

Safety and Efficacy of Lumbar Spine Radiofrequency Neurotomy in the Presence of Posterior Pedicle Screws.

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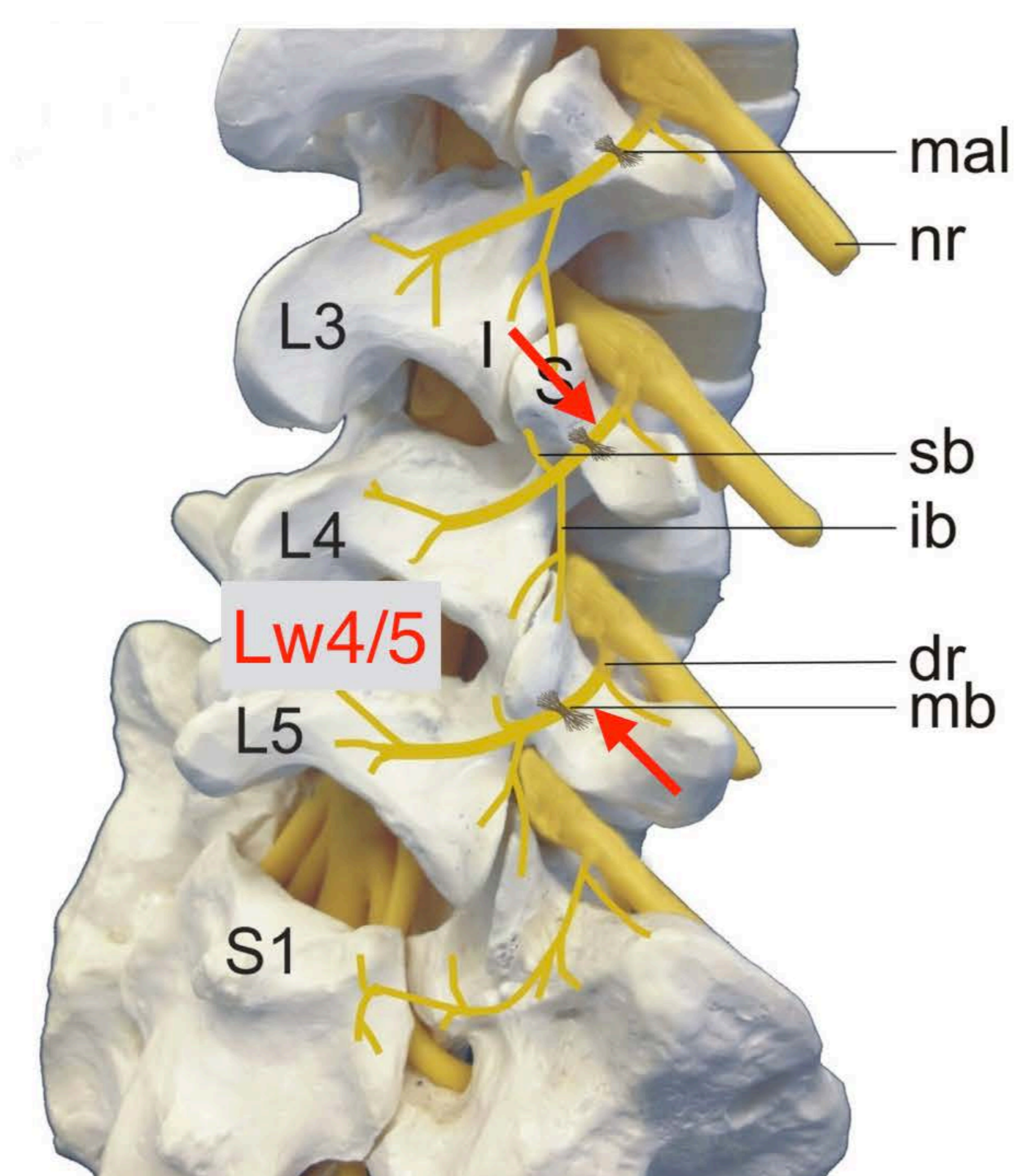
Introduction

