

Neuromodulation of Trigeminal Nerve Mandibular Branch: new development in our facial pain algorithm

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Objective

According to current algorithm for surgical treatment of refractory facial pain suggest different treatment option for traumatic neuropathic pain in different trigeminal branches. Peripheral nerve stimulation is treatment of choice for 1st and 2nd branch, and neurectomy for 3rd branch. We studied application of peripheral nerve stimulation of 3rd branch of trigeminal nerve for treatment of persistent intractable facial neuropathic pain.

Materials and Methods

We present a patient with history of right lower facial pain successfully treated with trigeminal nerve mandibular branch neuromodulation. 51-year-old woman presented with >2 years history of continuous right jaw pain after root canal procedure in one of her lower teeth (Fig. 1). Her pain was resistant to medical treatment with antidepressants, anticonvulsants and opioids as well as to right trigeminal nerve block. She underwent implantation of temporary mandibular branch stimulation electrode (Fig. 2) and then had a week-long stimulation trial during which she experienced ~90% pain relief when stimulation was optimal. Therefore, a permanent trigeminal nerve neuromodulation system was implanted (Fig. 3).



Fig. 1: Area of pain drawn on patient's skin



Fig. 2: Location of electrode during PNS trial

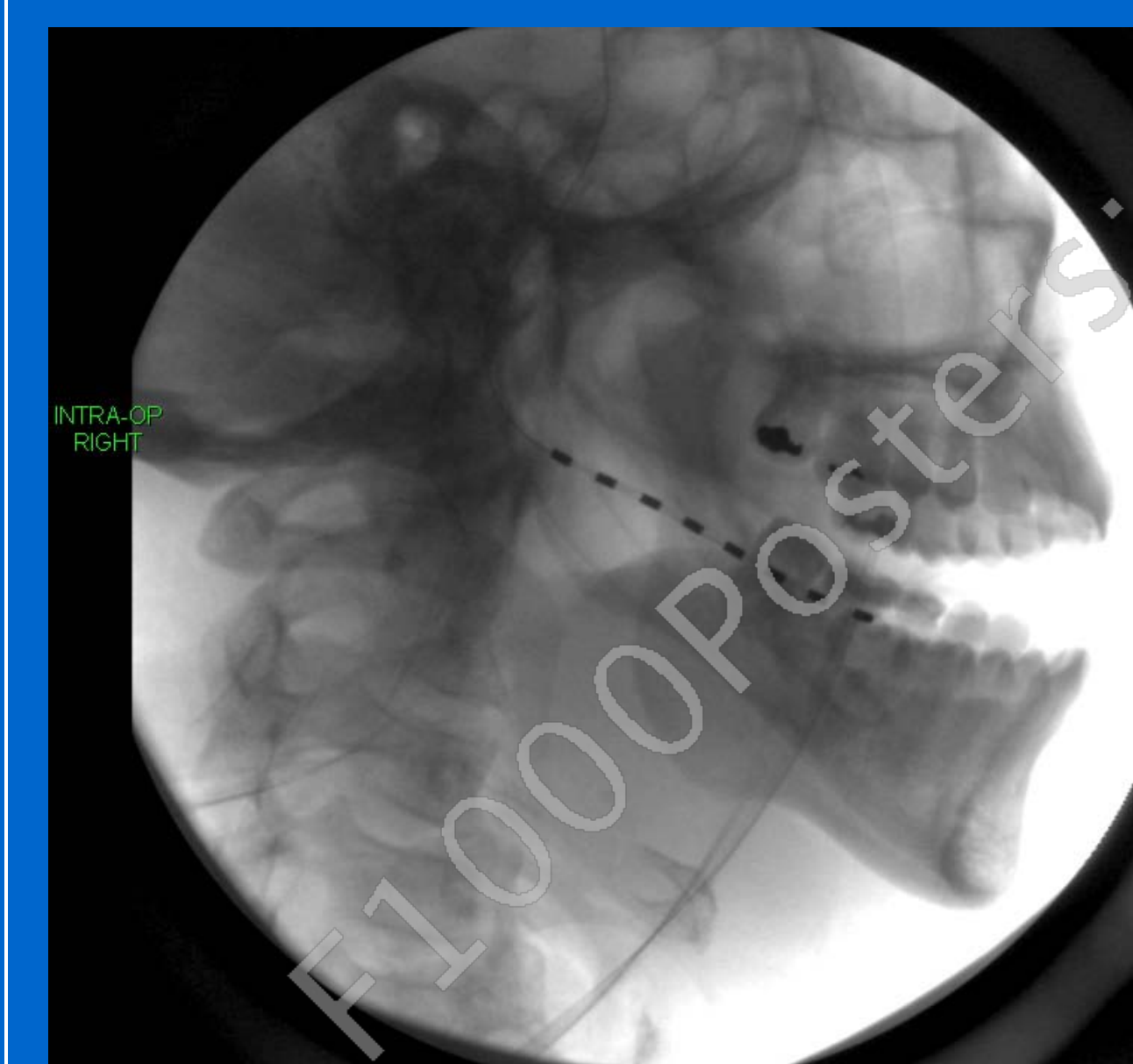
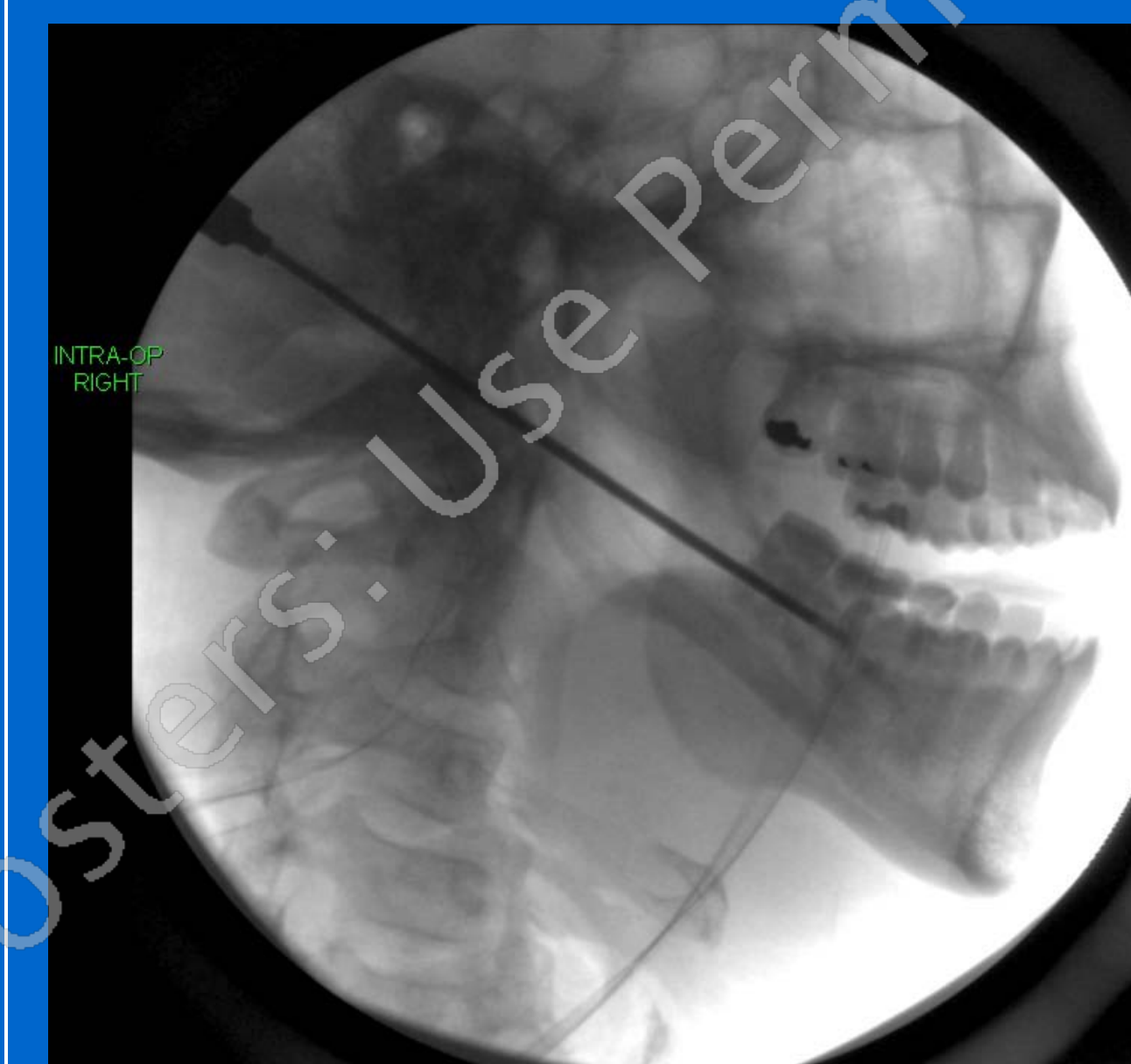
