

Spine Executive Class

SEC Munich 2011

Problem: **Spondylectomies**

Illustrative Case:
**Aneurysmatic Bone Cyst of
C-Th junction treated by
two level spondylectomy**



Presenter:

Petr Vachata, MD, PhD

Dpt. of Neurosurgery
J. E. Purkinje University
Masaryk Hospital
Usti nad Labem
Czech Republic

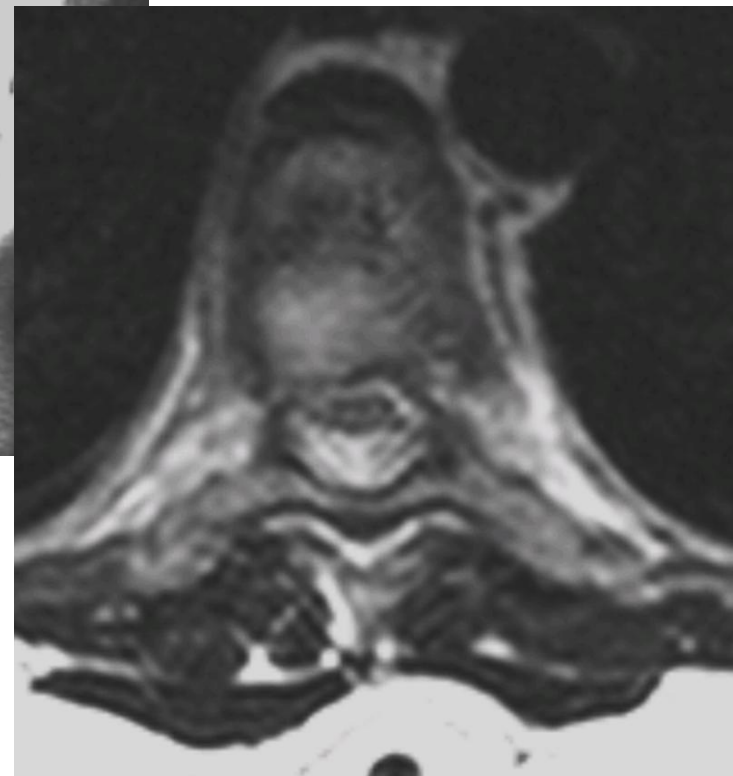


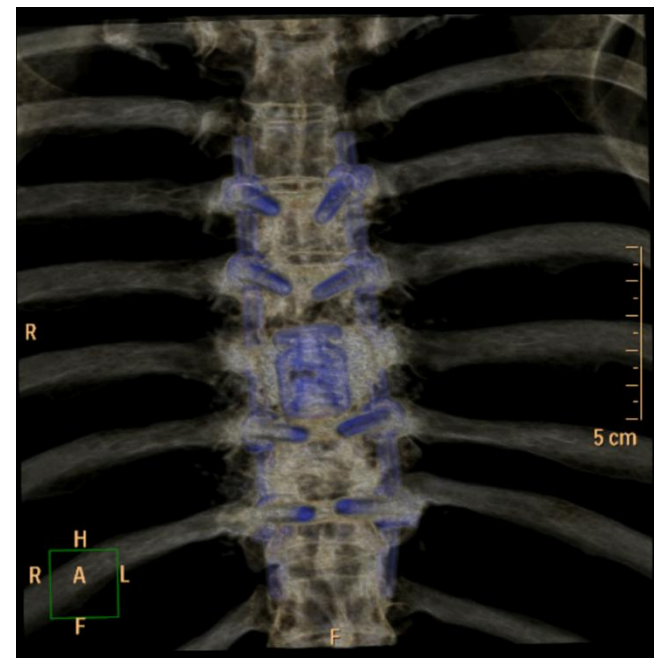
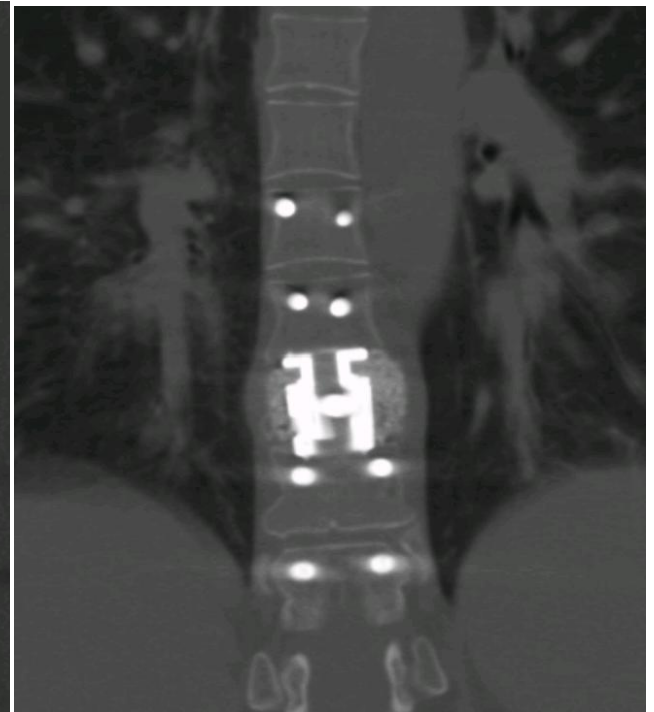
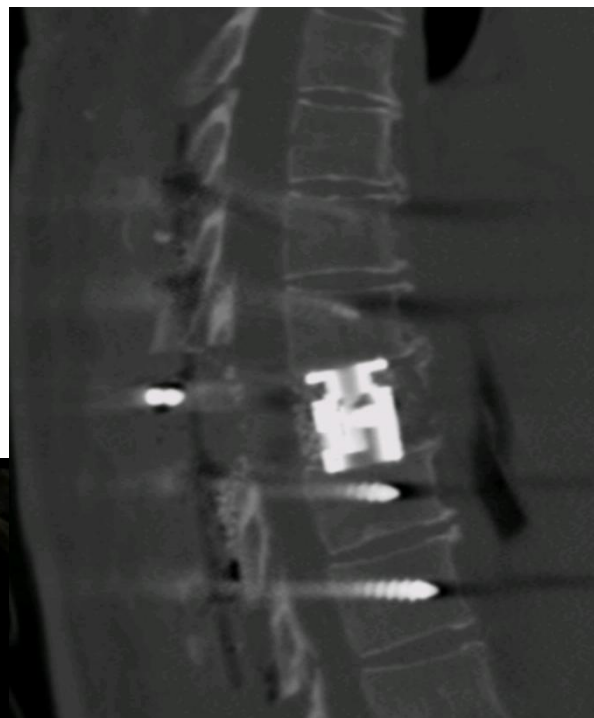
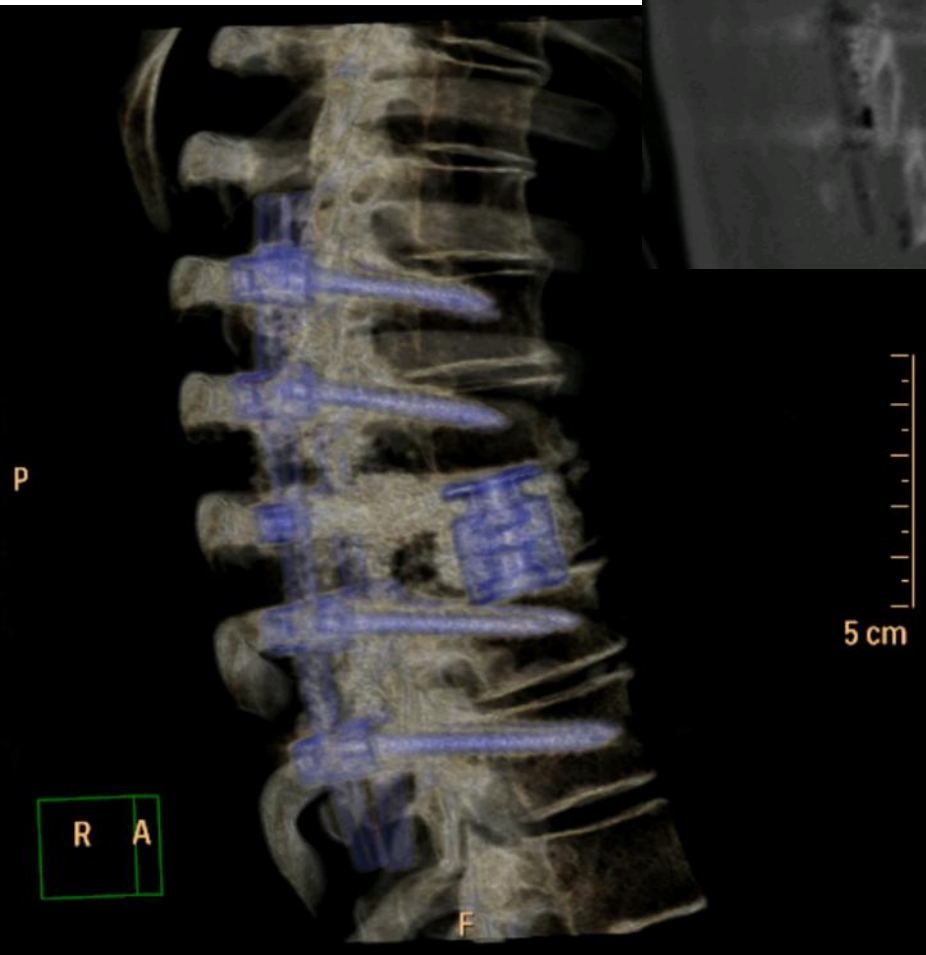
Spondylectomy

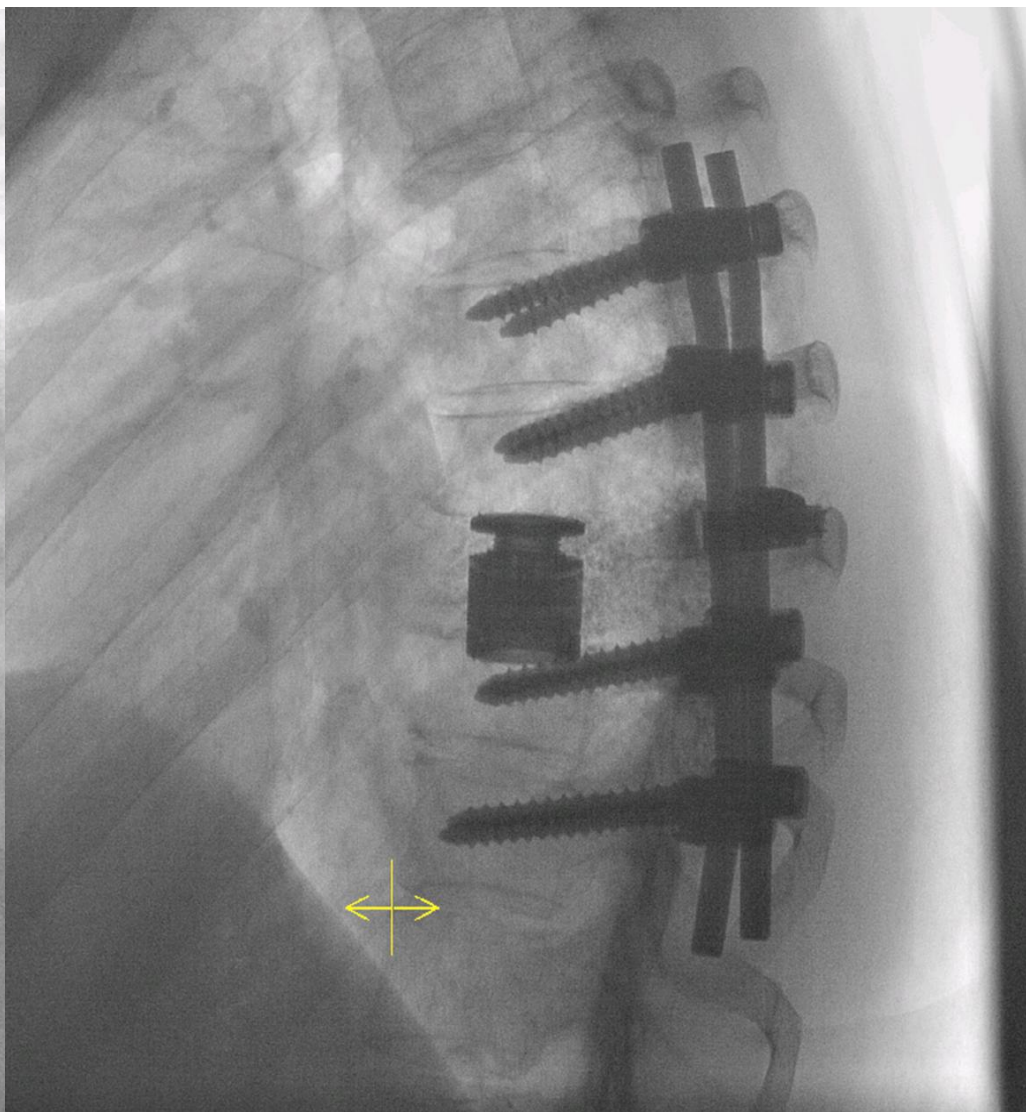
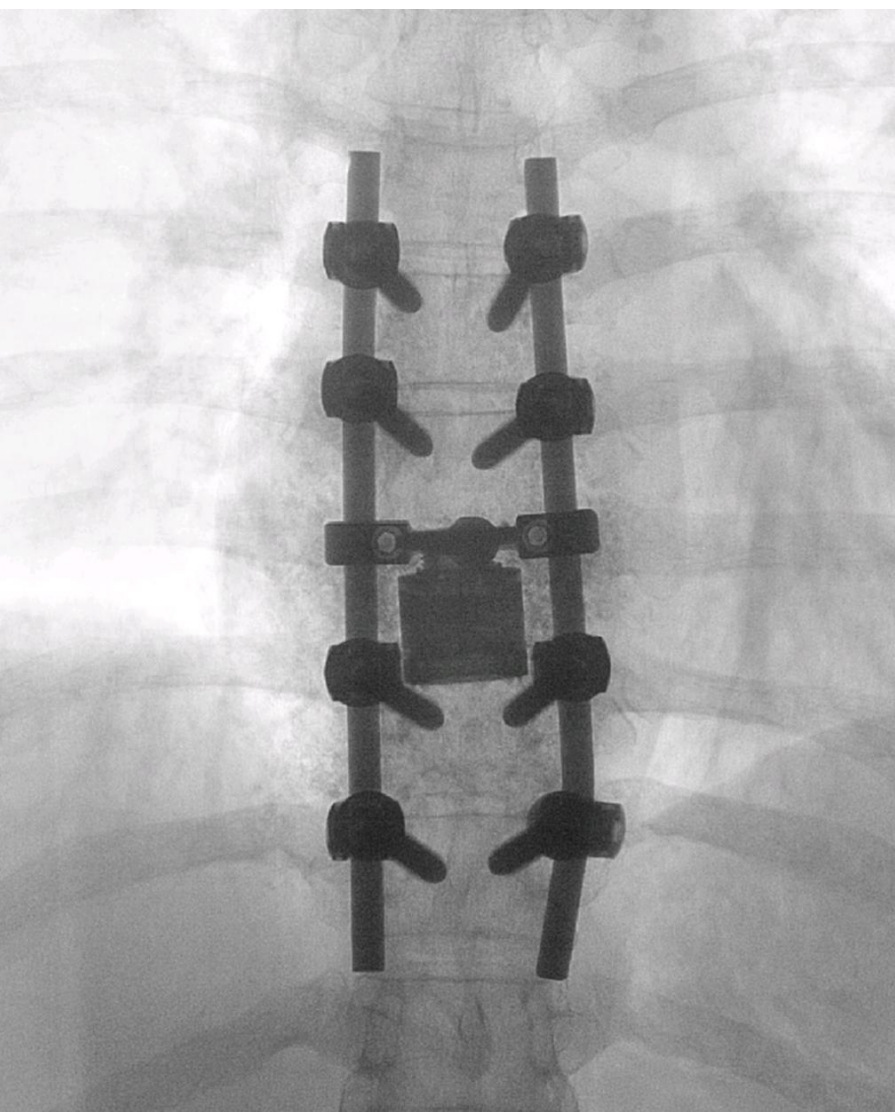
- total resection of all parts of vertebra**
- complicated surgery**
- indications - pathological fractures**
 - primary and secondary bone tumors**
- different location - different problems**
- broad spectrum of approaches**
- 360° stabilisation, long constructs, expandable/fixed cages, bone grafts/substitutes**
- high price**