Patients with history of lumbar spine fusion often present with persistent back pain. The causes of this pain may be elusive, but one possibility is pain stemming from the lumbar zygapophysial joints, either at segments adjacent to the fusion, or at the fused segment itself, because of residual mobility. Radiofrequency Neurotomy has been shown to be an effective treatment option for pain arising from the zygapophysial joints. The available data vindicate the use of lumbar medial branch neurotomy provided that the correct surgical technique is applied and patients are selected rigorously using controlled blocks.

The objective of this study was to determine the safety and the efficacy of lumbar spine radiofrequency neurotomy performed in the presence of pedicle screws in patients with chronic low back pain.



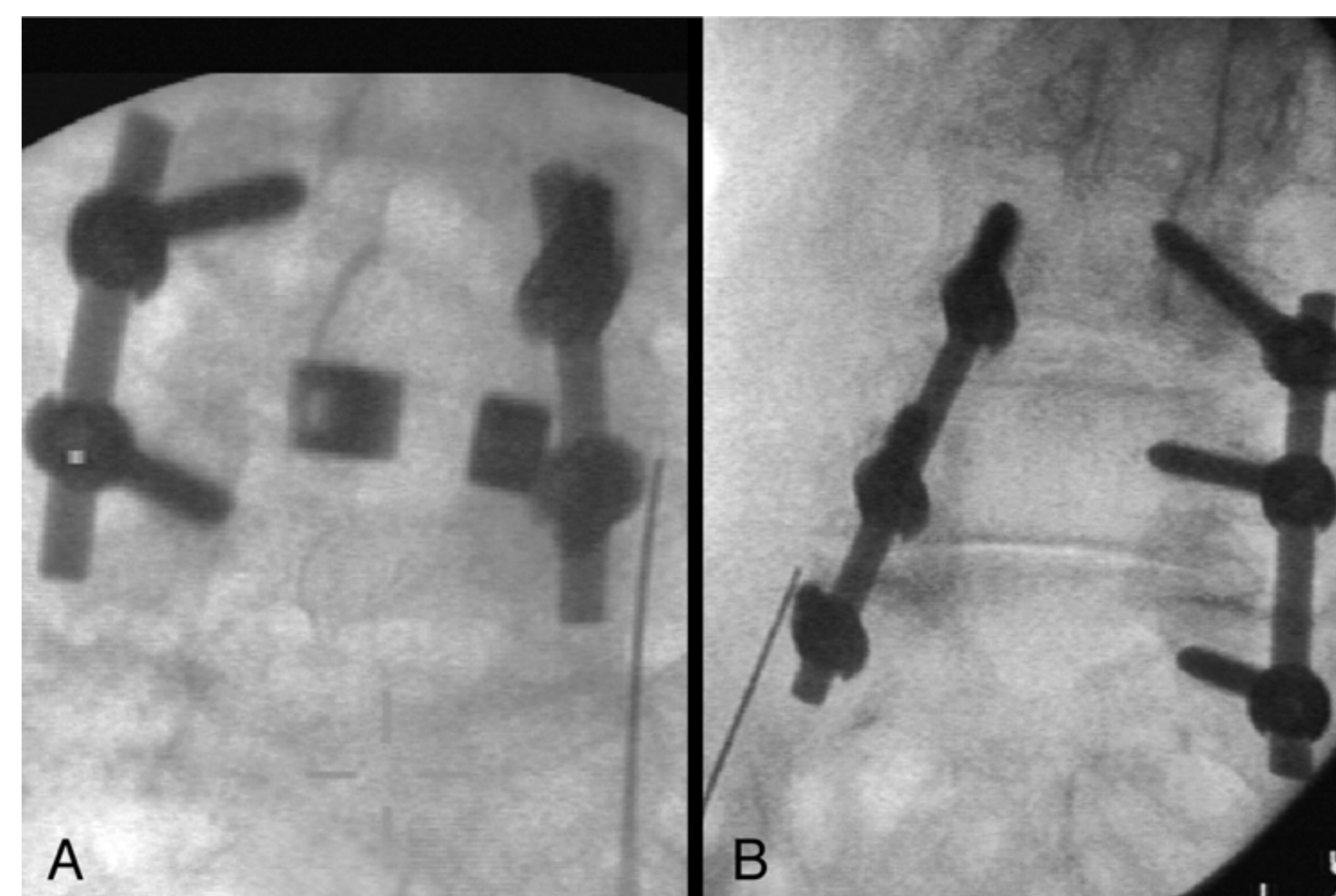
CT-scan after fusion of L4/5. Instability of the adjacent level or loosening of the screw are possible pain causes.