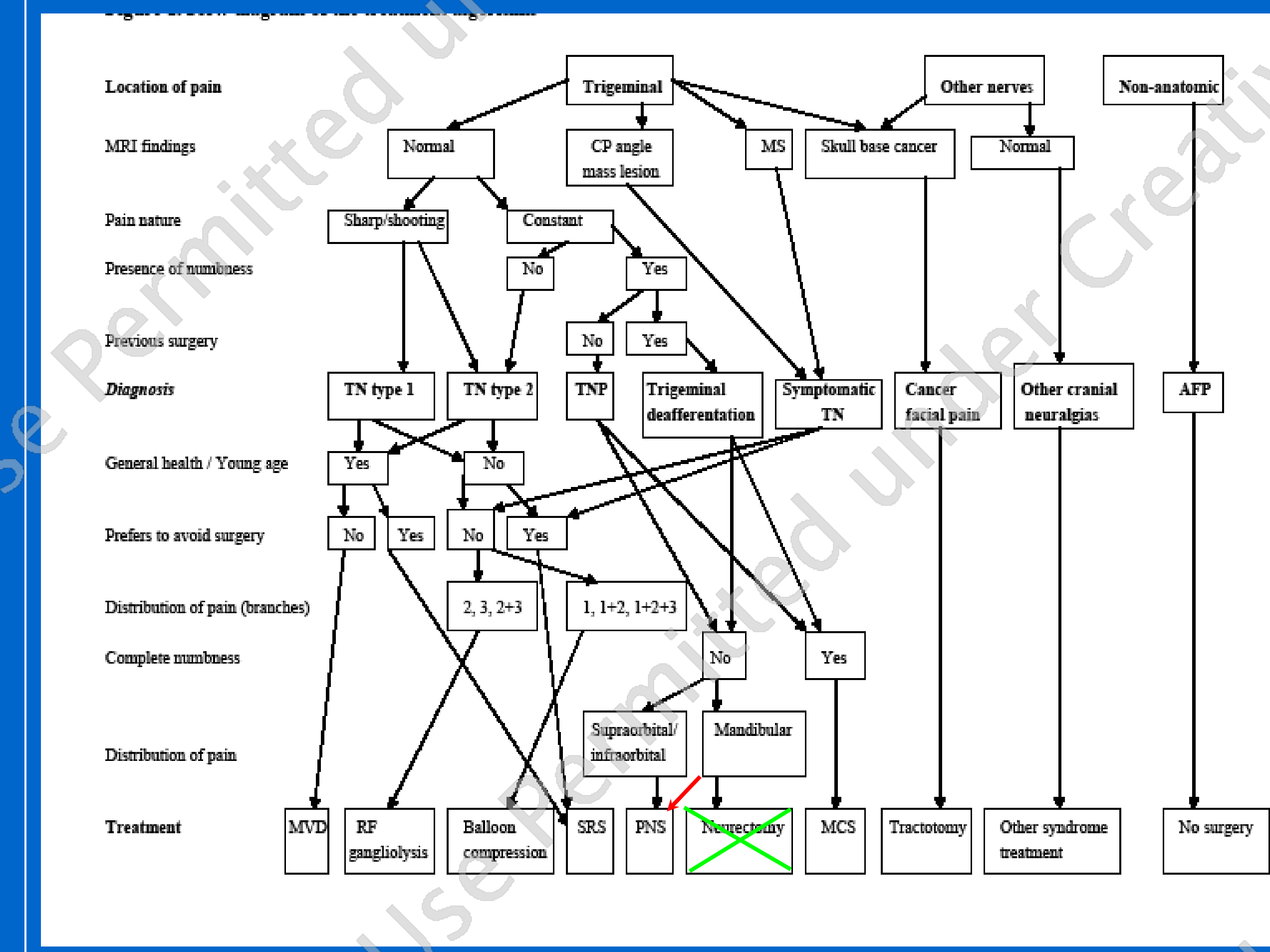


Fig. 3: Radiographs of permanent PNS electrode

Fig. 4: Corrected algorithm of facial pain management



Results

After 1 year follow up the patients discontinued her medications for pain control. No infection or lead migration has occurred.

Discussion

There are no previous cases on long-term mandibular branch stimulation reported in the literature.

This case suggests that neuromodulation of peripheral part of 3rd branch of trigeminal nerve should be considered as a first treatment choice for relief of medically intractable neuropathic pain of orofacial localization without need for destructive procedures.

The current algorithm may be adjusted to accommodate this PNS indication (Fig. 4).