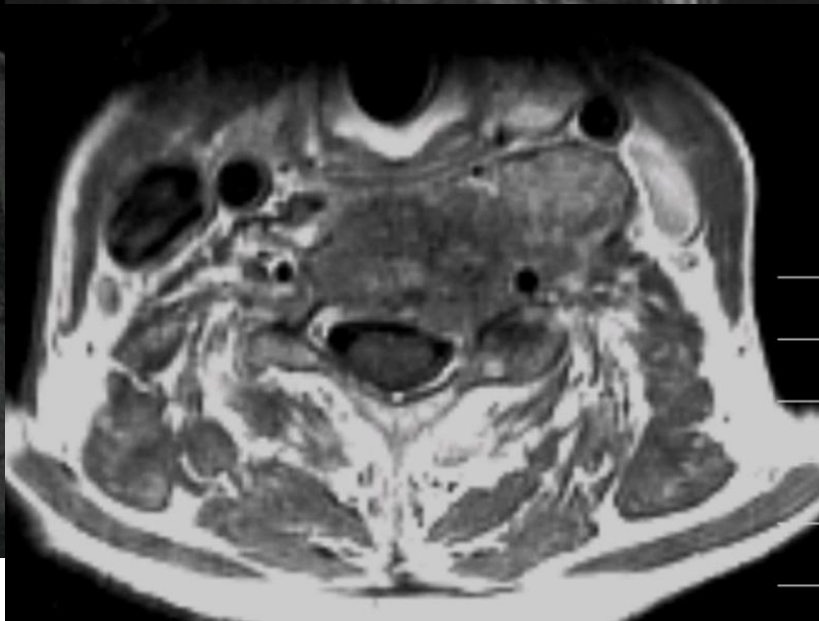
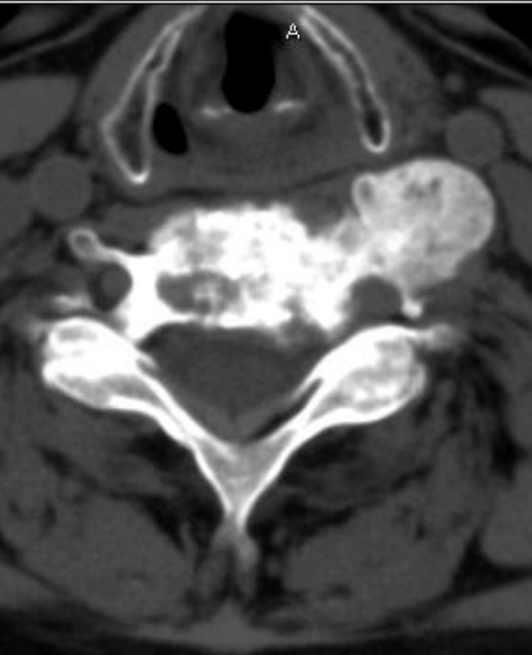
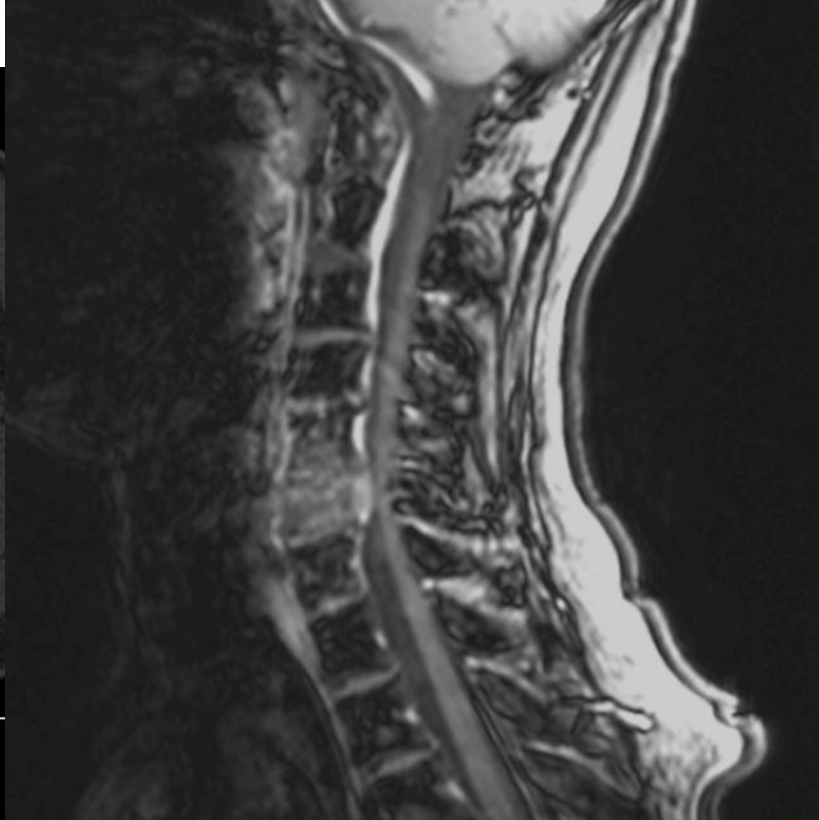
Personal experience

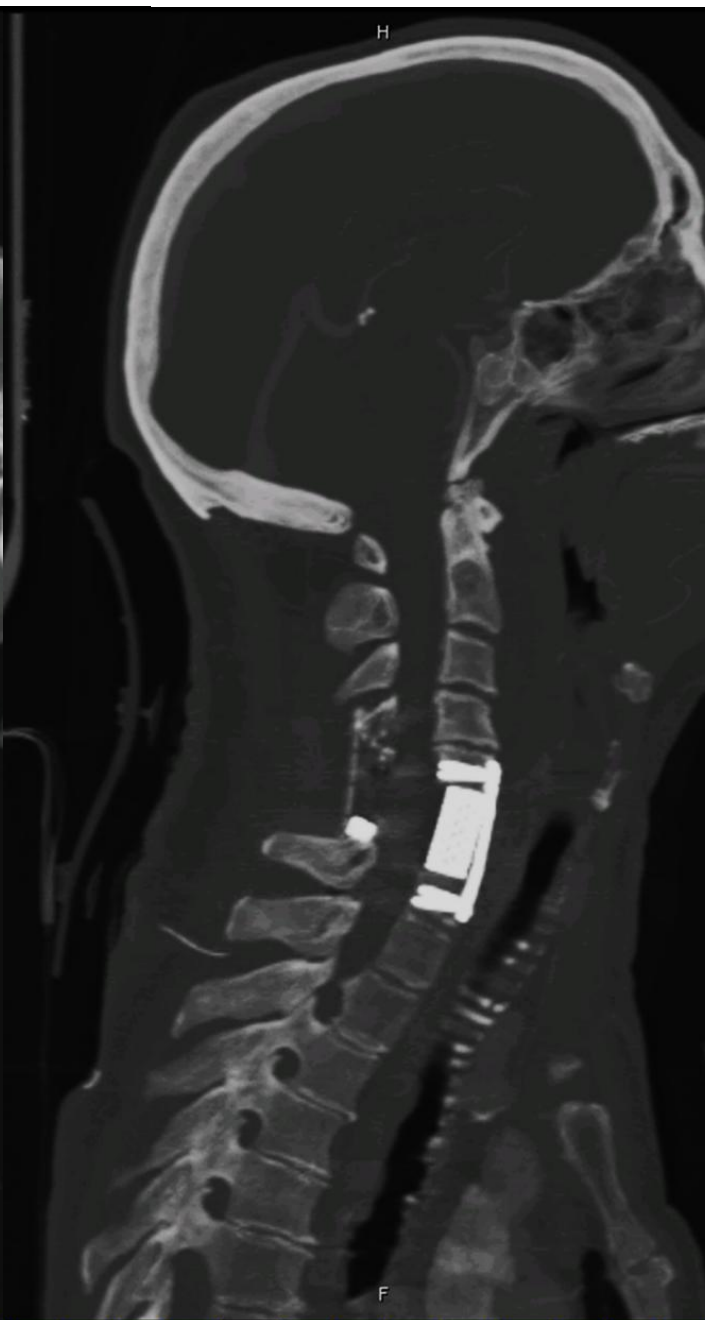
- 2007 – 2011 Dpt. of Neurosurgery, Masaryk Hospital, ÚL
- 23 one or multilevel spondylectomies
- 14 women, 9 men
- 28 – 68 years old (mean 51)
- expandable cages (21) or rigid cage (2)
- posterior fixation (all patients)
- mortality 0 (0%)
- permanent neurological morbidity 0 (0%)
- transient neurological morbidity 2 (8.6%)
- other complications (wound, correction of fixation) 2 (8.6%)