Innervation of the facet joints. If the L4/5 joint is symptomatic, the medial branches (mb) of L4 and L5 have to be treated with radiofrequency neurotomy.

Material and Methods

Retrospective practice audit. Review of charts of all patients who underwent lumbar radiofrequency neurotomy in the presence of pedicle screws. Patients were tested with a minimum of two controlled medial branch blocks and treated with radiofrequency neurotomy. A successful outcome was defined as at least 50% pain reduction for a minimum of three months. Target joints were identified by the pain pattern, local tenderness over the area, and provocation of pain with deep pressure. It was differentiated between levels with and without movement and between pedicles with and without screws.

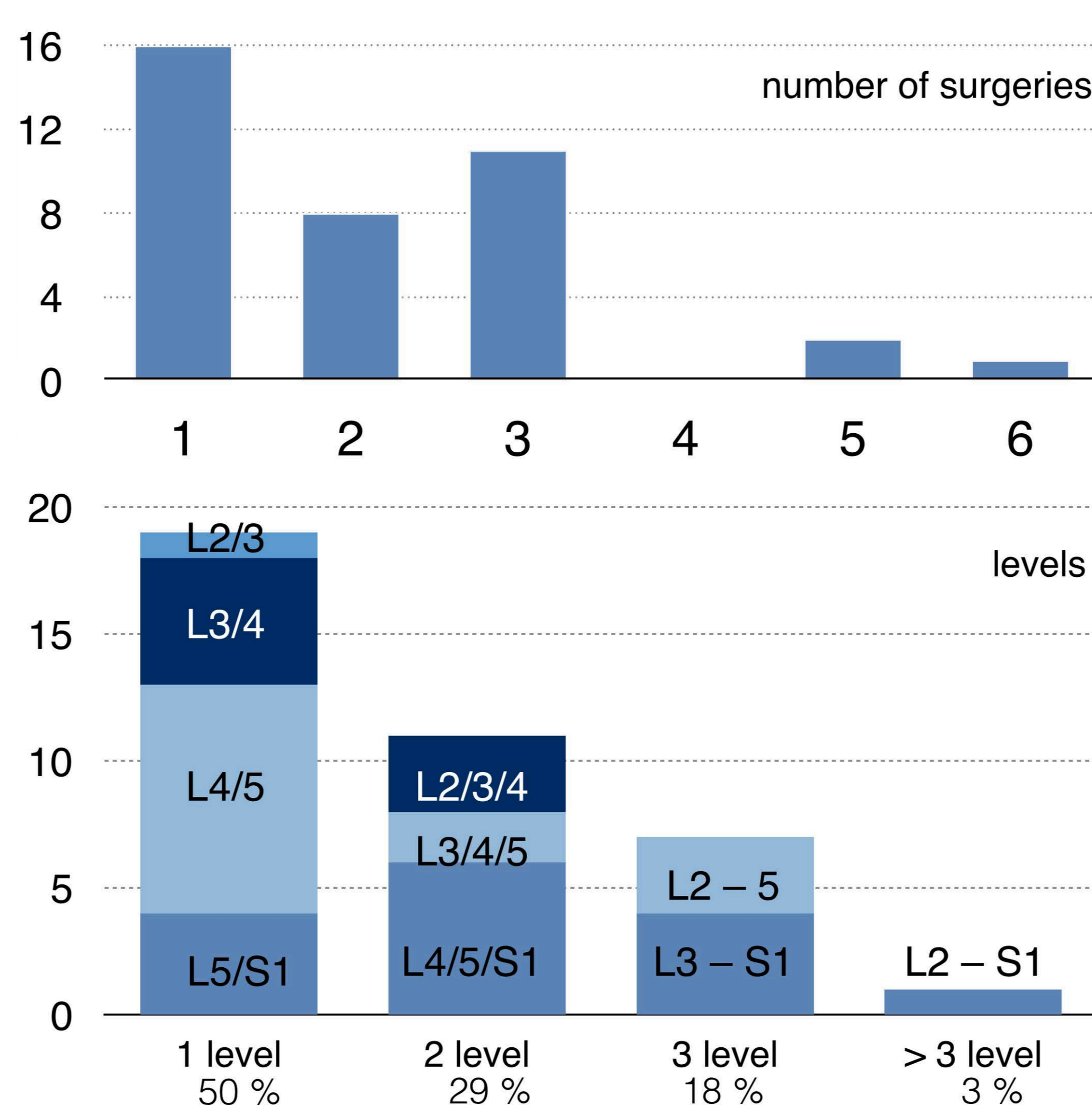


Positioning of the electrode for a radiofrequency-neurotomy procedure in two different patients.

A: L5 neurotomy in a patient after laminectomy L4 and L5 and spondylodesis L4/5/S1 seven months earlier.

B: Patient with a transitional vertebra lumbosacral and spondylodesis in the level above.

Results



The mean number of surgeries before radiofrequency neurotomy was 2.1 (between 1 and 6). 14 patients (36.8%) had 3 or more surgeries in history.

In 50.0% of patients the fusion affected one segment, most frequently L4/5 (nine cases). Two segments were included in the spinal fusion in 28.9%, most frequently L4/5/S1 (six cases). Moreover, 18.4% of patients had a three level fusion and one patient a four level fusion.

Thirty eight patients were included with pedicle screws present at the time of the neurotomy. No adverse effects were observed and no patients reported a worsening of the pain after radiofrequency neurotomy. No clinical effect from the heating of the metal devices was observed. A pain reduction of at least 50% for a minimum of three months was achieved in 20 patients (52.6%). Pain in the index segment and also in adjacent segments was treated with no difference in success.

- 10-year period between 2005 and 2014
- In this time 2,520 radiofrequency procedures of these 40 (= 1.6 %) with pedicle screws

Inclusion criteria (38 pat.)

- Patients with pedicle screws
- Positive response to 2 medial branch blocks (≥ 80 % pain relief)

