

The background of the slide is a photograph of the Golden Gate Bridge at night, with its iconic towers and suspension cables illuminated against a dark blue sky and water.

RESULTS AND COMPLICATIONS OF KYPHECTOMY (PVCR) FOR PEDIATRIC HYPERKYPHOTIC SPINE DEFORMITIES (

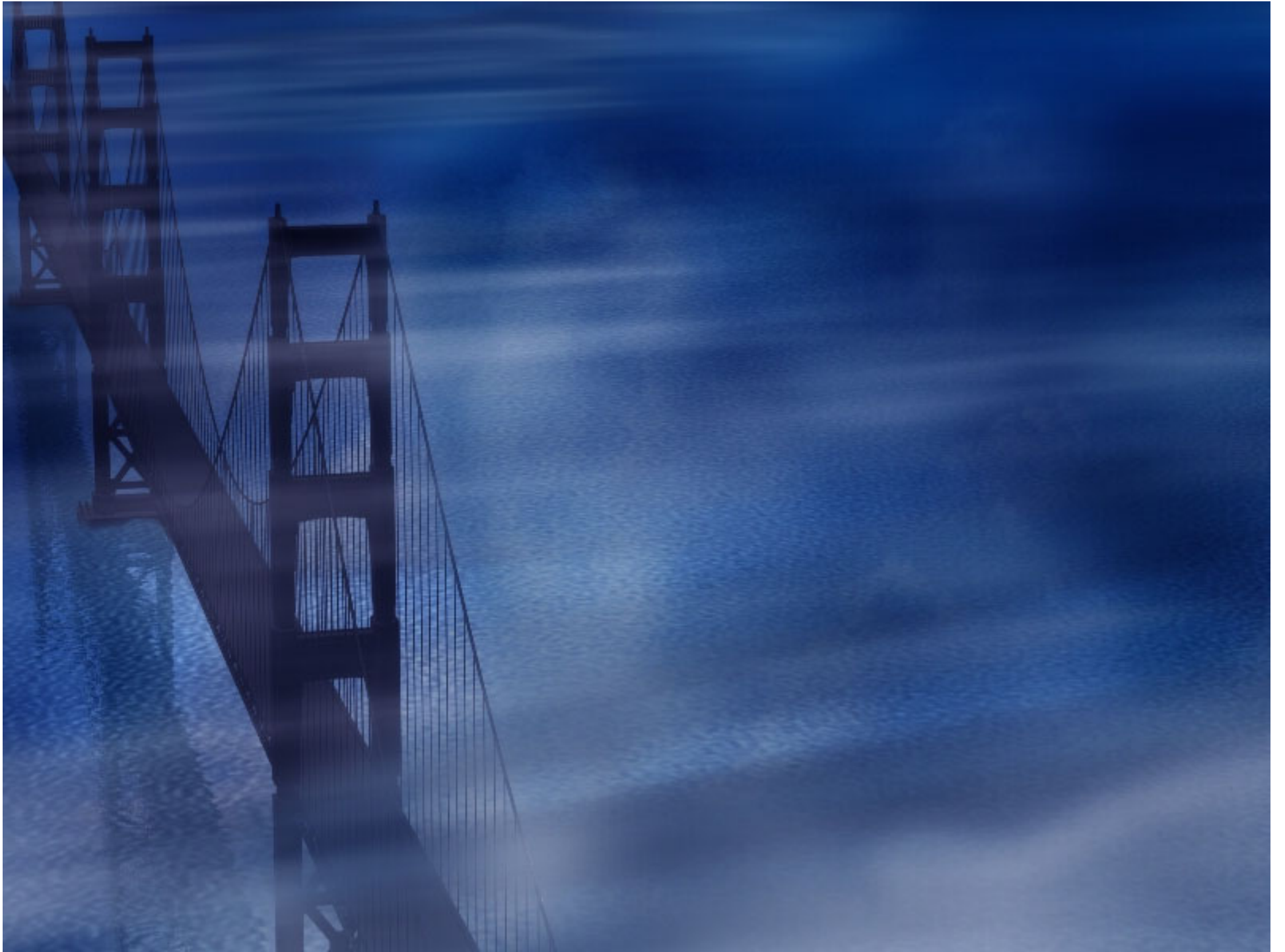
(an SRS GOP review of one site)

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Introduction

- ◆ Vertebral column resection (VCR) is a removal of all three columns of the spine that enables multiplanar translation necessary to correct severe deformities.
- ◆ VCR was originally described as a two stage procedure with the use of posterior instrumentation.
- ◆ Vertebral column resection through a posterior only approach (PVCR) is an ideal procedure for the treatment of hyperkyphosis.