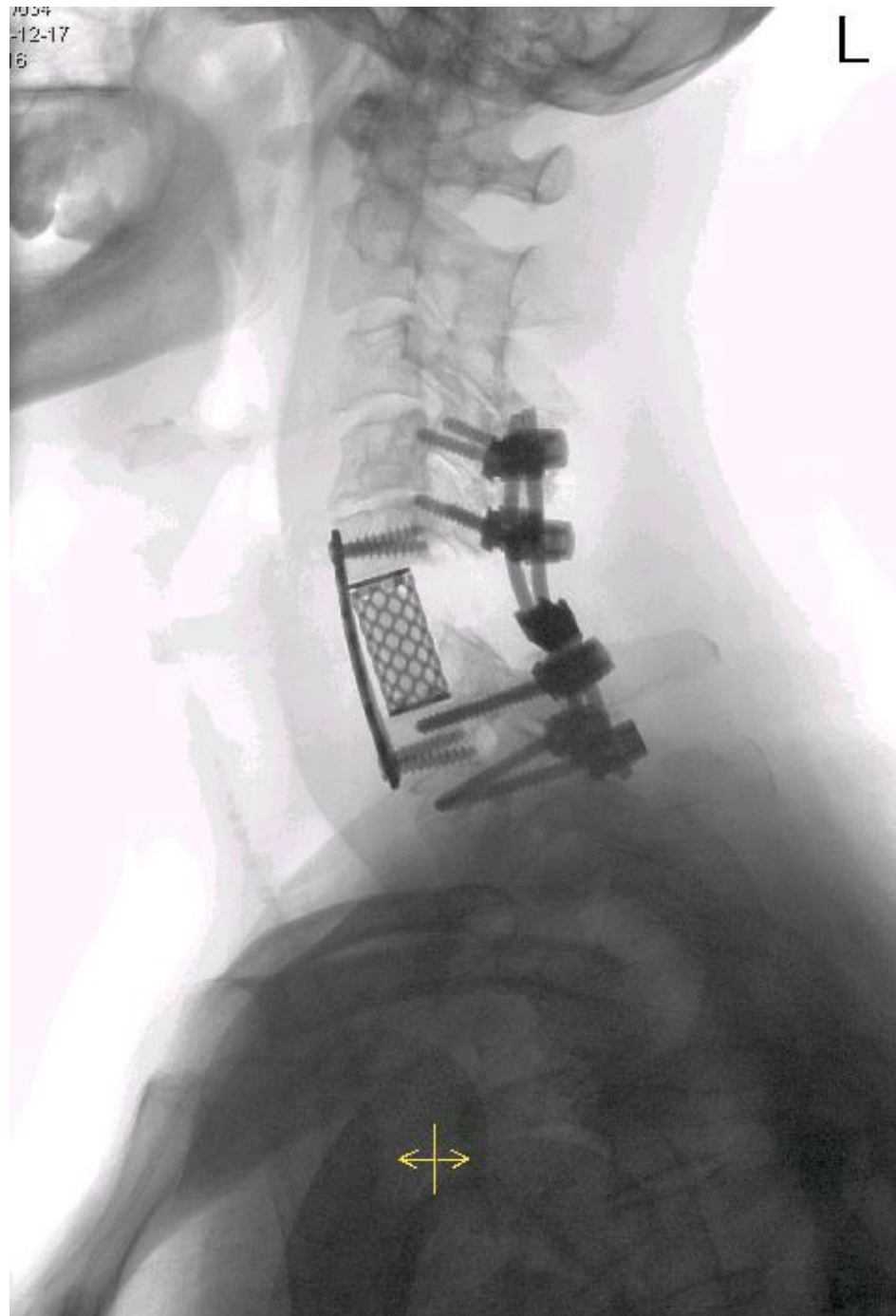


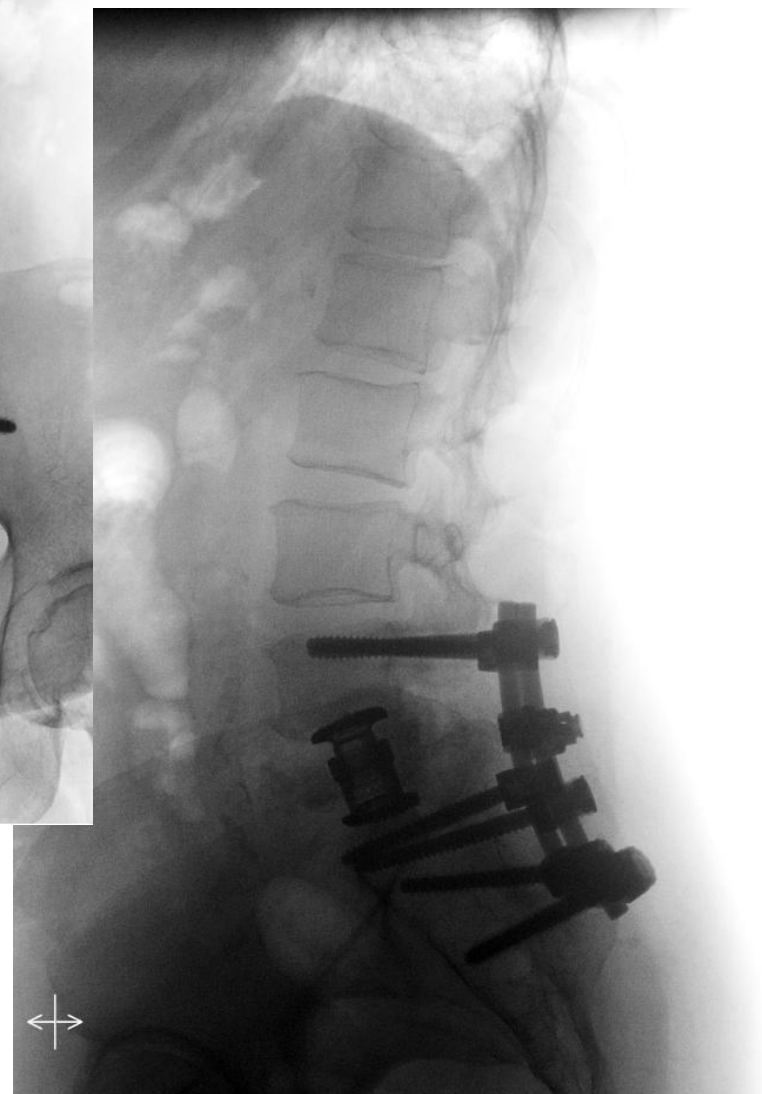
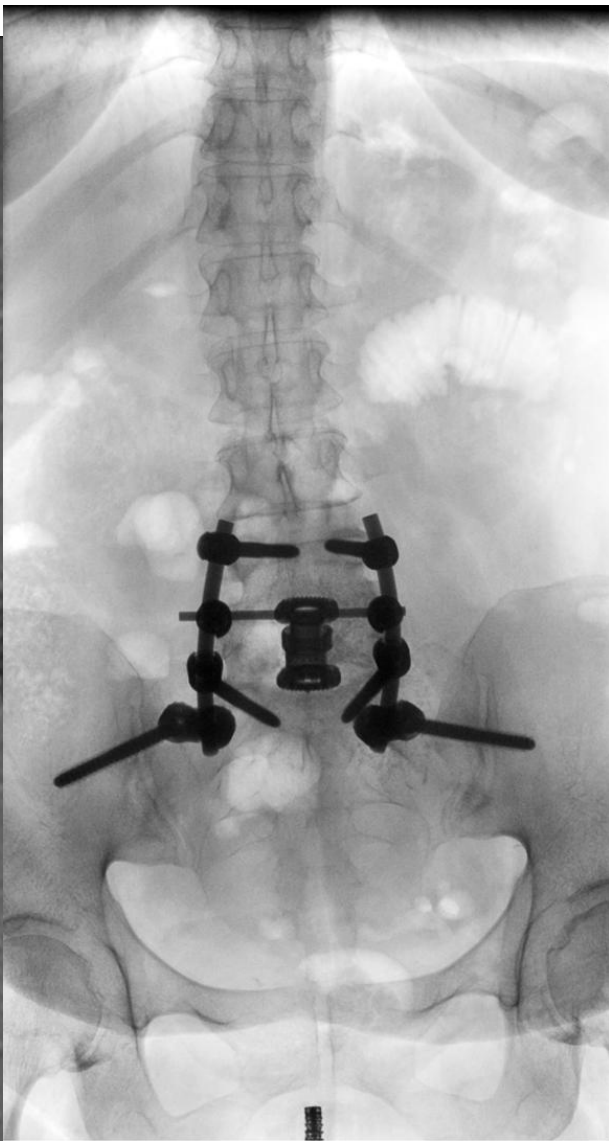
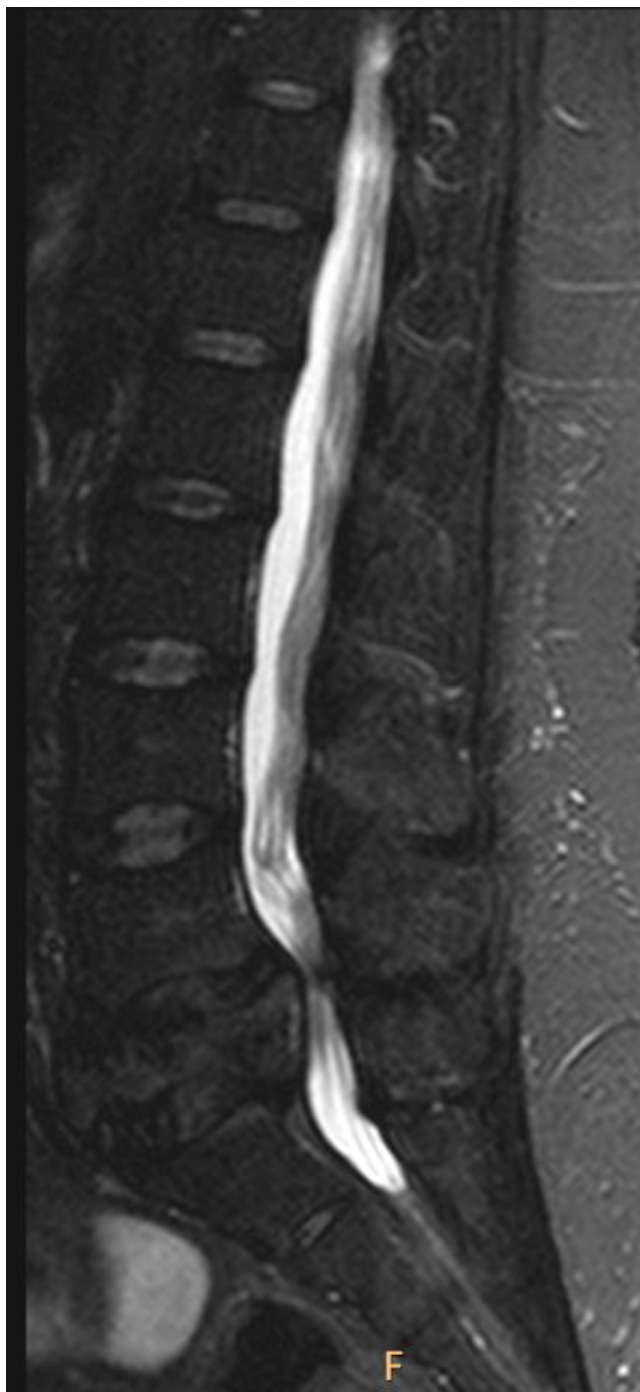


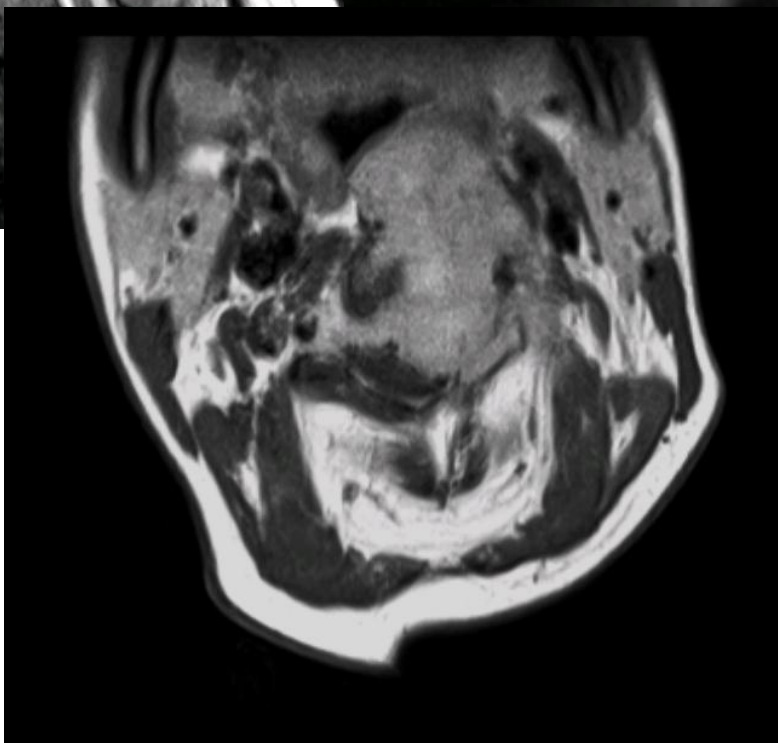
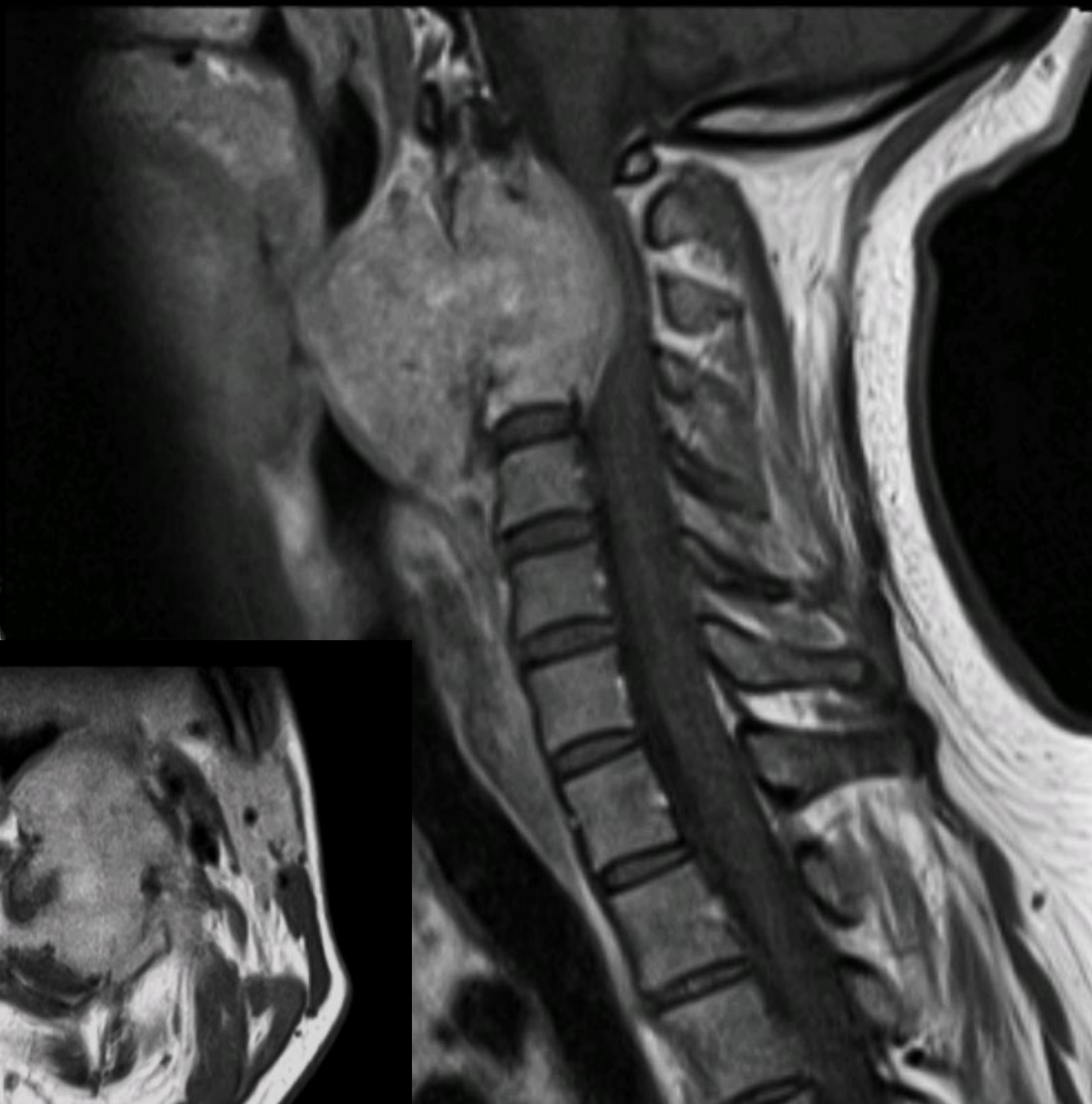


