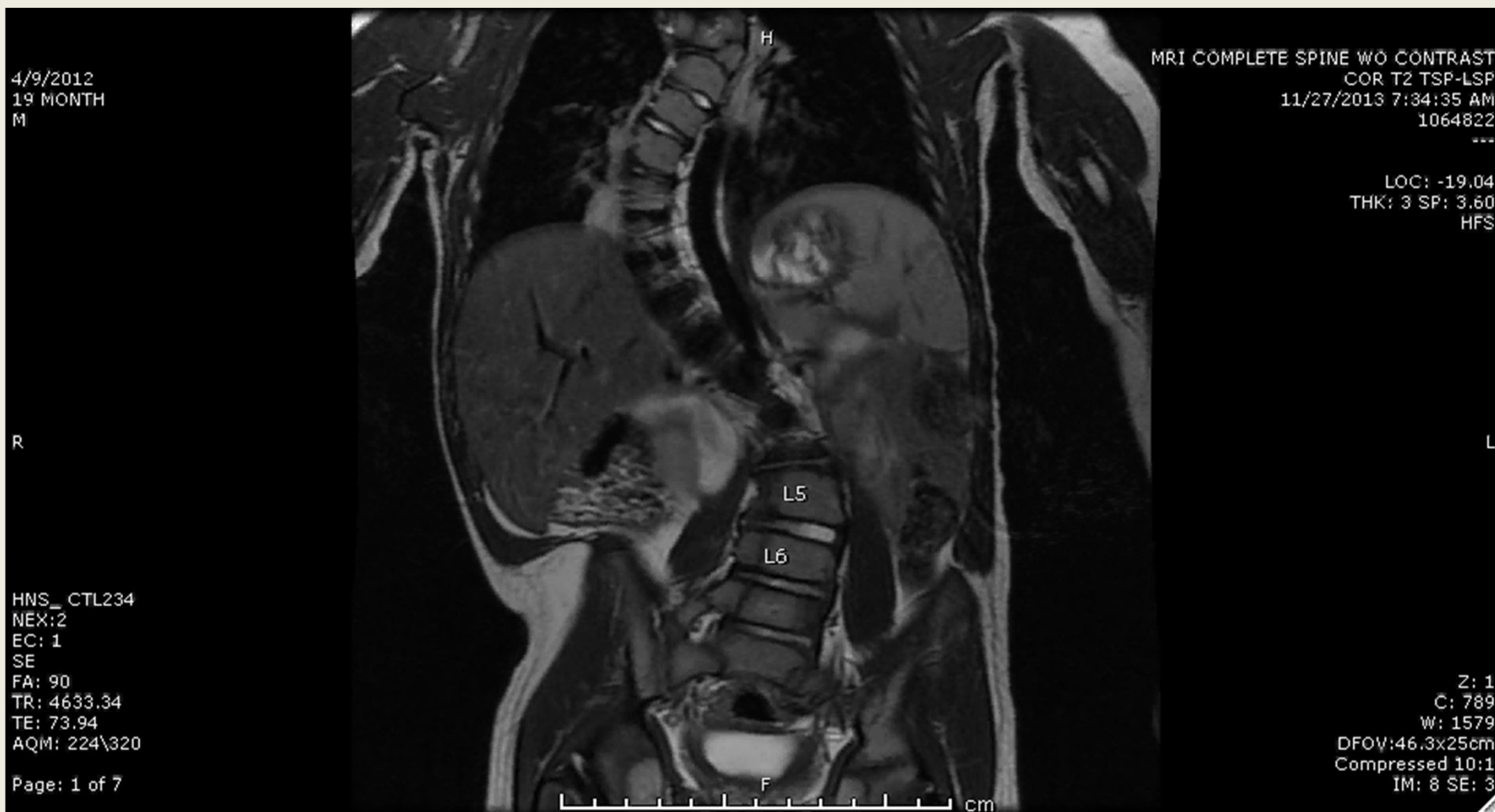
NI G&D (walk 14 mo)