Congenital Kyphosis







Methods

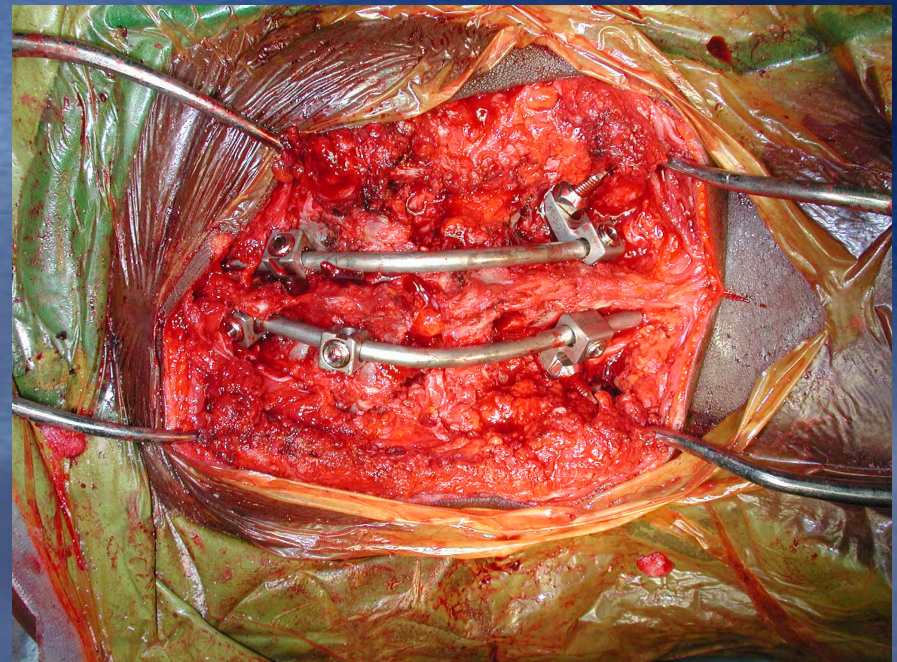
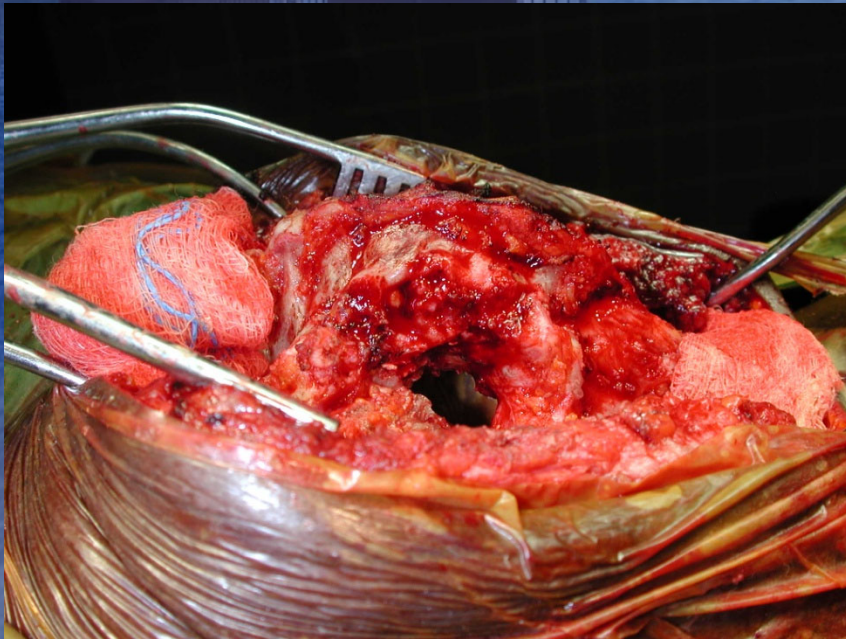
- ◆ 19 patients with severe, rigid, angular postinfectious and congenital hyper-kyphosis (mean kyphosis: 99°)
- ◆ Deformity apex was in the thoracic spine (T1-T11) in 4 patients, in the thoracolumbar (T12-L1) in 11 and in the lumbar (L2-L5) spine in 4 patients.
- ◆ Instrumentation comprised of hooks (2), hybrid (8), and all screws (9).
- ◆ A anterior structural titanium cage was used in 10 patients.