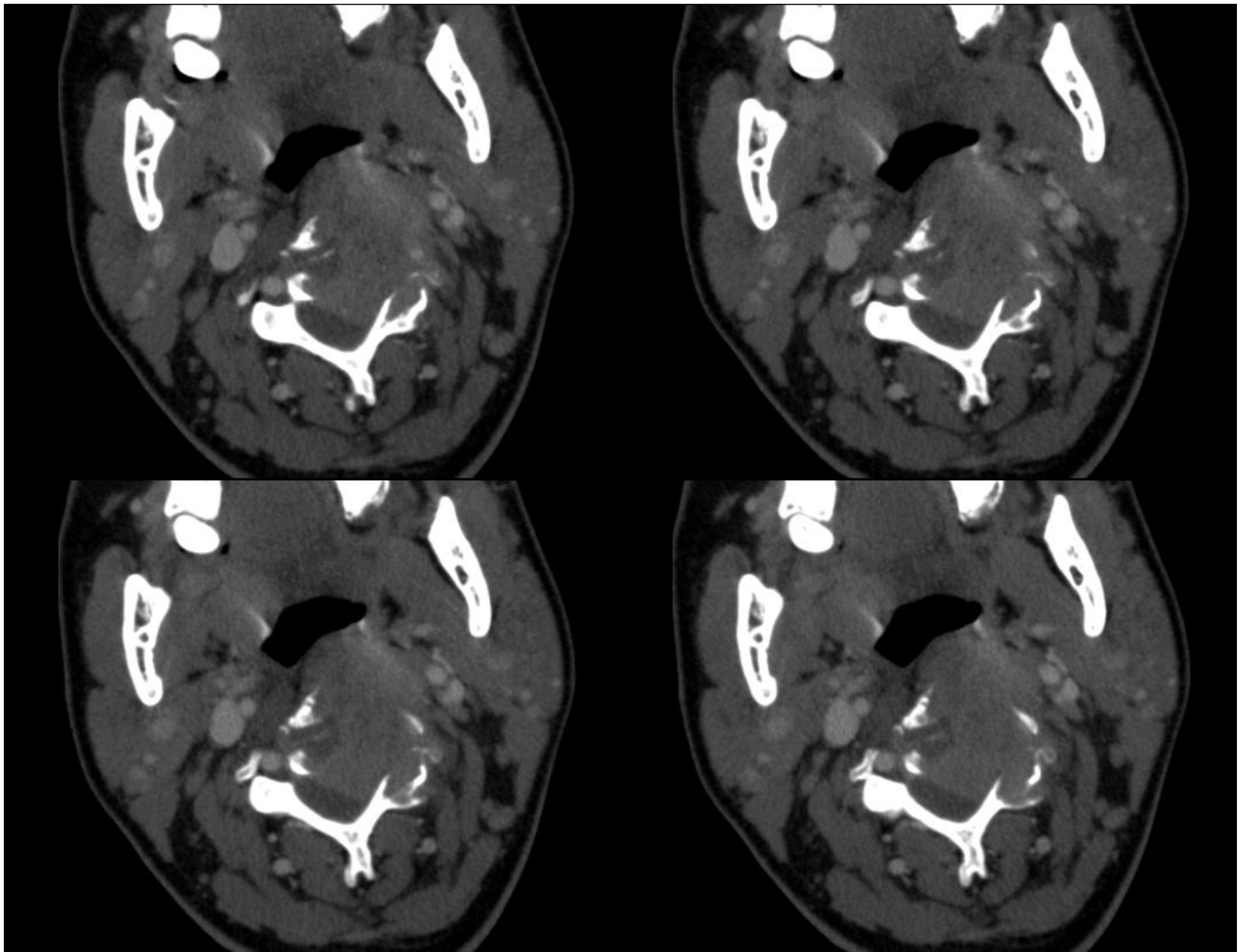


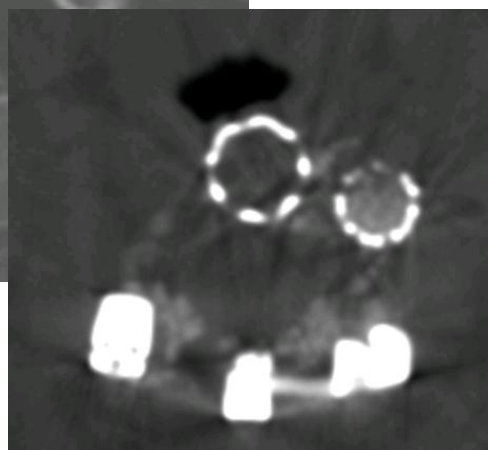
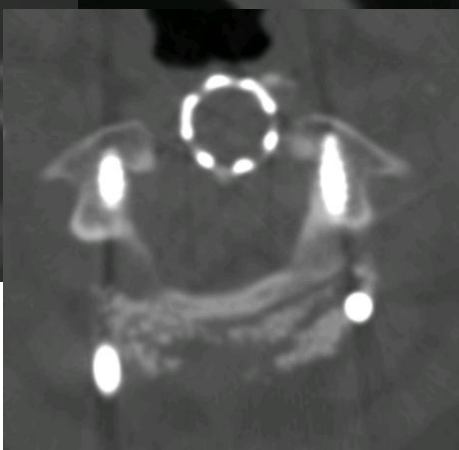
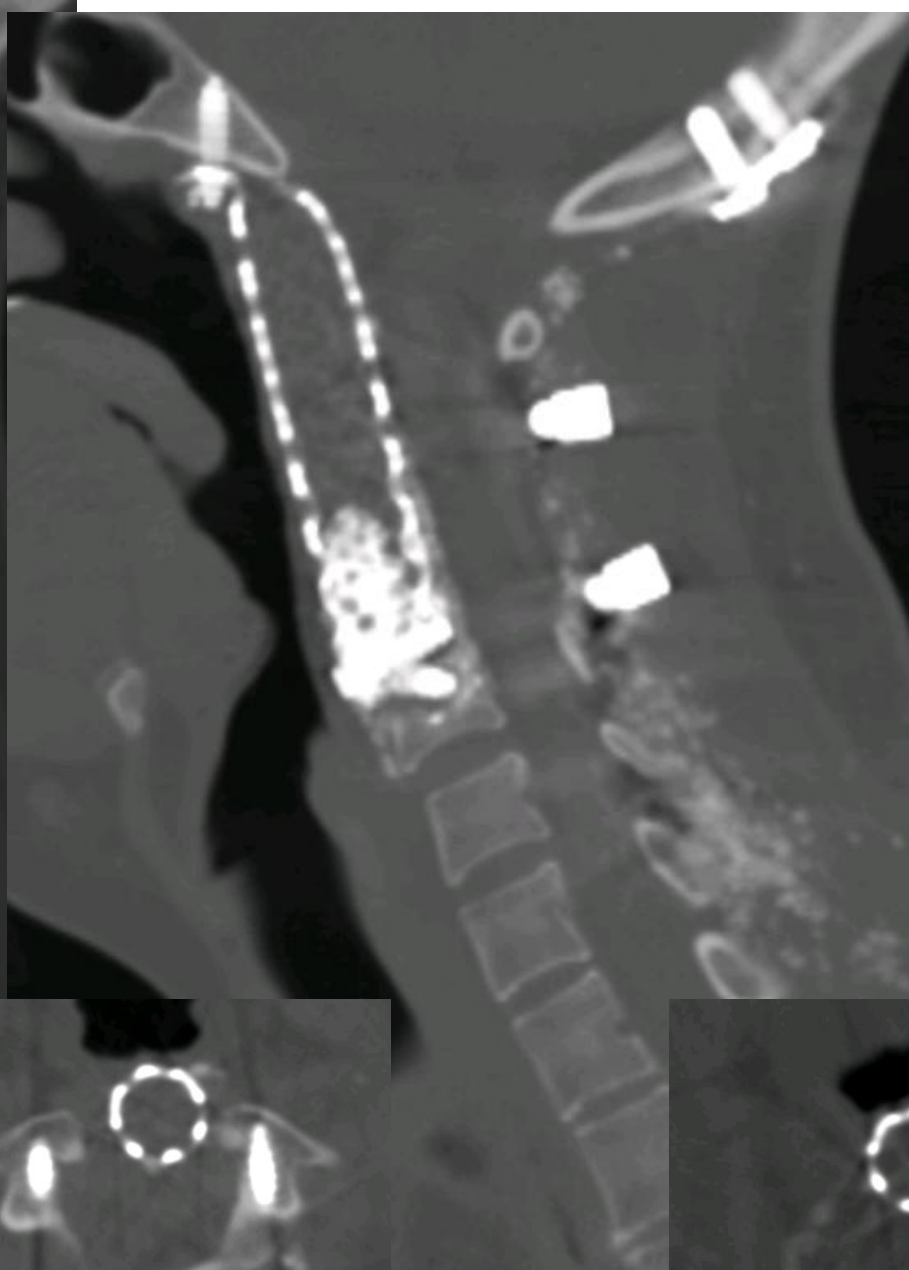


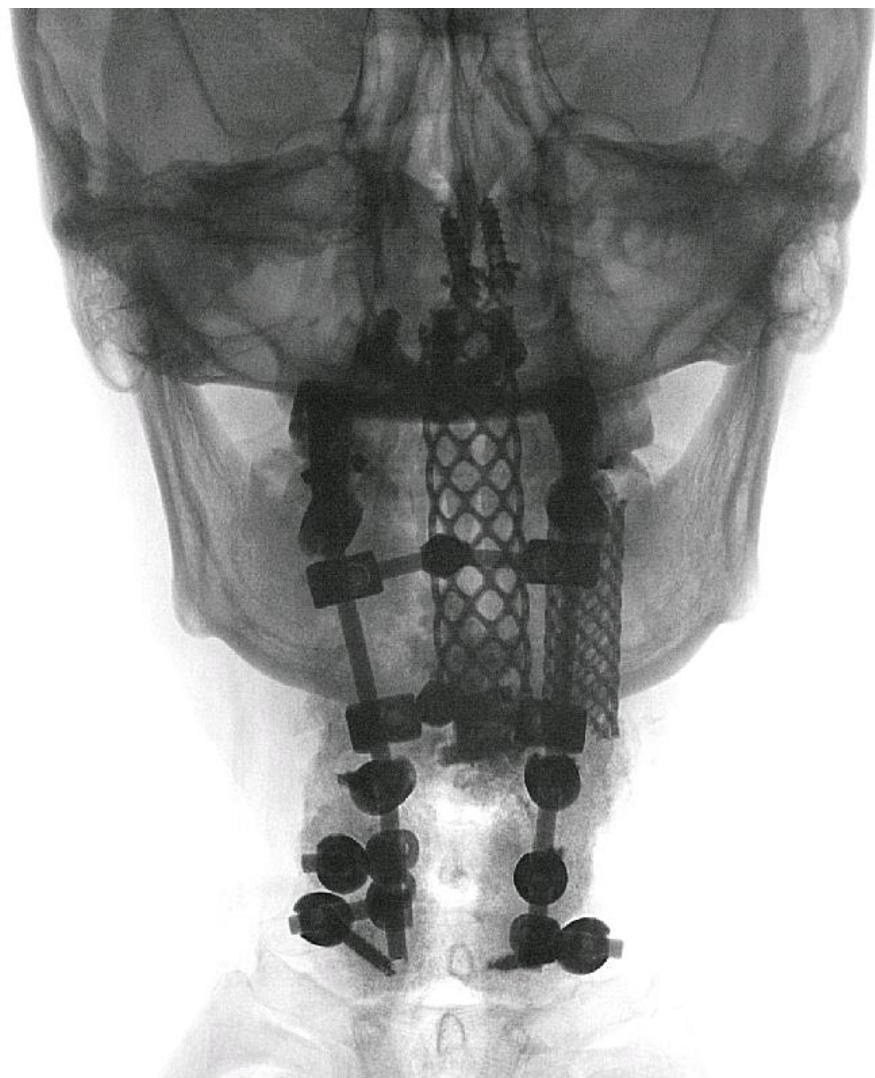
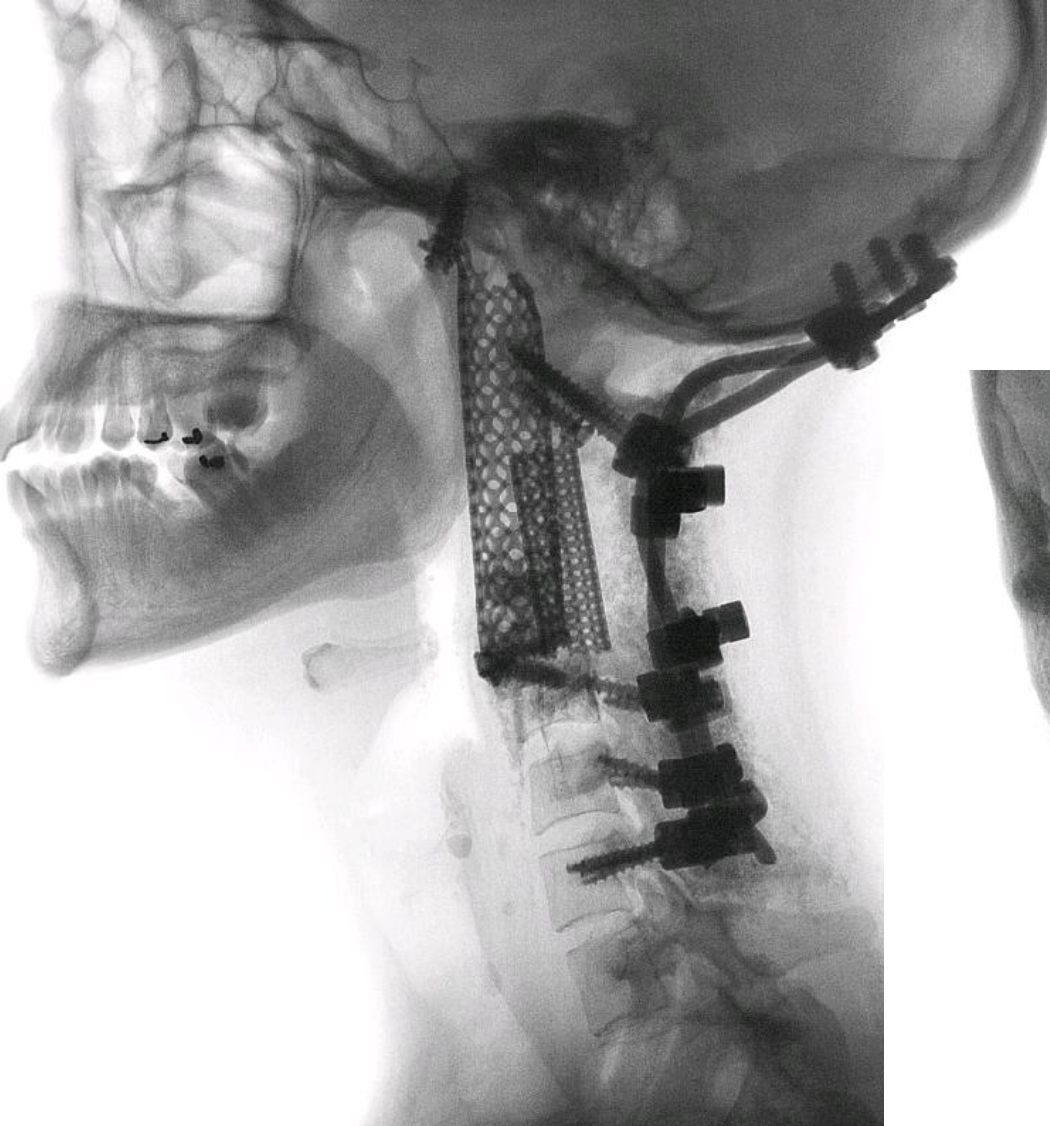