NI chest wall



16 mo - presentation

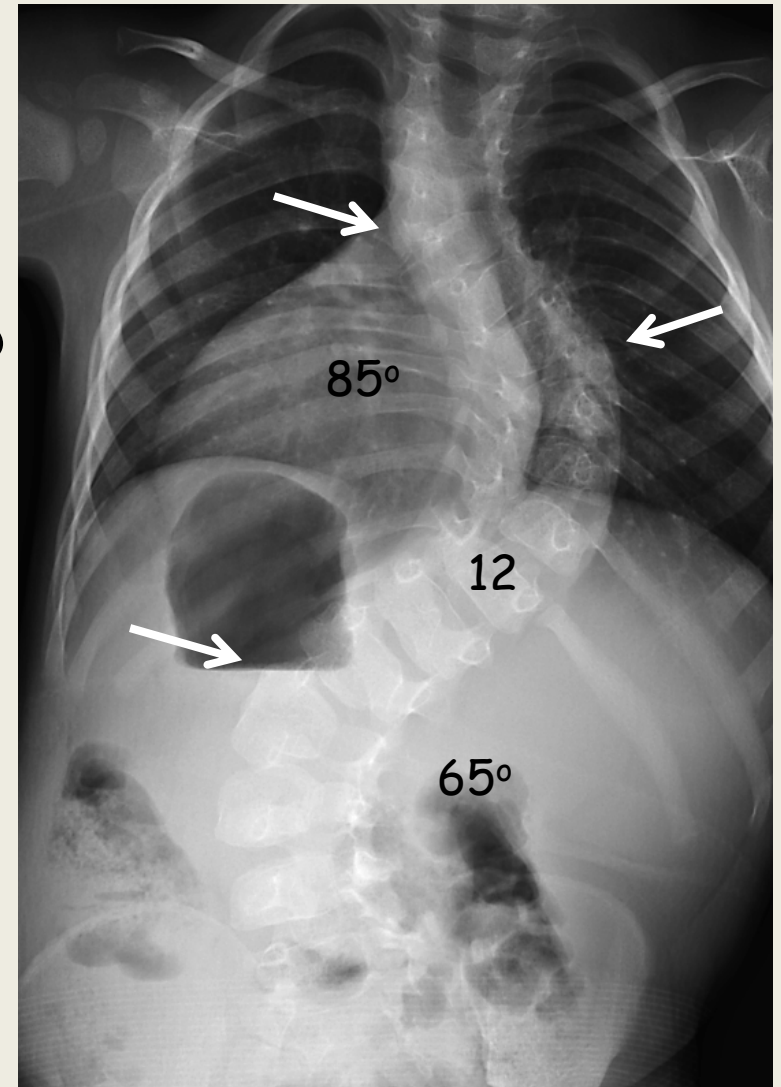




No CT done

Rapid progression → RX @ 21 mo ?

- Growth-friendly, long ?
T2-L4/5
- Hemivertebra excision ?
3 choices
- Delay ? (cast)