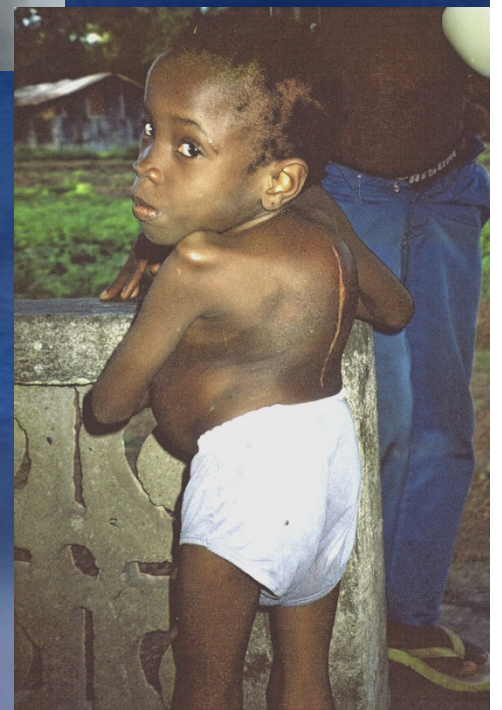
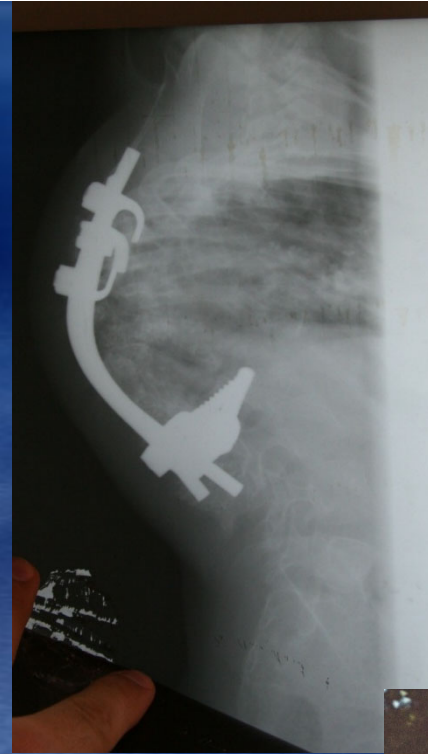
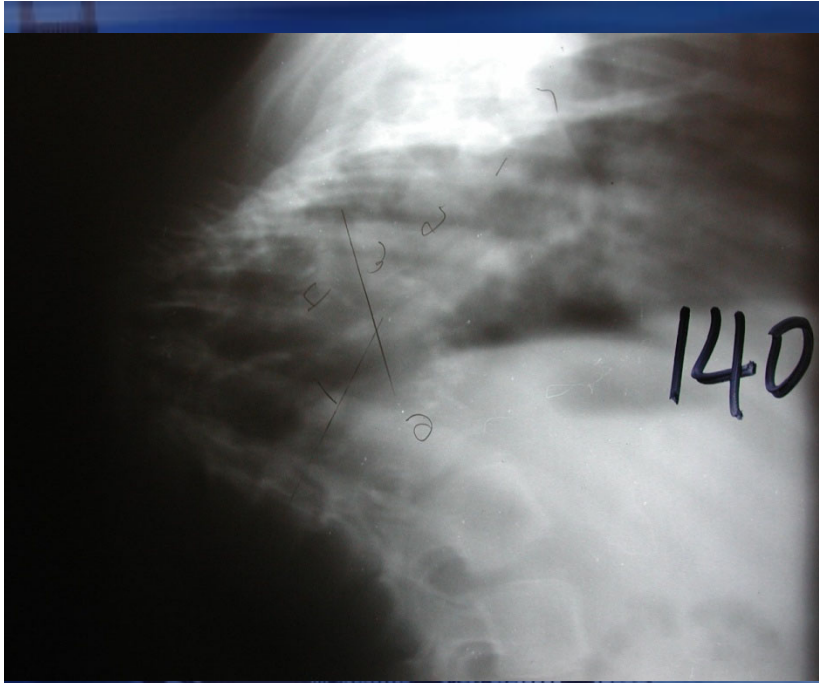
Demographics