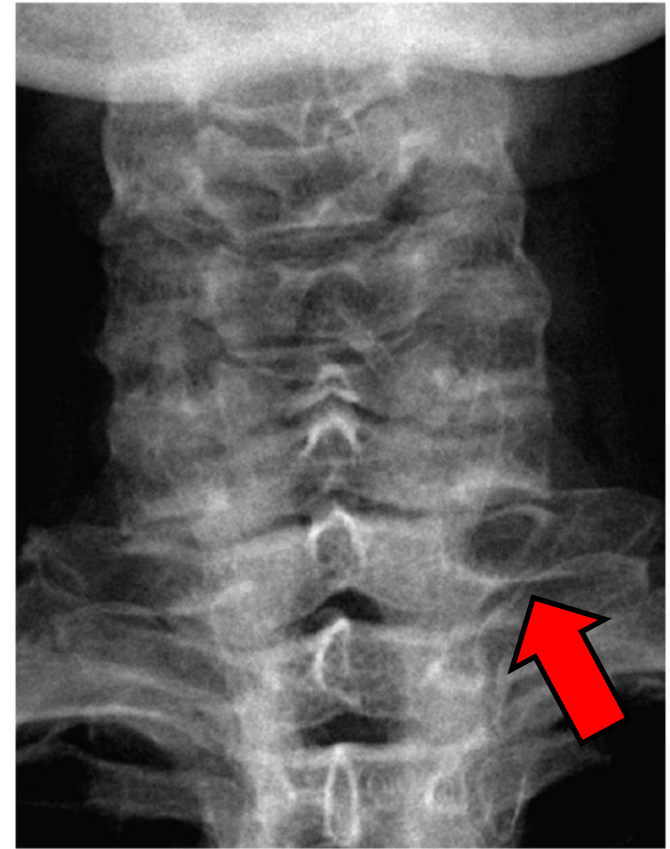
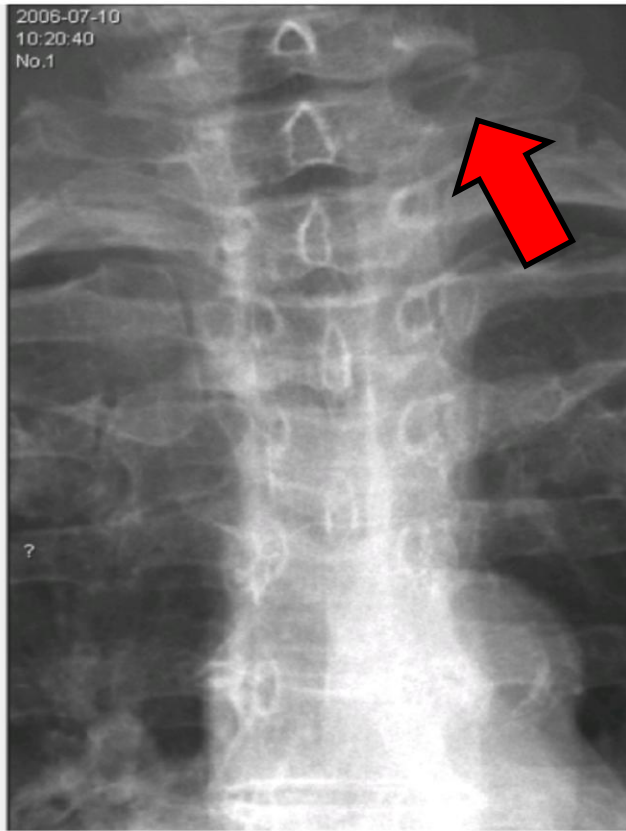


Illustrative case

Patient History

- 61-years-old woman
- radicular pain C7, C8 on the left side
- paretic triceps muscle on the left side
- cervical myelopathy:
 - hypoesthesia bellow Th4
 - hyperreflexia of the lower extremities
 - paresthesia of the lower extremities

Revision of 2 years old X-rays : osteolytic lesion of left Th1 pedicle

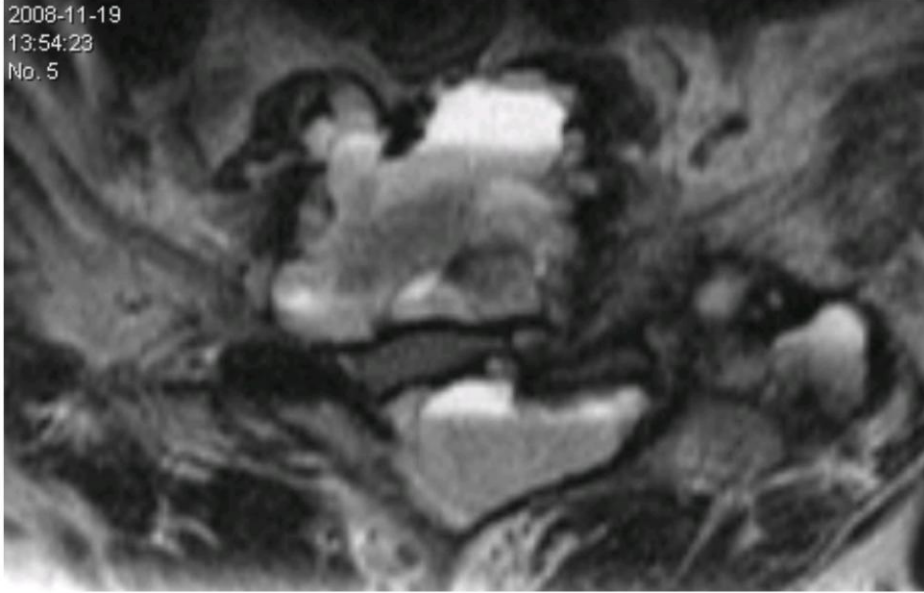


Diagnosis

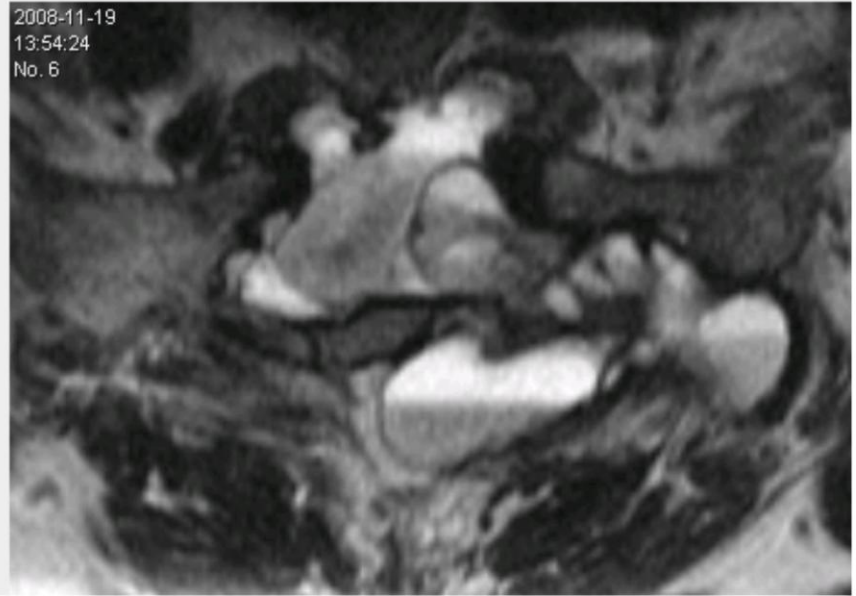


cystic multi-loculated expansive lesion of C7 and Th1

2008-11-19
13:54:23
No. 5



2008-11-19
13:54:24
No. 6

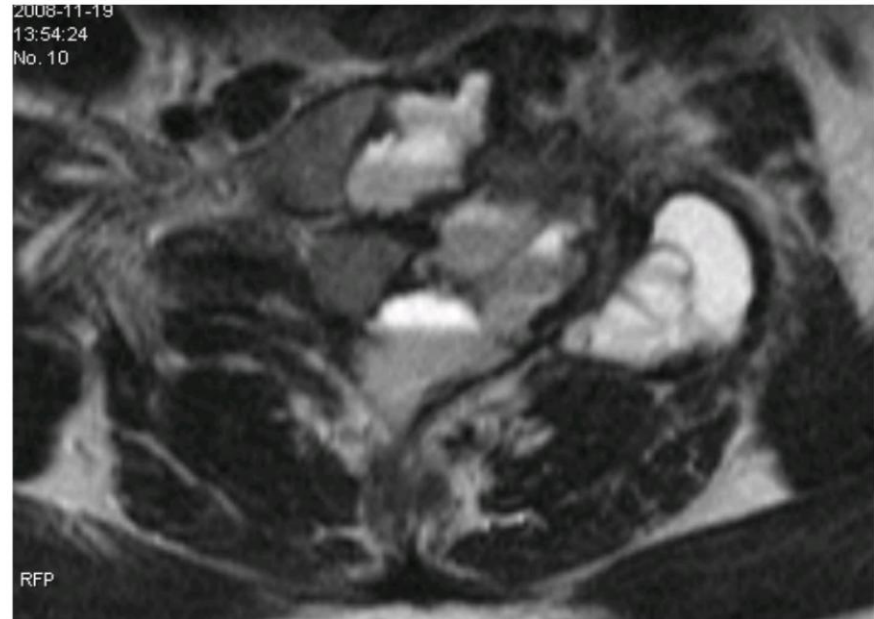


spinal cord compression

identifiable fluid levels

pericystic tissue with
heterogeneous enhancement

2008-11-19
13:54:24
No. 10





osteolytic destruction, calcification of the cyst's walls

Enneking

3

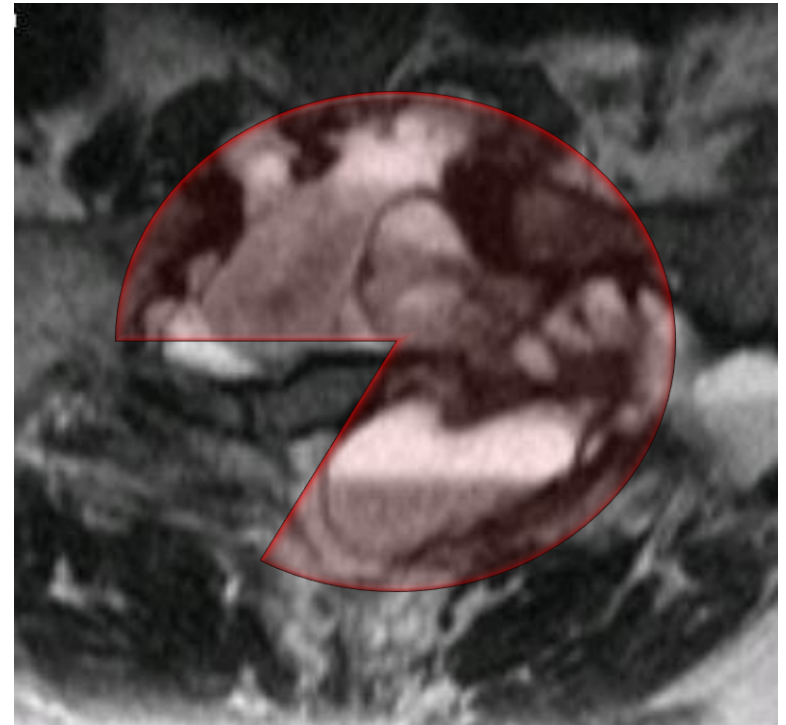
Enneking WF. A system of staging musculoskeletal neoplasms. Clin Orthop 1980.