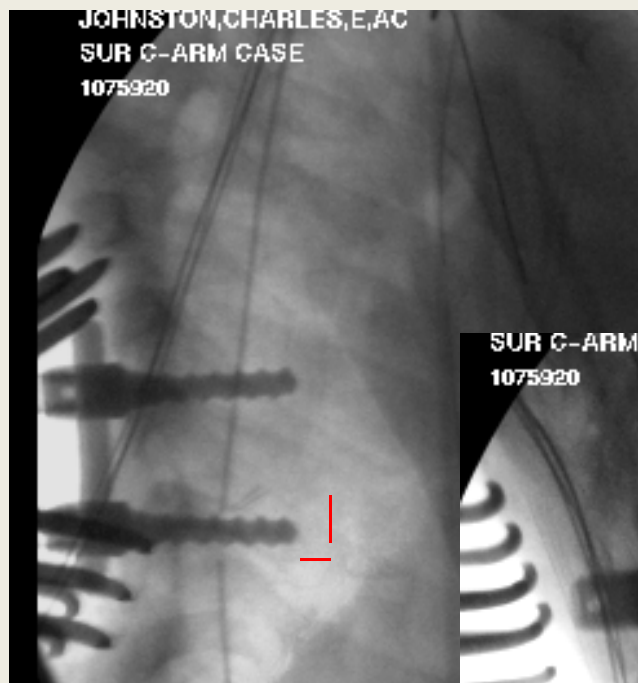
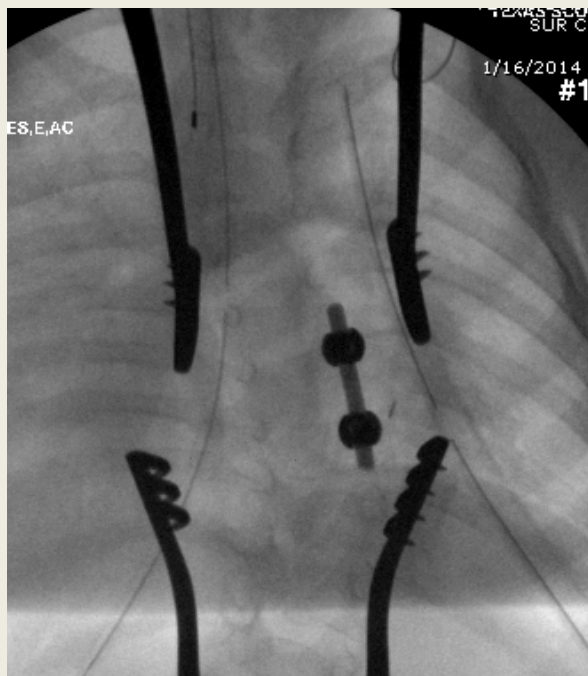


