

Technical Case Report

CT-guided Percutaneous Cordotomy in a Patient with Disseminated Neurofibromatosis

ABSTRACT

CT guided percutaneous cordotomy relies on understanding anatomic and physiological cues in order to be performed safely and effectively. While the CT scan provides excellent anatomic targeting information, it does not supplant the vital confirmation that stimulation provides during this procedure.

KEY WORDS: Pain surgery, CT-guided cordotomy, Neurofibromatosis

INTRODUCTION

CT guided percutaneous cordotomy relies on understanding anatomic and physiological cues in order to be performed safely and effectively. While the CT scan provides excellent anatomic targeting information, it does not supplant the vital confirmation that stimulation provides during this procedure. We present a technical case report of a percutaneous cordotomy performed on a patient whose underlying disease has altered the normal morphology of the cervical spinal cord. The patient is a 32-year-old female who presents with disseminated neurofibromatosis with evidence of neuromas throughout the entire cervical and lumbar spinal neuroaxis.

CASE REPORT

We present a technical case report of a percutaneous cordotomy performed on a patient whose underlying disease has altered the normal morphology of the cervical spinal cord. The patient is a 32-year-old female who presents with disseminated neurofibromatosis with evidence of neuromas throughout the entire cervical and lumbar spinal neuroaxis (Figure 1). CT-guided percutaneous access to the spinal cord was performed. Cervical spinal cord axial CT revealed altered spinal cord morphology with associated surrounding neurofibromas at the level of C1-2 (Figure 2). The initial localizing CT gave the initial impression of a position of the introducing needle close to the middle of the anteroposterior diameter due to the elongated anteroposterior morphology of the cord. A change in electrode tip impedance from 100 to 800 ohms indicated penetration of the spinal cord by the lesioning electrode (Figure 3) Initial stimulation was performed at 5 Hz resulted in no motor response. Stimulation at 100 Hz resulted in paresthesias from the left hip down throughout the lower extremity. An initial lesion was made at 55 C for 60 seconds. Two more lesions were made at 60 C for 60 seconds.

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CONCLUSION

A reliance on anatomical and physiological data is necessary in order to perform percutaneous CT guided cordotomy in a safe and efficacious manner. In this case report, the patients underlying disease significantly altered the normal anatomical cues used to perform the cordotomy. A reliance on the associated physiological data confirmed a correct position of the lesioning electrode despite its more posterior appearance.

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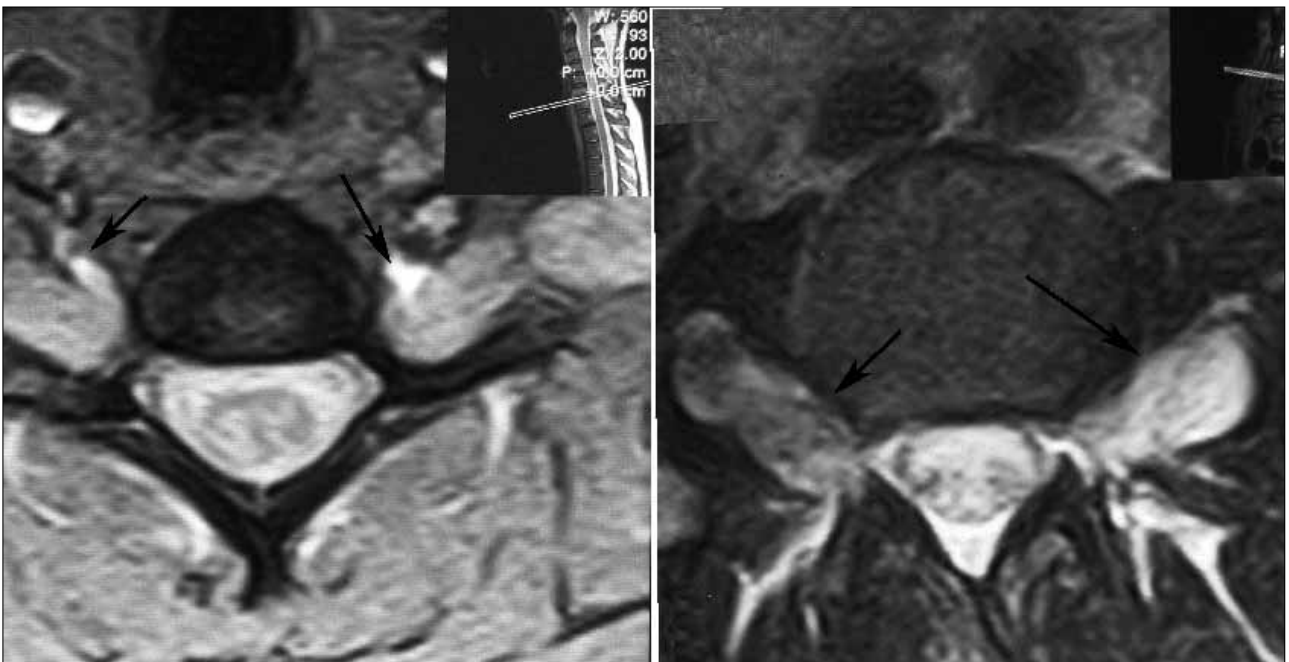


Figure 1: Black arrows show neurofibroms at axial cervical and lumbar sections.

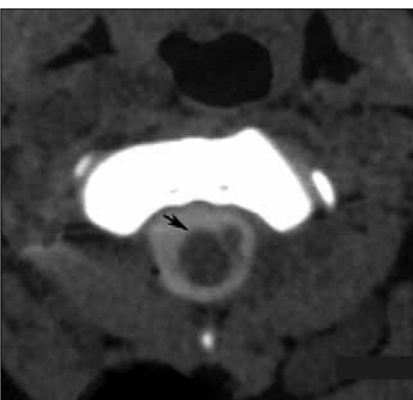


Figure 2: Cervical spinal cord axial CT revealed altered spinal cord morphology with associated surrounding neurofibromas at the level of C1-2.

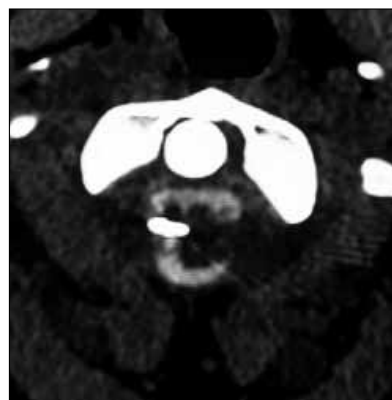


Figure 3: Penetration of the spinal cord by the lesioning electrode.

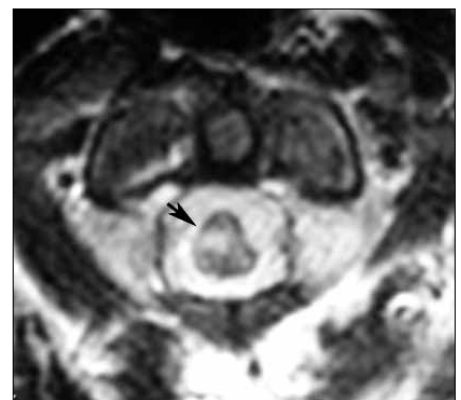


Figure 4: Postoperative cervical MRI (C1-C2) shows the lesion.