WBB

9-12
ABCD

Boriani S, Weinstein JN, Biagini R. Primary bone tumors of the spine. Terminology and surgical staging. Spine 1997.

STAGING



Therapy

1, Endovascular embolization

2, Radical resection

two level spondylectomy

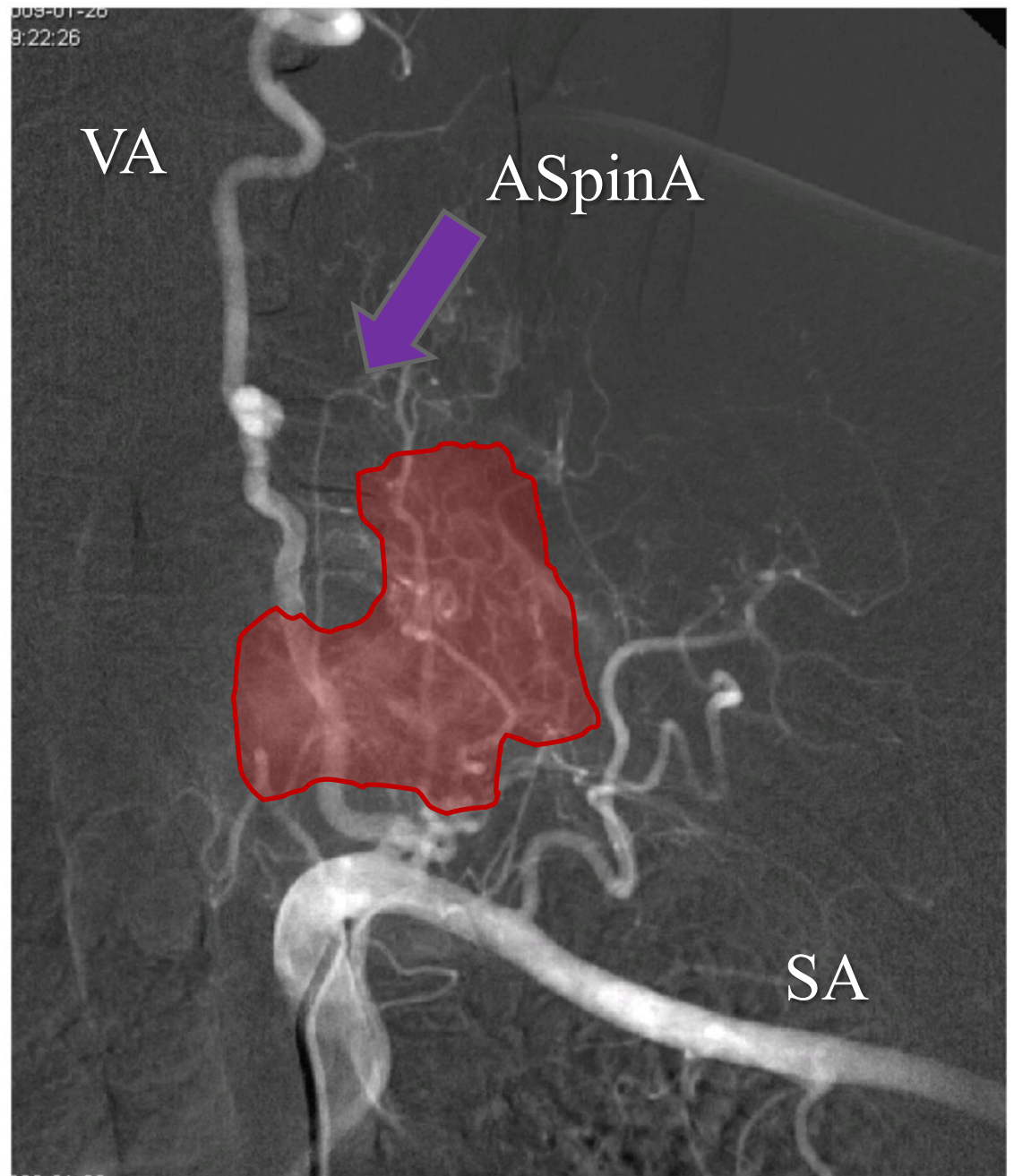
anterior and posterior approach

360° stabilization and fusion

MEP monitoring

EMG vocal cords monitoring

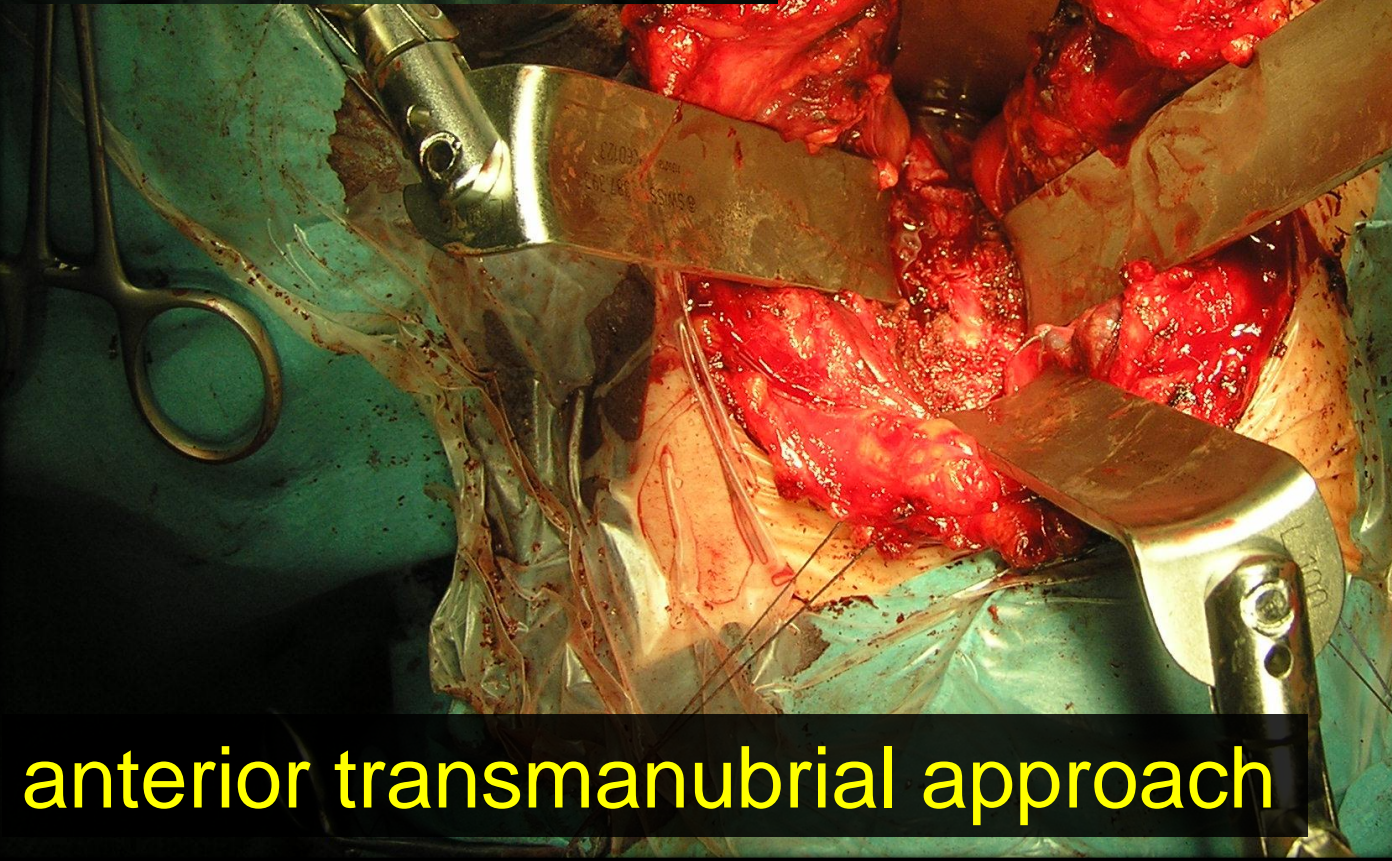
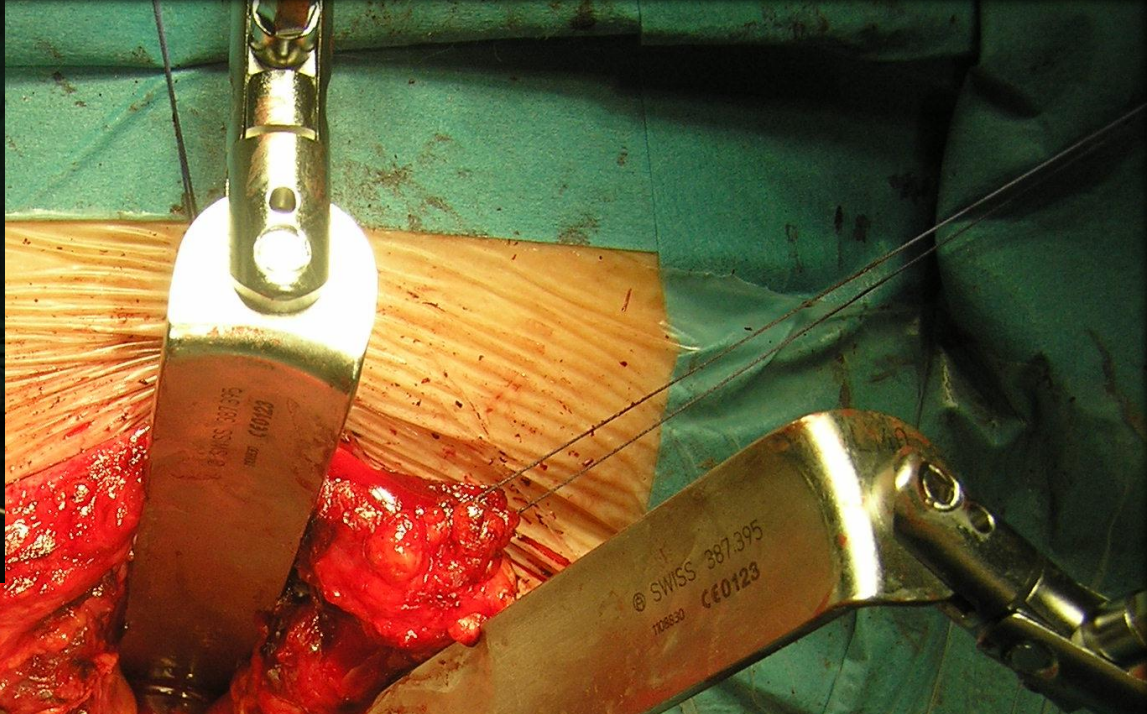
the risk of ASpinA
closure
contraindicate
endovascular
embolization



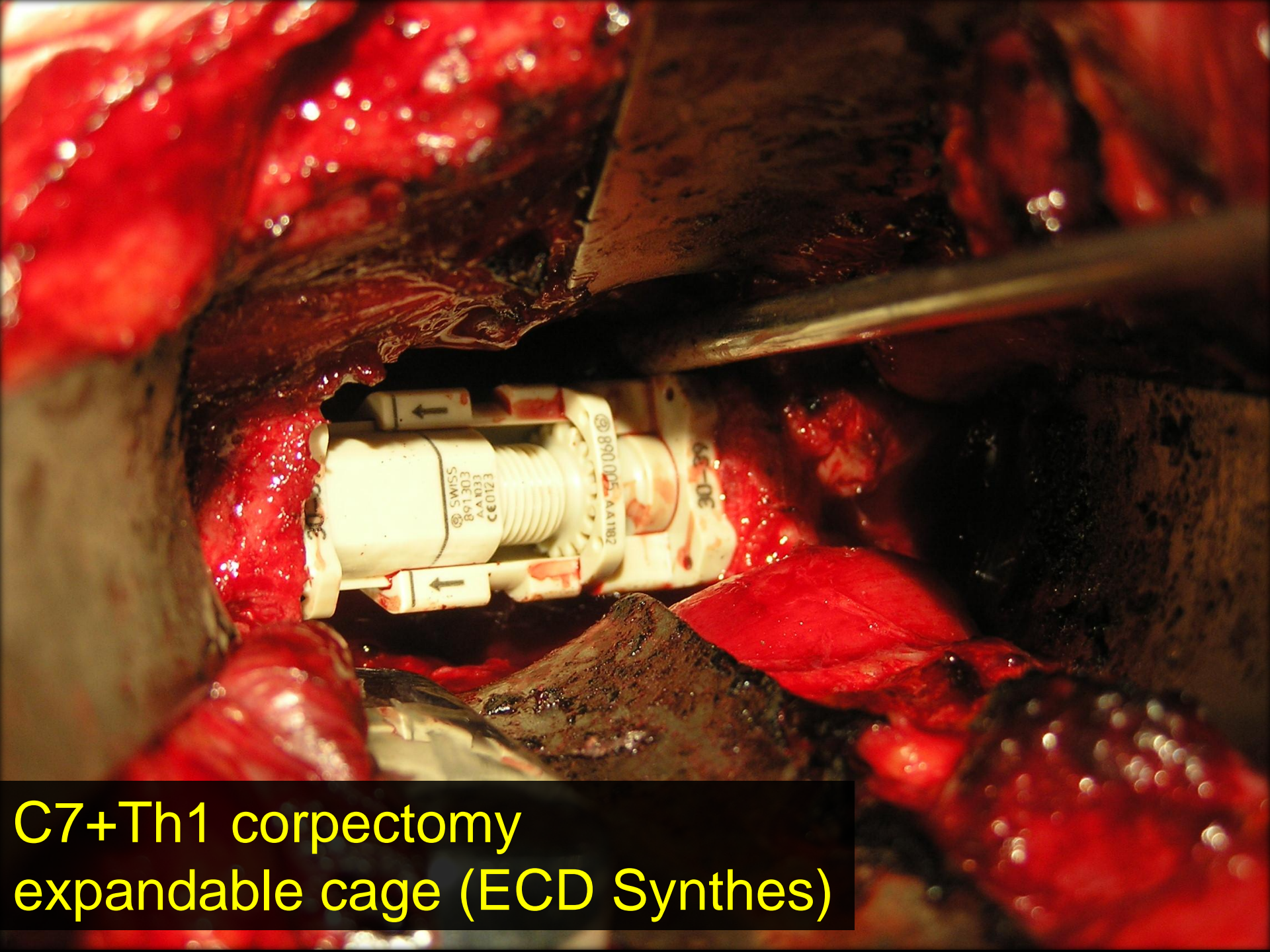
direct
percutaneous
embolization
under CT control