21 mo
preop

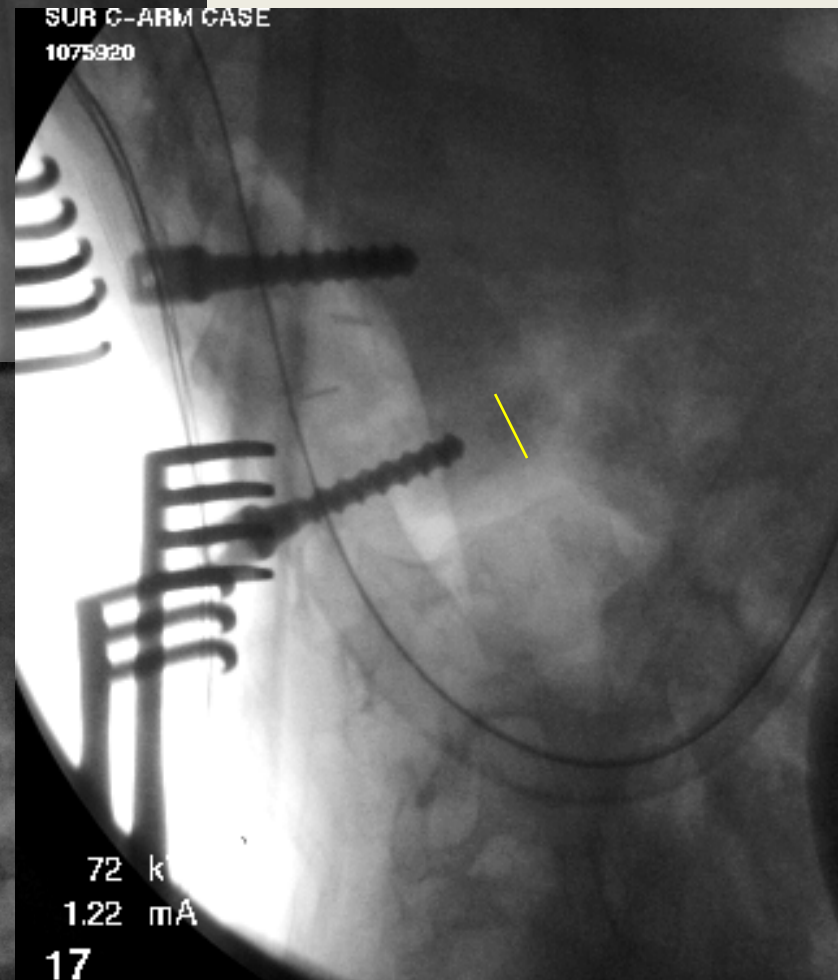
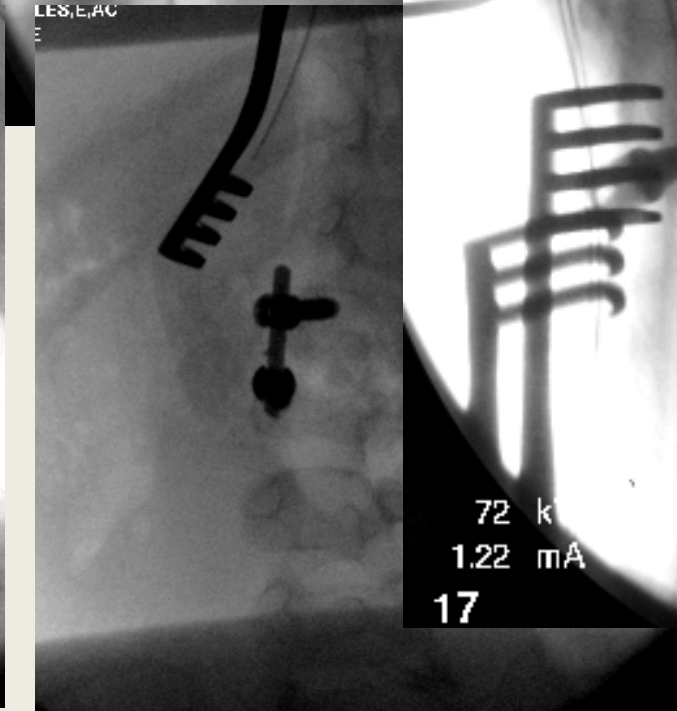
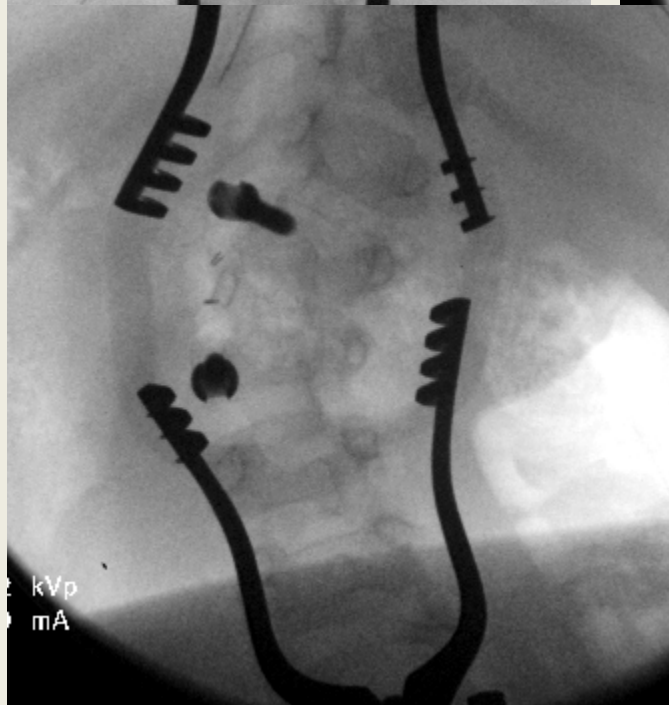
Dos 1-16-14

- R thoracotomy, L retroperitoneal anterior excisions
Posterior T7-9,
L2-4 instr 3.5mm
- Casted x 3 mo





Screw length
too short?