PVCR Review of 19 pediatric pts

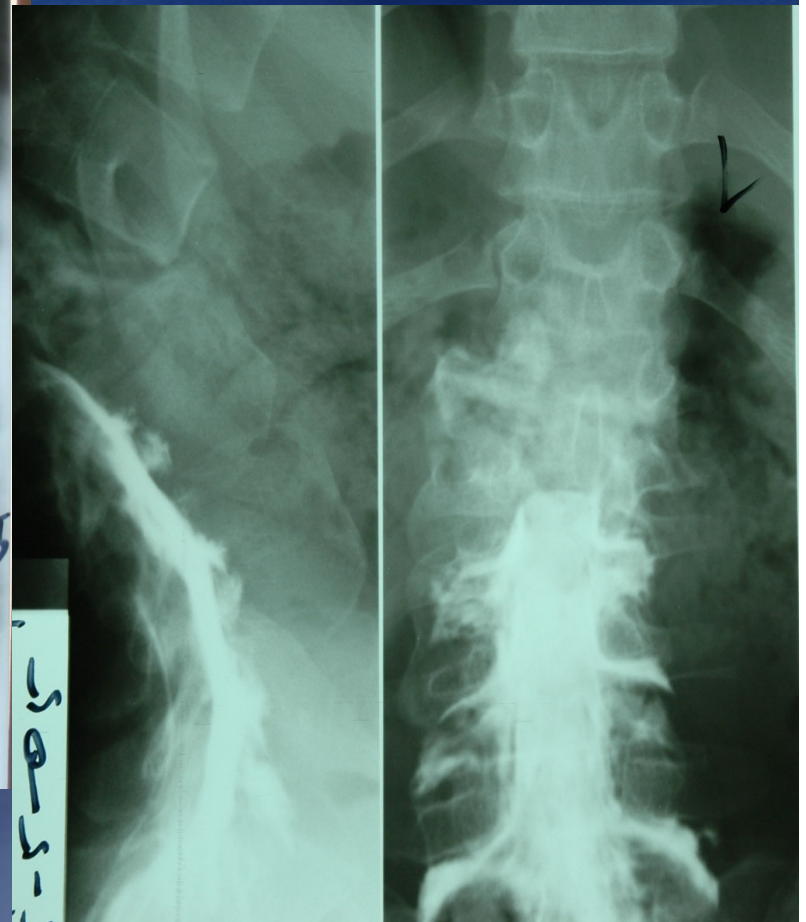
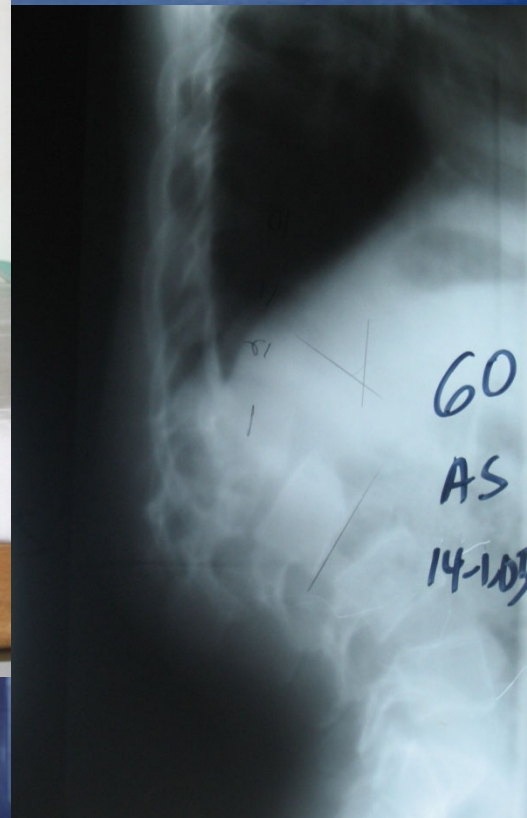
Total Patients	19 (male 4, Female 15)
Age (average/range)	13.3 (5 – 21)
Weight (average/range)	29.58 kg (13 – 55)
Follow up (average/range)	35.15 months (5 – 79mo)
Diagnosis types	14 TB/ 5 Congenital
Average pre Kyphosis	99.05 (range 57-160 ⁰)
Average Post Kyphosis	46.73 (range 22-70 ⁰)
Average EBL	1165.6 (range 350 to 2000)
Levels Fused (average/range)	9.1 (4-13)