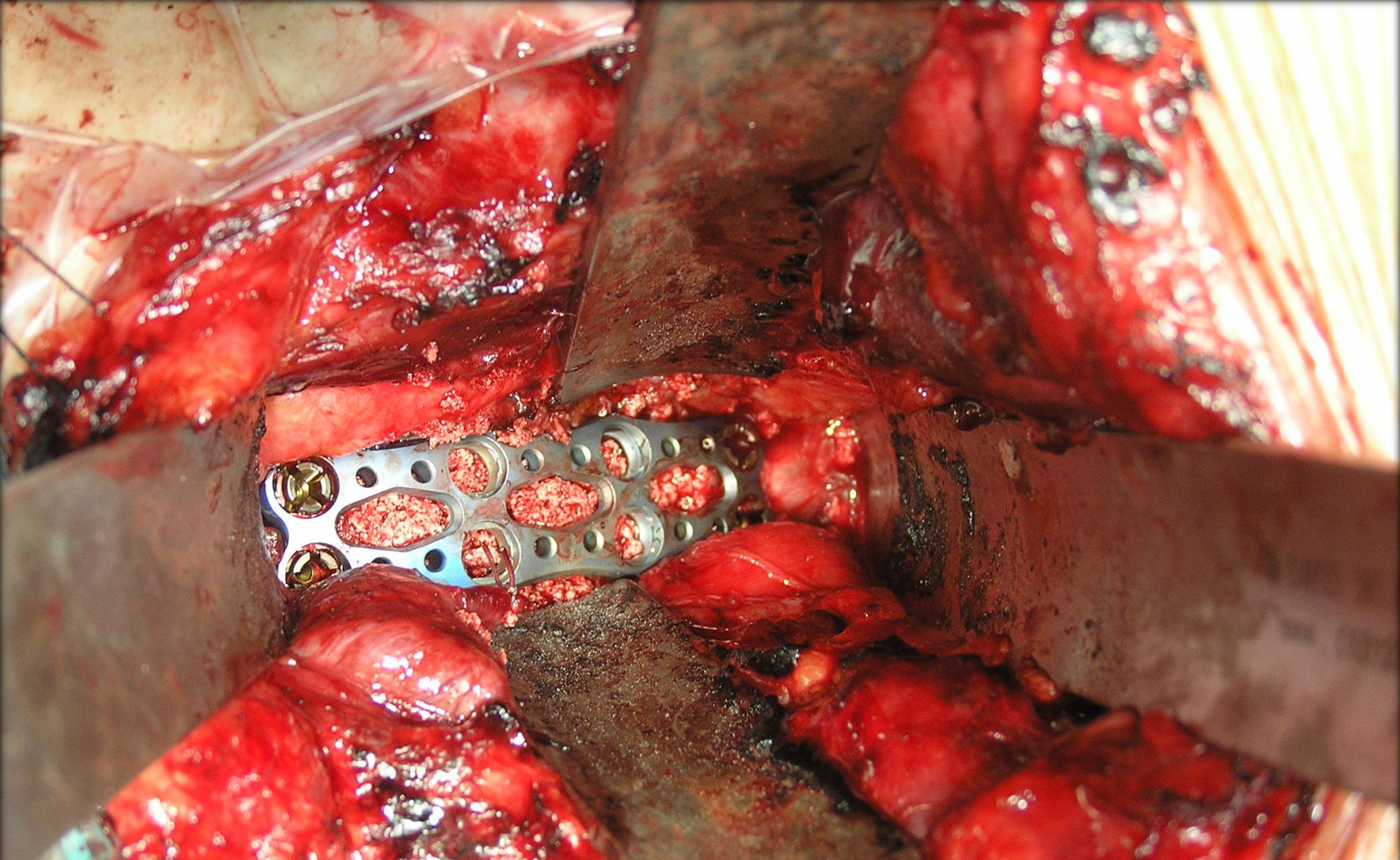




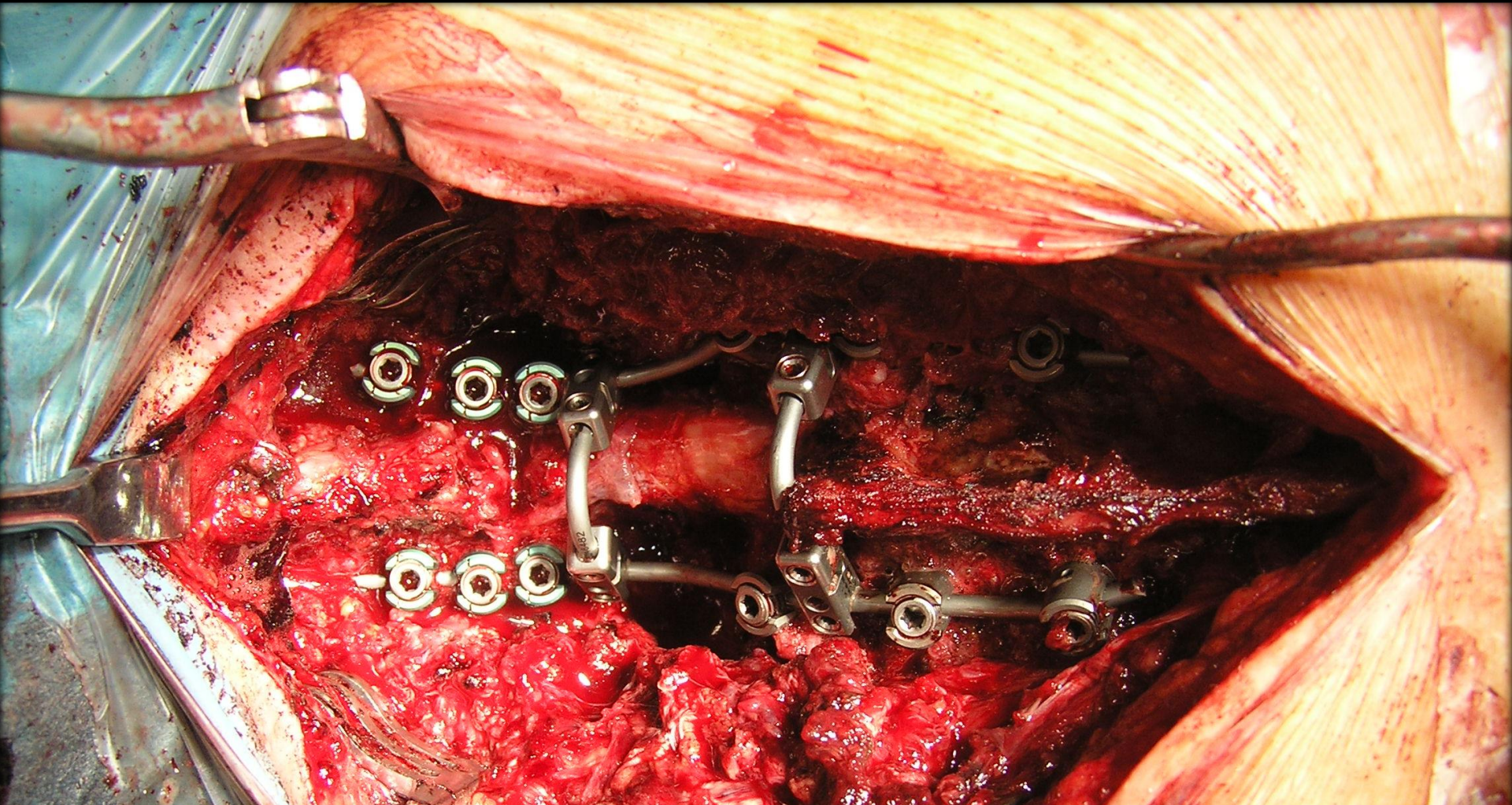
anterior transmanubrial approach



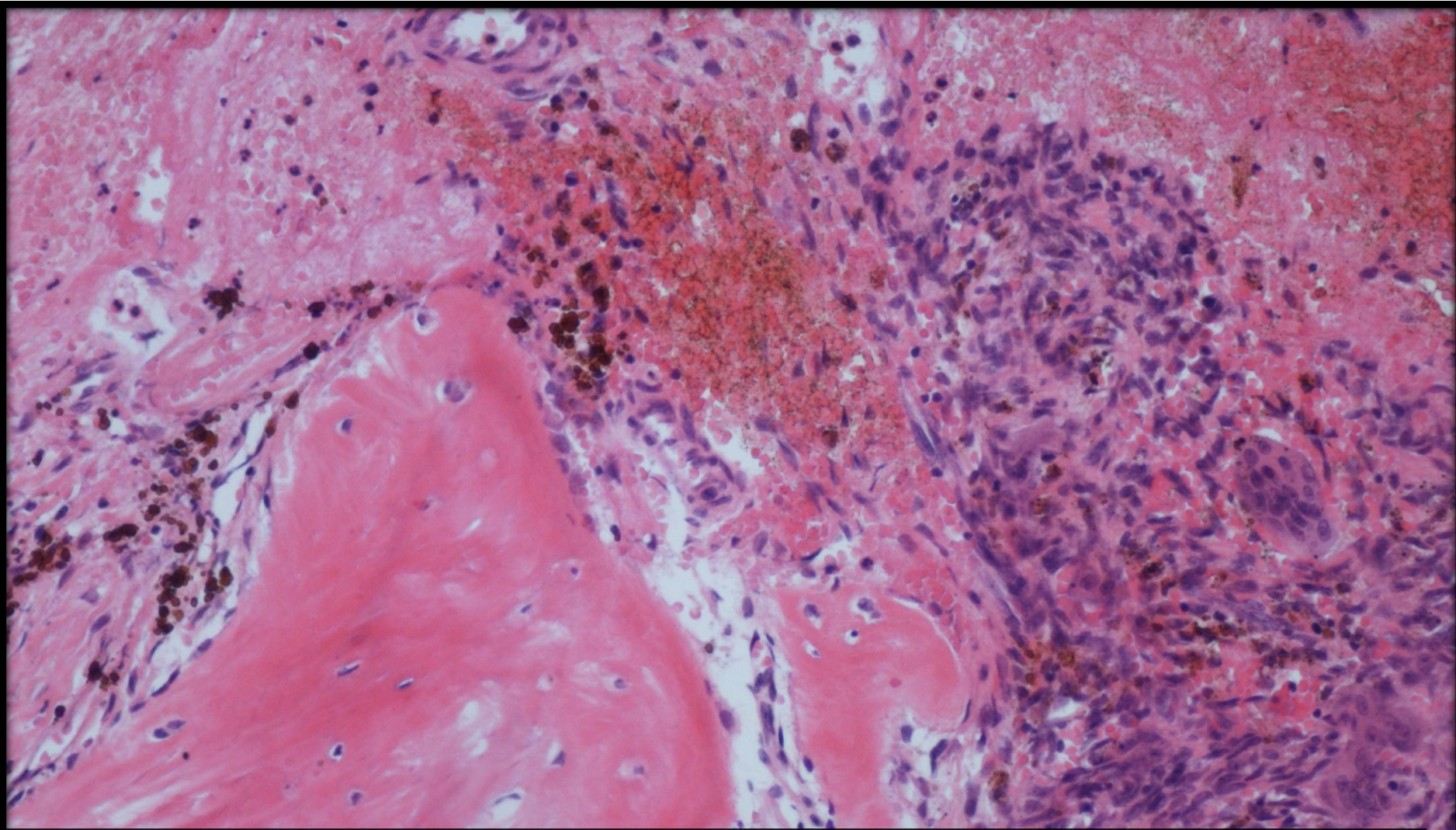
C7+Th1 corpectomy
expandable cage (ECD Synthes)



TCP granules bone graft (Conduit DePuy)
anterior cervical plate C6-Th2 (Vectra Synthes)