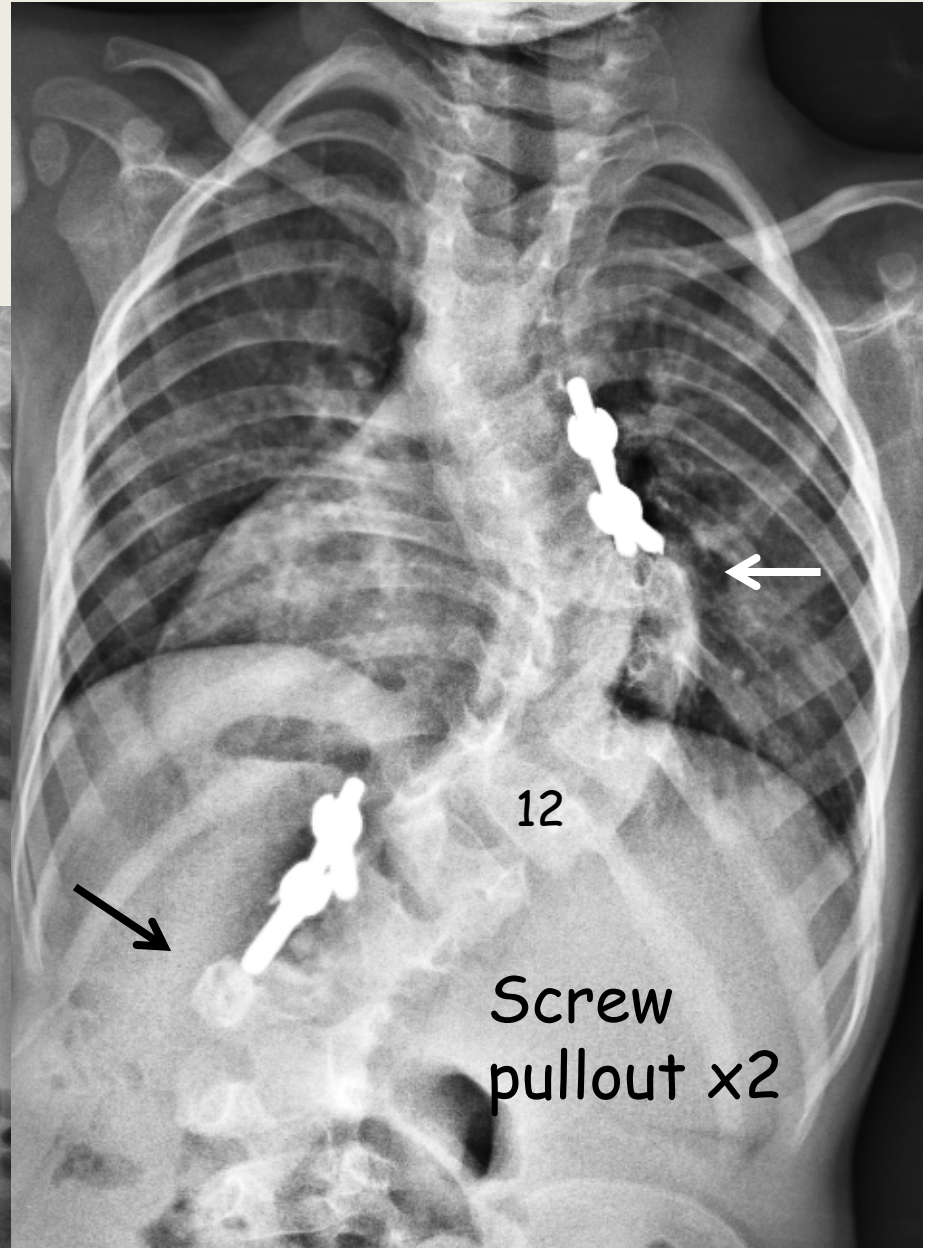
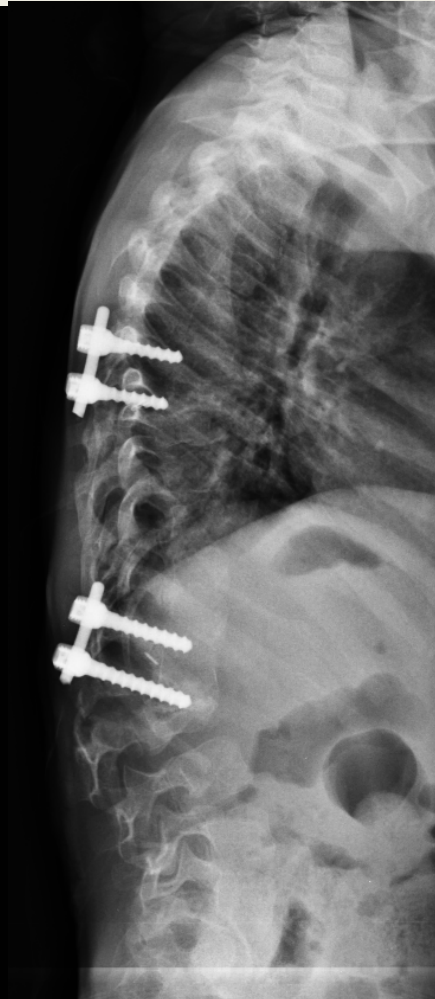


