Incidence of CSF leak during laminectomy using high-speed drill versus BoneScalpel

Mohamad Bydon MD; Risheng Xu; Kyriakos Papadimitriou MD; Timothy F. Witham MD, BS; Jean-Paul Wolinsky MD; Daniel M. Sciubba BS MD; Ziya L. Gokaslan MD; Ali Bydon MD

The Johns Hopkins Hospital, Department of Neurological Surgery, Baltimore, Maryland, USA

Introduction

The BoneScalpel is a relatively new instrument that is used to perform laminectomies in lieu of the traditional high-speed drill. The reported advantage of this instrument is its ability to spare soft tissue injury, namely incidental durotomy, during bony decompression. This study aims to compare the incidence of inadvertent dural injury during laminectomy utilizing the traditional high-speed drill versus the BoneScalpel.

Methods

This study is a retrospective review of 337 consecutive neurosurgical spinal procedures performed at a single institution over a 21-month period. We included posterior cervical and thoracic laminectomies performed for extradural pathologies. We excluded procedures that required intradural exploration. Incidental dural tears attributed to the use of the high-speed drill or the BoneScalpel were identified using operative reports.

Results

Of the 337 procedures that met the inclusion criteria, the BoneScalpel was used to perform the laminectomy in 88 cases, while the high-speed drill was utilized in 249 cases. Of the 88 cases during which the BoneScalpel was used, incidental durotomy was encountered in 5 cases or 5.7%. Comparatively, in the 249 cases involving the high-speed drill, incidental durotomy was encountered in 9 cases or

Results (continued)

Although the incidence of durotomy was lower in the high-speed drill cohort, there was no statistically significant difference between the two cohorts (p-value 0.4).

Conclusions

This study compares the incidence of dural tears during laminectomies utilizing the BoneScalpel versus the high-speed drill. Although more durotomies were encountered using the BoneScalpel, this difference did not reach statistical significance. This study highlights the fact that incidental durotomy can be encountered with both instruments.

Learning Objectives

To describe the associated risk of inadvertent dural tears using the Bonescalpel versus the high-speed drill.

References

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Figure 1: The BoneScalpel

Figure2: High-speed bone drill.