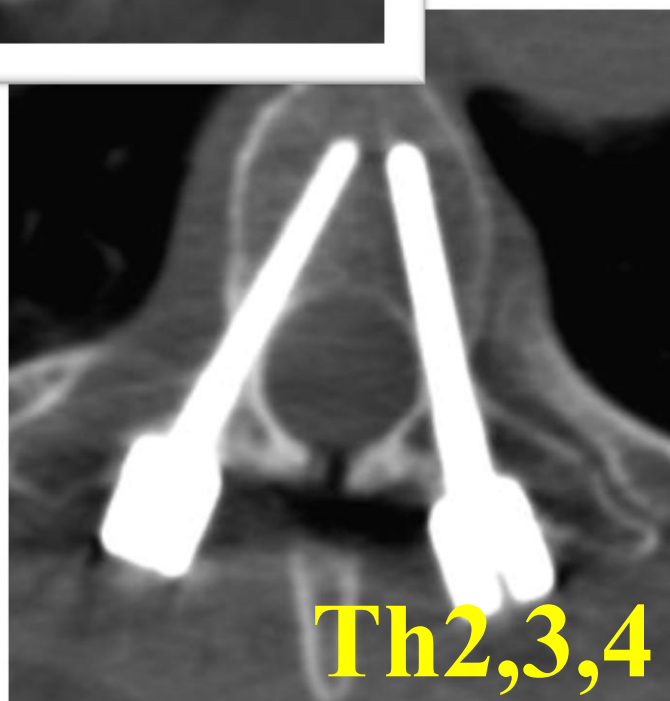
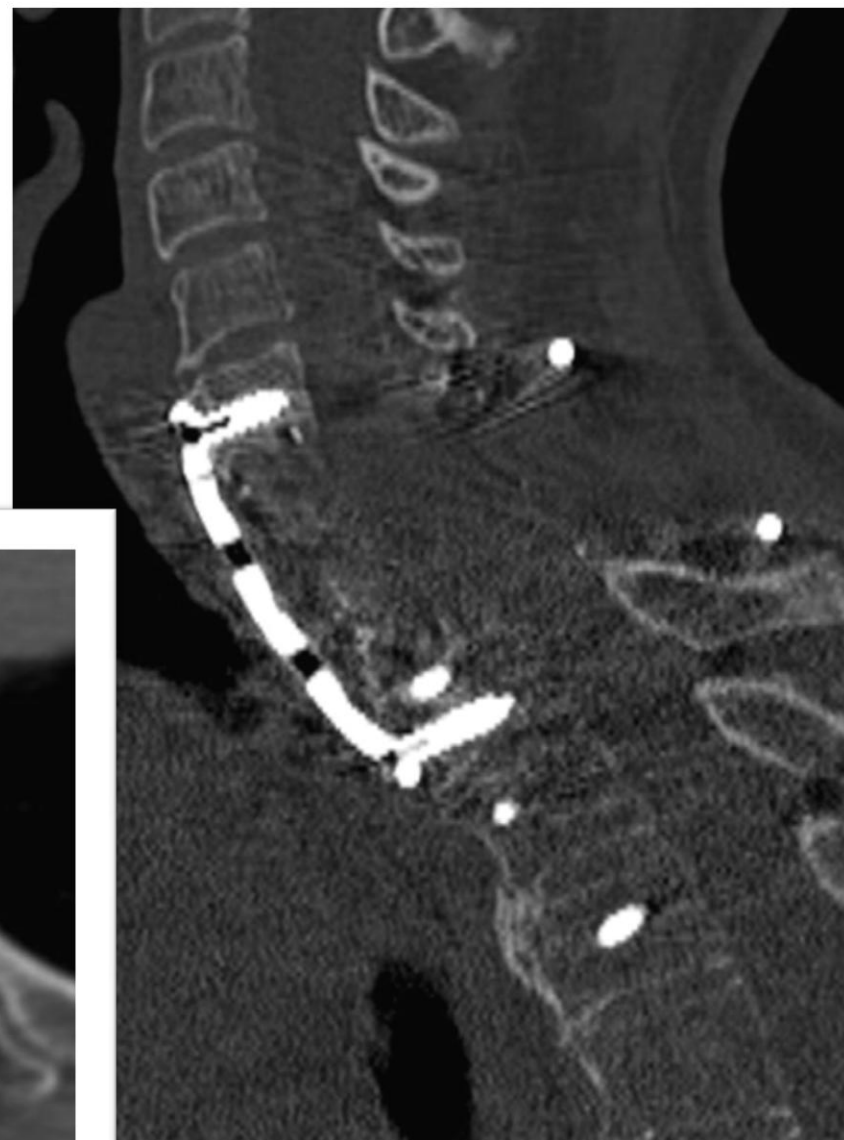
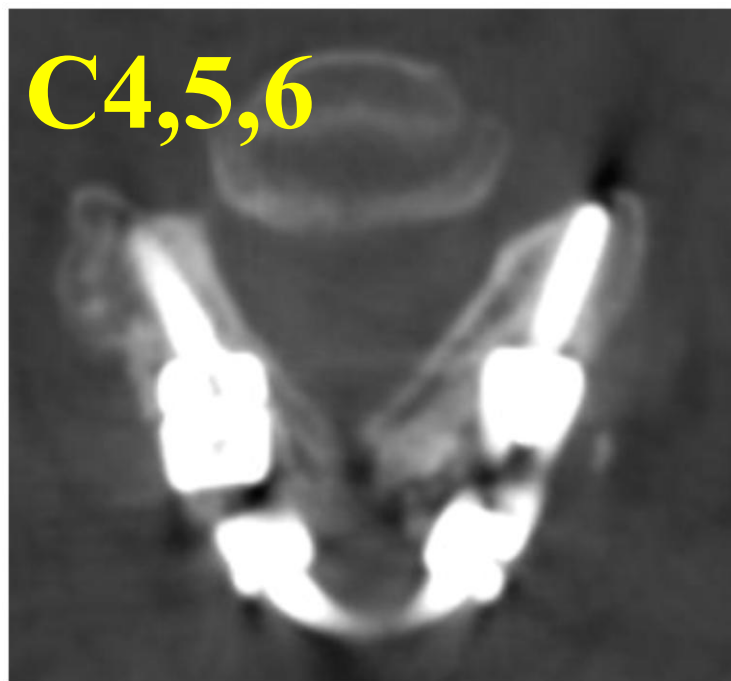
posterior app. – completion of spondylectomy
polyaxial screws + rod system (Summit DePuy)
C4,5,6 mass. later., Th2,3,4 pedicular screws
TCP granule bone graft (Conduit DePuy)

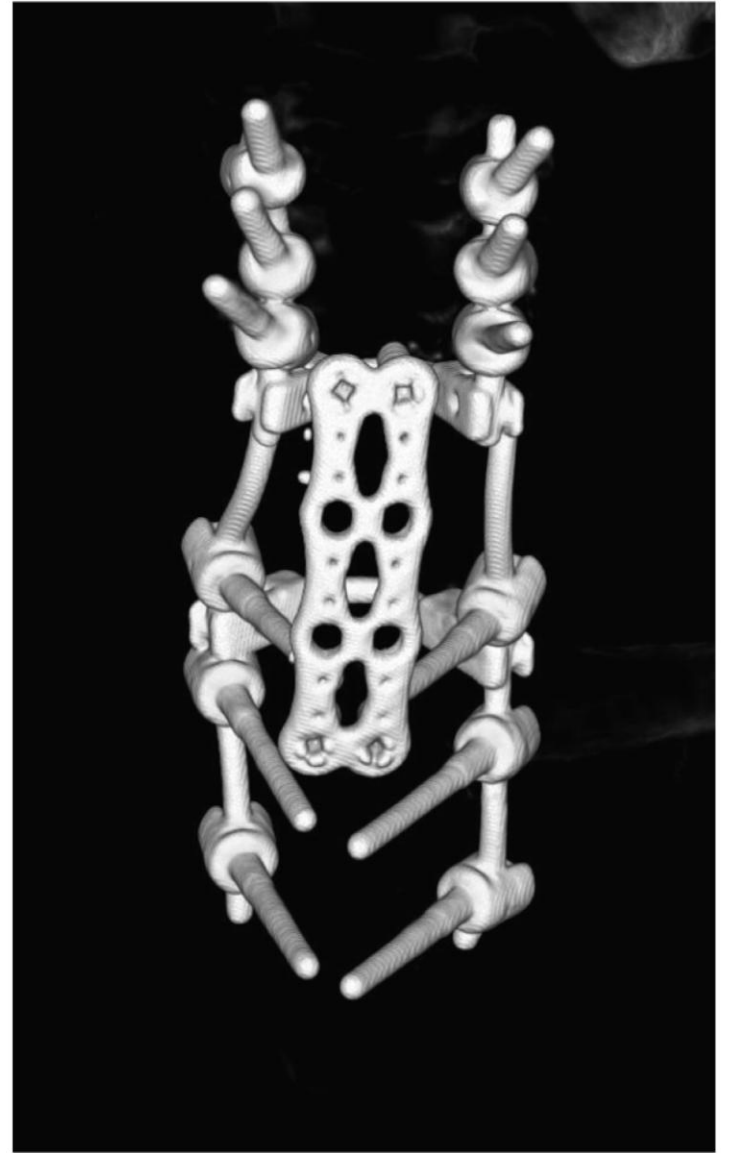
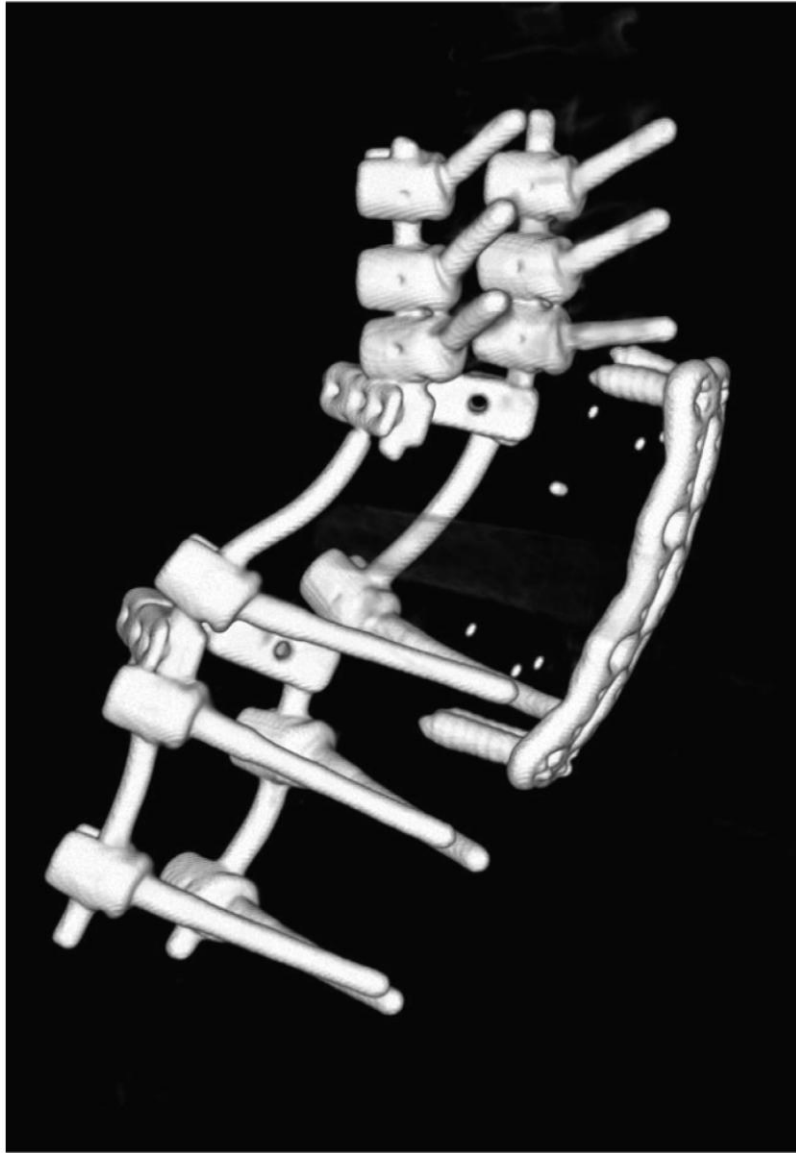


histology : consistent with diagnosis of ABC
(multiloculated cysts, osteoclast-like cells,
necrotic bone trabecules, fibrohistiocytic proliferation)

Postoperative course:

- bilateral vocal cord paralysis
 - one side restitution during several days
 - second side during 6 months after surgery
- restitution of triceps muscle paresis
- residual hypoesthesia C7 left
- improvement of cervical myelopathy
 - with residual hyperreflexia





Postoperative Management

- cervico-thoracic brace for 3 months
- phoniatic rehabilitation (complete restitution of paralysis 6 months after surgery – ENT verified)
- follow up X-ray 3 months after surgery
 CT evaluation of fusion 1 year after surgery
 MR exclusion of ABC relaps every 2 years after surgery

Outcome

1 year follow-up

CT - excellent
fusion



2 years follow-up

MR – without
relapse of ABC



Conclusion – illustrative case

- radical surgical management of aggressive spinal ABC offers the best long term outcome
- pre-operative embolization (endovascular or direct percutaneous) may be useful for reduction of intraoperative blood loss
- anterior transmanubrial approach offers direct visualization of the anterior upper thoracic spine with the risk of traction injury of the recurrent laryngeal nerves

Conclusion - spondylectomies

- ability to remove any vertebra including tumors still considered unresectable
- **high risk** surgery even in experienced hands
- **reduction of short and long term morbidity** – electrophysiology, intraoperative navigational techniques, learning curve, new implants and bone substitutes, multidisciplinary teams
- better results than radiotherapy **in a selected group** of patients
(oncological control, neurological outcome, pain control)
- **indication** – quality of life, life expectancy, histology
(biopsy, PET, revised Tokuhashi and Tomita scoring systems)



individual approach to each patient



Thank you for attention