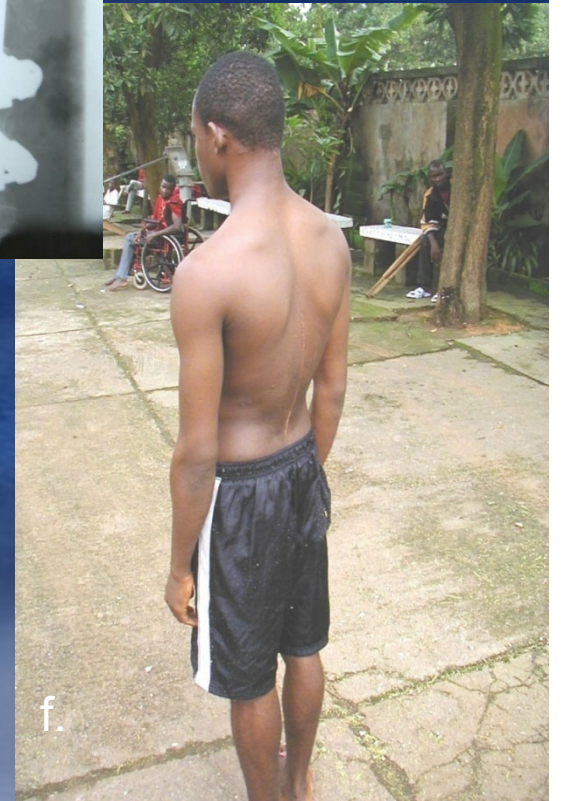
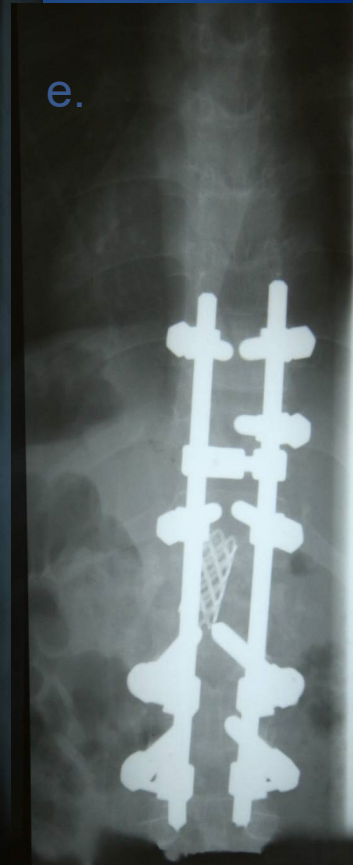
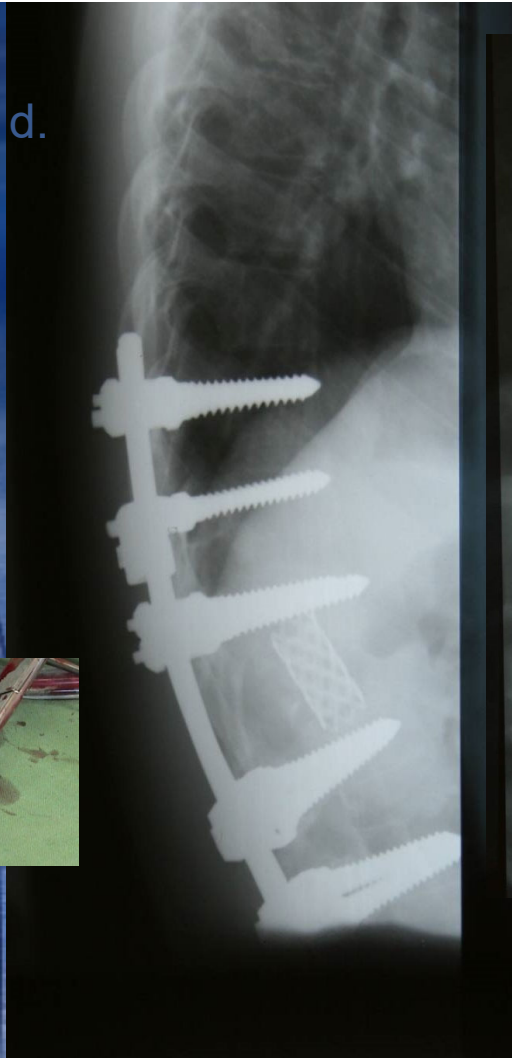
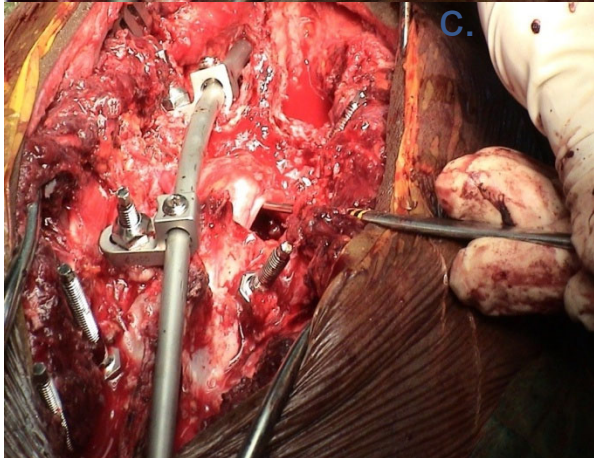
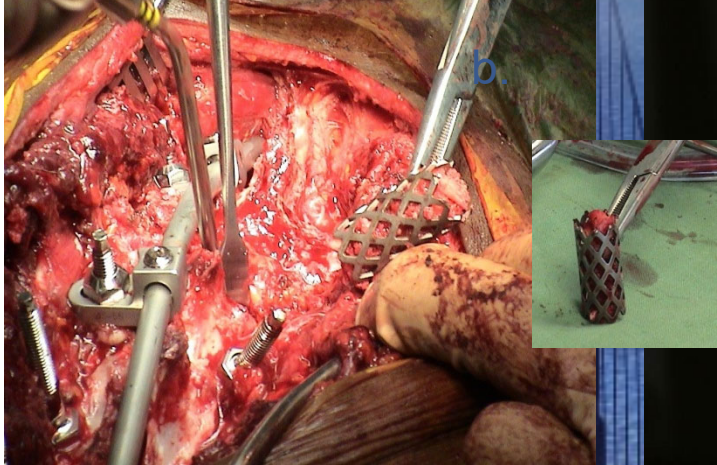
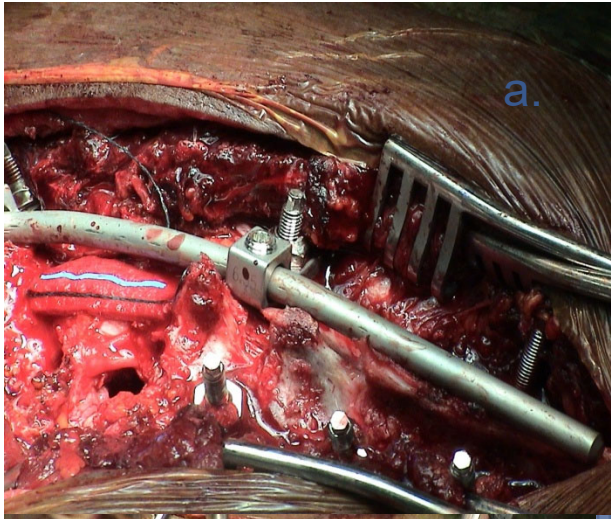
Case 1 (8yo TB kyphosis)





