Ultrasonic Bone Scalpel™ in oncological spine surgery: our experience

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Oncological Spine Surgery

Spinal cord and nerve roots are particularly at risk during laminectomy and other procedures on the vertebral body particularly commune in oncological wide surgery moreover when high speed burrs and oscillating saws are used.

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Ultrasonic Bone Scalpel

Tissue specific osteotomy device capable of safely making precise cuts through bone and hard tissue while largely preserving delicate soft tissue structures.
Bone Scalpel doesn’t devascularise or cauterise bone.

It is important when harvesting bone graft or performing an osteotomy without to decrease the vital characteristics.
Blades

- 1 cm;
- 2 cm;
Our Experience in spine surgery
Exemplificative cases
Case Report I

- Patient male 54Y.o.
- Metastatic clear cell carcinoma at D8 and D12
- Surgery: posterior laminectomy, curettage and stabilization.
Navigation System
Post-operative X-ray
Case report II

Male 16 y.o.

Ewing Sarcoma of paravertebral muscles
Pre-neoadjuvant MRI
Post-neoadjuvant MRI
Surgery

Biopsy track

Preadjuvant tattoo of the disease

Incision
En-bloc laminectomy
En-bloc laminectomy
En-bloc laminectomy
En-bloc laminectomy
En-bloc laminectomy
Specimen
Post-operative X-Ray
Case Report III

65 y.o. male

Right sacro-iliac Chondrosarcoma

three steps surgery
MRI-scan
Intracanal disease
Surgical Planning
First Step

Xipho-pubic approach: vascular bundles dissection, internal iliac artery and vein bounding, Gore-Tex spacer placement between tumor and vessels.
Second Step

- Uretral Stent
- Sacral laminectomy and right nerve roots bounding
Laminectomy
Osteotomy lines
En-blocc laminectomy
Legatura Radici Sacrali
Posizionamento di Spacer in Sylastic
Third step
- Resection -

Right Sacrum-iliac joint resection and reconstruction with homograft, rod and screws
Drain

Autograft

Rod and screws

Ureteral stent
Post operative CT-scan
1) ultrasonic saw allows to perform a safely posterior decompression decreasing blood loss from the bone and the risk of neurological damage; 
2) it allows an en-bloc laminectomy of more levels as well and this is particularly important when a tumor is located in posterior elements of the spine; 
3) The device is also helpful in anterior surgery; 

**Limits**

the maximum blade length of 2cm limits its use. The assembling of a blade longer should permit to extend the indications at the big pelvic resections as well.
Thank You!