Cast change 6 wks - ? Wound
problem, foul odor

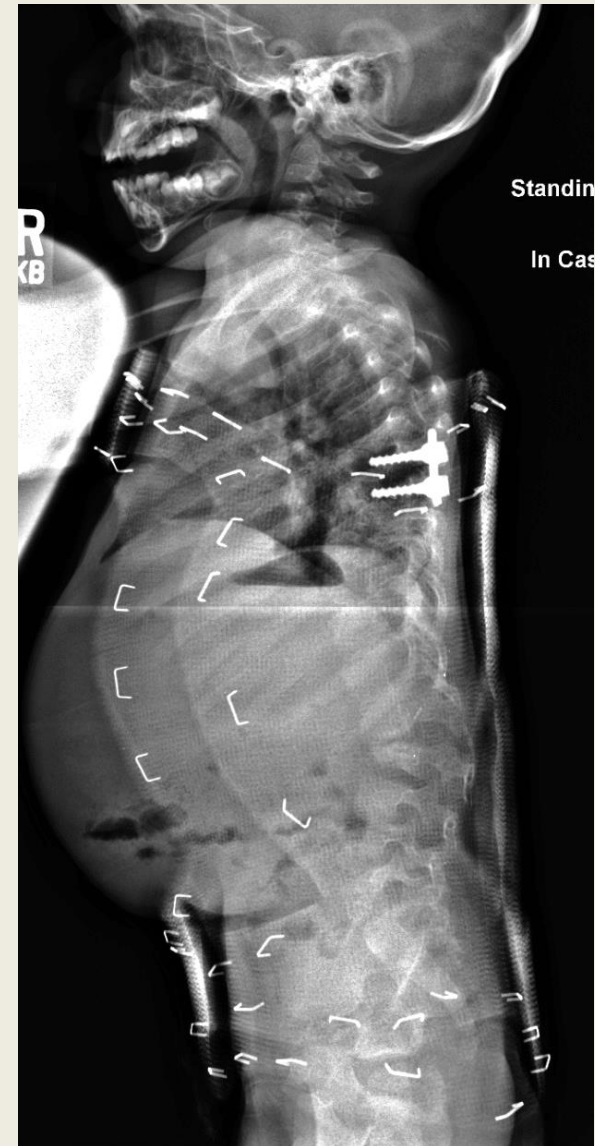


No wound problem -> re-casted
Cast off

++++ LOC

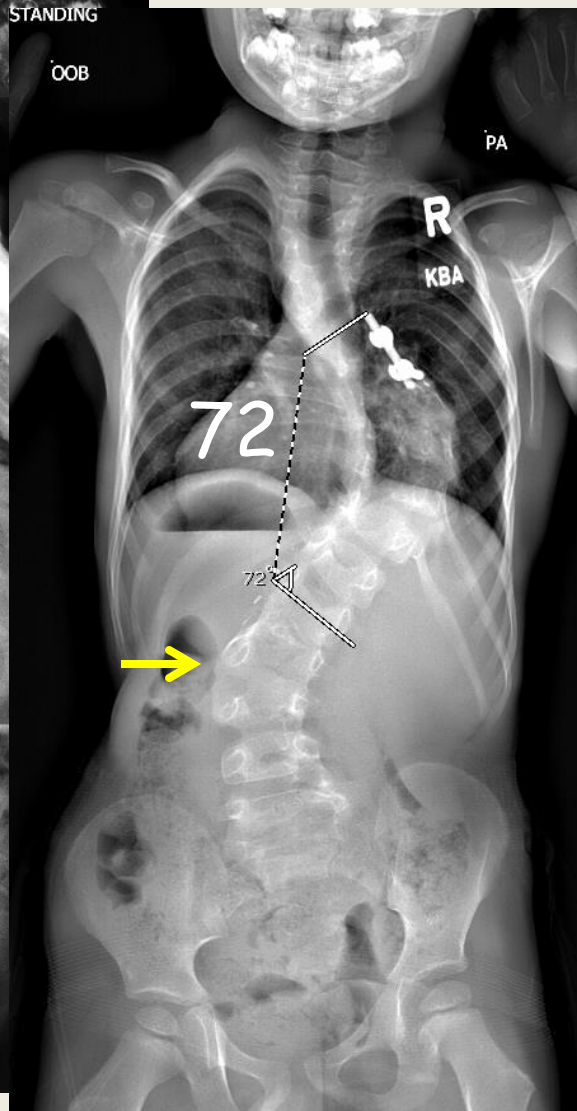
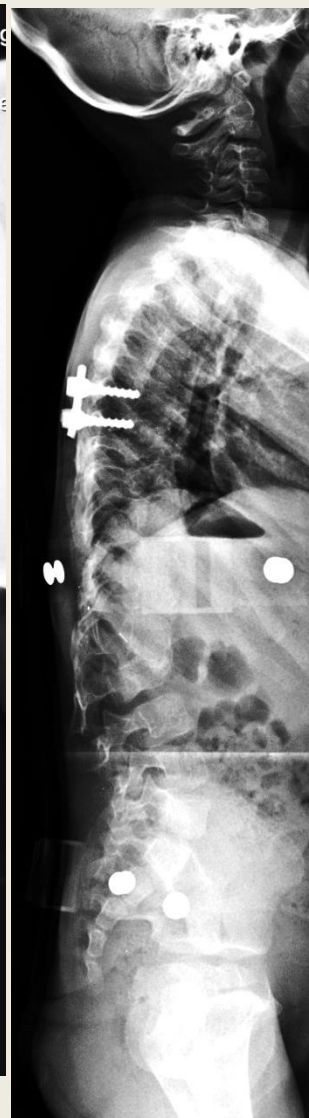


Lumbar HWR (prominence) + Cast



F/u 3/15 age 3 (brace)

8/16 - 4+4



What would I do different ?

- 21 mo = **too young** for hemivertebra resection ?

Klemme (2001) - mean age 19 mo

Callahan (1997) - best correct <4yr

Ruf/Harms (2003) - 30/51 pts between age 1-2

Bollini (2006) - mean age 3.3, n=21

Benli (2006) - mean age 12, n=26

Yaszay (2011) - mean age 5, n=36

Hedequist (2009) - mean age 4+3, n=10

2016 ICEOS #6 & 11 - mean age 3.5, all <5 yr, n=33

Drilling down....

Big series -post only					
	<u>n</u>	<u>age</u>	<u>eb</u>	<u>cx impl+add /neuro</u>	
Ruf	41	3+5 (1+3-7)	I-309 (80-1000)	39%	0
		(30 < 2)	II-723 (50-1600)		
Yaszay	42	5±4	455±461	44%	5
			<0 or >900 ?		
Smaller series					
Bollini	21	3+3 (1-10)	n.a.	14%	0
Klemme	6	1+7 (all <3)	362 (125-700)	0 cast!	0
Hedequist	10	4+3 (1+8-10)	270 (100-700)	0 3rods	0

EBL - possibly massive (post approach only)

Implants - can be problematic, solution = 3 rod

Ant/post vs Posterior only

- EBL less
- Better visualization/
complete excision
- "Less demanding"
- EBL increased
- Less visualization
- ↑ Neuro cx (dural
retraction)
- OR time less ?