Case 2 (16yo TB kyphosis)





The background of the slide is a photograph of the Golden Gate Bridge at night. The bridge's towers and suspension cables are visible against a dark blue sky. The water below is dark and reflects some of the bridge's lights. The overall tone is dark and moody.

Results

- ◆ Deformity apex was in the thoracic spine (T1-T11) in 4 patients, in the thoracolumbar (T12-L1) in 11 and in the lumbar (L2-L5) spine in 4 patients.
- ◆ Number of levels resected averaged 2.15 (range 1 to 5).
- ◆ The average EBL was 1165cc (350-2000cc).
- ◆ Kyphosis (was 99° preoperatively) was corrected to 47° ($p < 0.001$).

Outcomes (SRS-22)

SRS	Pre op (18/19 scores submitted)	Post Op (16/19 scores submit)	P-value
Function activity	2.67	2.98	P>0.05
Pain	3.38	3.05	NS
Self image	2.16	4.14	p < 0.001
Mental health	3.31	3.35	NS
Satisfaction	3.26	3.43	NS
total	3.00	3.54	p<0.05

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Complications

- 7 in total (31.5%)/ 4 reoperations
 - 2 intraoperative SSEPs/MEPs changes that recovered fully at the time of the operation
 - 1 post-operative deterioration of myelopathy (not associated to the surgery)
 - 1 psoas abscess (TB) that was drained
 - 1 pseudarthrosis at the L5-S1 level (reoperated)
 - two dislodgement of the proximal hooks and proximal junctional kyphosis at one year post-op (reoperated)



Conclusions

- ◆ PVCR is effective for the correction of major kyphosis
- ◆ Neurosurveillance (motor evoked potentials-MEPs) permits close monitoring of the cord
- ◆ All screws instrumentation constructs are safe and effective
- ◆ Exchanging rods or in-situ bending safer than cantilever maneuvers

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