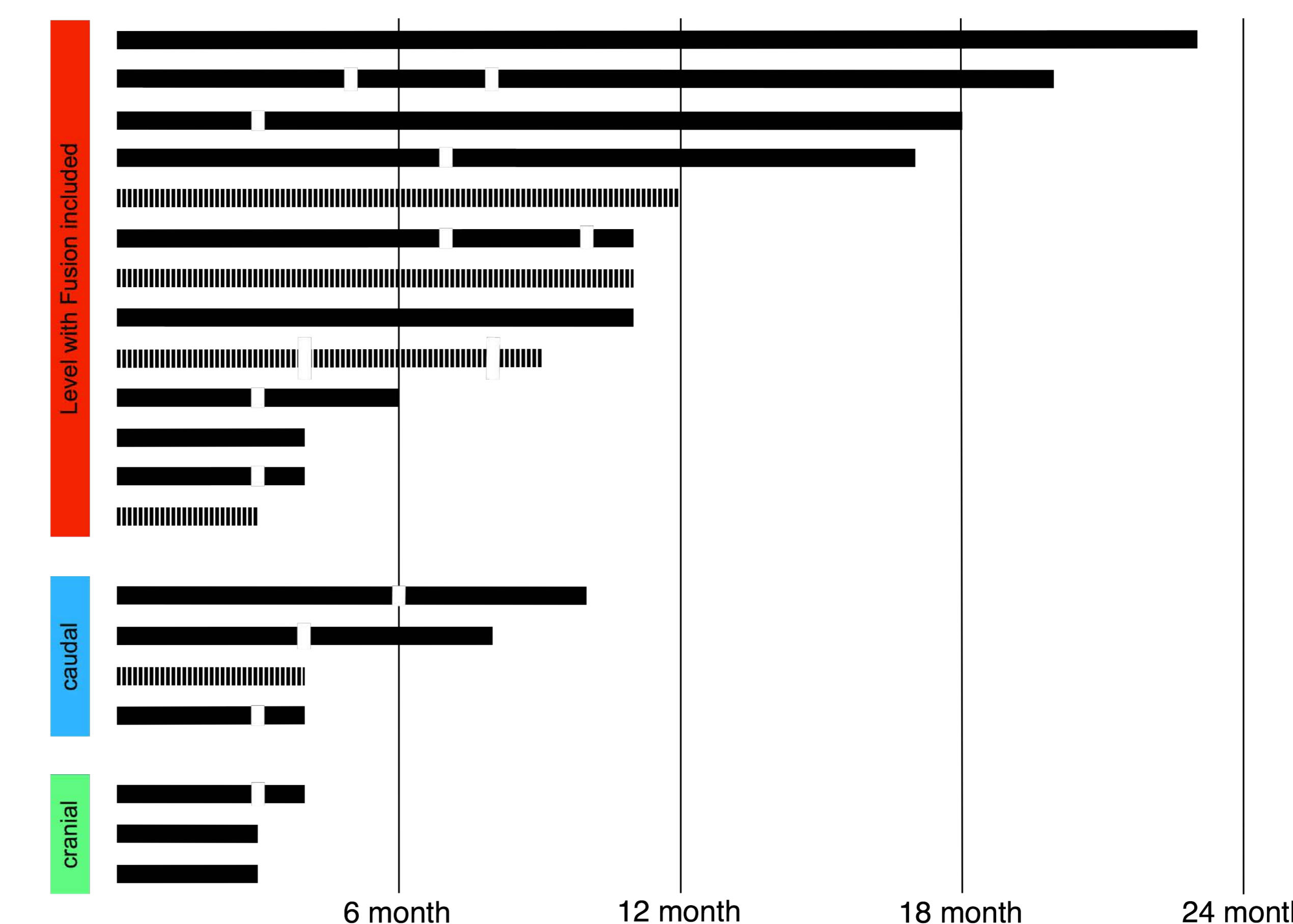
Exclusion criteria (2 pat.)

- Additional dorsal implant (e.g. interspinous)
- Patient after removal of screws
- No follow-up

Assessment (38 pat.)

Success: ≥ 50 % pain reduction
(20 patients, 52.6 %)

Duration of pain relief reported by patients treated successfully with RFN. Each bar represents one patient and indicates the duration of relief following a single treatment. The results of the three subgroups are shown. Black bar: 50 % pain relief, dashed bar: 80 % pain relief.



Conclusions

Some 50% of the patients with pedicle screws benefits from radiofrequency neurotomy for about six months. This potential benefit for the patient must be offset against the risk of the procedure, which might be higher because of the increase in temperature of the metal devices. Still, no adverse effects were observed. The selection of the level of treatment and the positioning of the electrode next to pedicle screws are challenging.