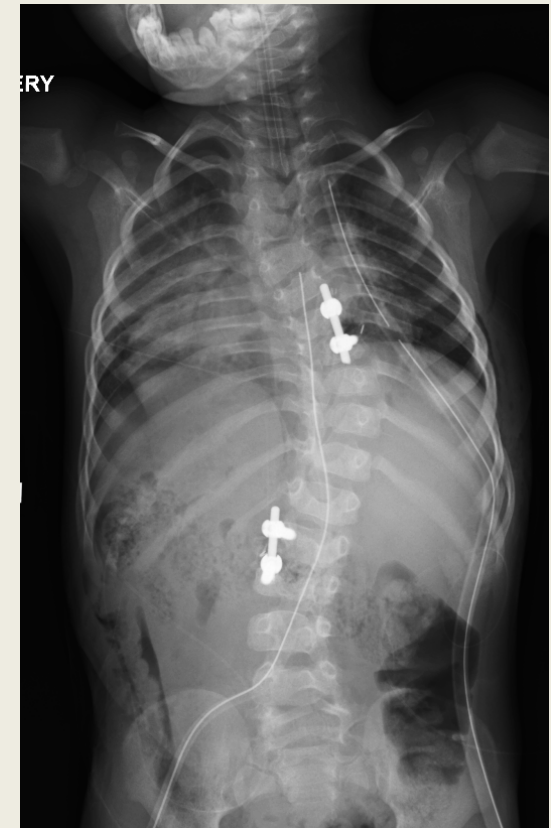
Optimal age now 4-6 (Hedequist/Emans)
Previous recommendation 18-24 mos.
(Hall influence)

If I had to do it over again...

- Cast first and buy time

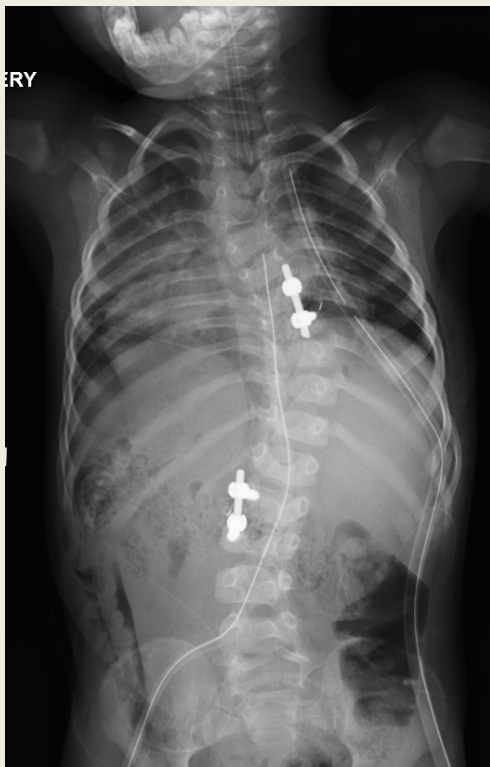


Flexibility &
correction
probable due
to what
correction
achieved on
table

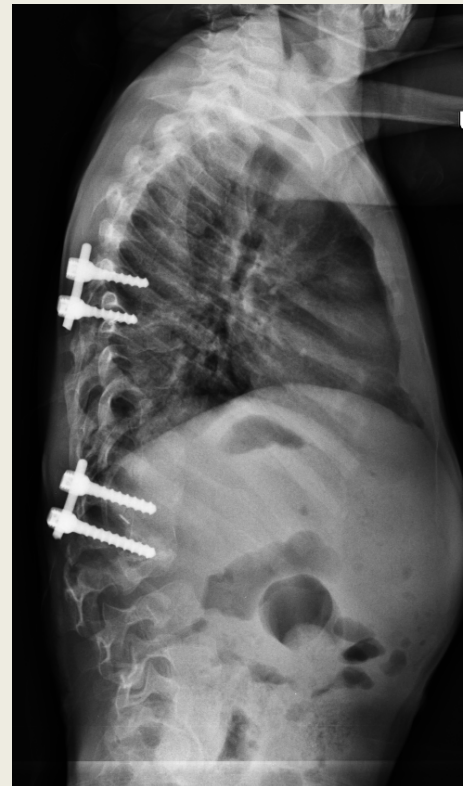


If I had to do it over again....

- Use more fixation (would have been easier if patient bigger)



Little
short 3.5
screws
pulled out
while in
cast



Jury still out...

- Age minimum (possibly base on patient weight)
- Go for more than 1 at a time (complexity issue ?)
- Necessary amount of fixation ?
- Posterior-only approach success depends on EBL, adequacy of excision, comfort level/skill set