

# Percutaneous Radiofrequency Retrogasserian Rhizotomy for Trigeminal Neuralgia

Pages with reference to book, From 132 To 133

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## Abstract

One hundred and twenty-seven patients with trigeminal neuralgia were treated by percutaneous radial frequency rhizotomy. after the drug treatment had failed or various side effects were noted. Majority of patients were in the age group of 51-60 years andi predominantly males. Pain was on the right side in 89 and on the left in 38 patients. Sixty-three percent of cases had pain in the distribution of maxillary and mandibular division. The procedure was done under local anaesthesia with a success rate of 86%. This is an excellent procedure with a low cost, fewer complications (16,5%), low morbidity and no mortality (JPMA 43: 132, 1993).

## Introduction

Percutaneous radiofrequency rhizotomy (PRFE.) is one of the procedures employed to relieve trigeminal neuralgia. Electrocoagulation<sup>1</sup> of the Gasserian ganglion had a high morbidity and mortality due to uncontrolled current intensity. A- alpha and B fibres carrying tactile sensation were more resistant to heat than A delta and C fibres conducting pain sensation. Radiofrequency current could be regulated to destroy pain conducting A and C fibres selectively. This method of selective destruction of pain fibres has been used at this centre since 1982 for treatment of patients with trigeminal neuralgia. Analysis of 127 patients treated with PRFR seen over a period of 10 years is presented here.

## Patients and Methods

One hundred and twenty-seven patients diagnosed clinically as trigeminal neuralgia were included in this study. CT scan or MM were done in patients below the age of 30 years. Tegretol tablets taken by all patients in different doses for a varying period failed to produce relief or intolerable side effects appeared. Sixty-seven percent of the patients had peripheral alcohol block or neurectomy and the remaining underwent other proce dures before they were subjected to PRFR (Table I).

**Table I. Various modes of treatment.**

Mode of treatment	No. of patients	Percentage
Drug	127	100
Alcohol block	77	66.2
Peripheral neurectomies	8	6.29
Microvascular decompression	2	1.57
Other procedures	40	25.94

The rhizotomy needle (gauge 20) was introduced into the cavum trigeminale under local anaesthesia<sup>2</sup>. Its position was verified radiologically<sup>3</sup> or by the presence o CFS flow<sup>4</sup>. Further confirmation of the

location of tip a4 the needle in the cavum was obtained from the patient's response to electrical stimulation. The lesion was produced by increasing the duration and intensity of the current and checking the patient's response to pin prick. Electric stimulation was stopped when analgesia was produced in response to pin prick in the distribution of desired division of the trigeminal nerve. The patients were followed for a period of 10 years with a minimum follow-up of 1 year in 2 patients.

## Results

One hundred and twenty-seven patients with trigeminal neuralgia underwent PRFR. Their ages ranged from 26-97 years, majority (45%) being in the age group of 51-60 years. There were 89 males and 38 females. The pain was on right side in 89 and on the left in 38 patients. Sixty-three percent had pain in areas of both maxillary and mandibular divisions on one side and 15% in the mandibular division area only. Pain was infrequent in ophthalmic division.

Results of PRFR were excellent in 67% giving pain relief without any complications and good in 19% where minor complications like transient blurring of vision, disturbance of hearing and diplopia were observed. Results were regarded as poor in 14% with incomplete pain relief associated with ophthalmoplegia, masseter weakness or anaesthesia dolorosa. Recurrence was less frequent (75%) in patients in whom deep sensory deficit was produced than those (25%) who only had analgesia. If excellent and good results are combined, success rate of PRFR was 86%. The procedure can also be repeated without any hazard. Various complications observed in 16.5% of cases are shown in Table II.

**Table II. Complications of PRFR.**

<b>Complications</b>	<b>No. of patients (Total: 127)</b>	<b>Percentage</b>
<b>Disturbances in hearing, tinnitus</b>	<b>11</b>	<b>8.66</b>
<b>Neuroparalytic keratitis</b>	<b>4</b>	<b>3.14</b>
<b>Cheek haematoma</b>	<b>4</b>	<b>3.14</b>
<b>Weakness of muscles of mastication</b>	<b>1</b>	<b>0.79</b>
<b>Carotid artery puncture</b>	<b>1</b>	<b>0.79</b>

Difficulty in hearing tinnitus, inconstant roaring and hopping sounds attributable to the paresis of small muscles around the eustachian tube was most frequent complication followed by neuroparalytic keratitis and cheek haematoma.

## Discussion

Percutaneous radiofrequency rhizotomy is more frequently done to relieve pain of trigeminal neuralgia than microvascular decompression. Excellent to good results were obtained in 86% of 127 cases with

fewer complications (16.5%) in this study. Neuroparalytic keratitis, one of the most serious complications of the procedure was seen in only 4 (3.14%) cases in whom analgesia was produced in the ophthalmic division area. Weakness of muscles of mastication may result in mild degree of disability due to jaw deviation and loss of chewing power. This was seen in one patient in whom lesion was produced for third division pain. It can be avoided by repositioning the electrode and placing it more laterally if masseter Contraction occurs during lesion making<sup>6</sup>. Carotid artery puncture though uncommon is most alarming<sup>7</sup>. It occurred in one case only. The needle was repositioned and the procedure completed without any serious consequences. Other complications such as carotics cavernous fistula, acute systemic episodes, skin burn, dysphagia were not seen in this series. PRFR is better than microvascular decompression or sub-temporal retrogasserian rhizotomy which requires open operation alongwith its hazards. Percutaneous procedure can be done under local anaesthesia on an outpatient basis. It is well tolerated by elderly and high risk cases and can be repeated without any hazard. It has a high success rate as observed in this study, low cost and a low morbidity and no mortality.

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