



# Comparison of Percutaneous Retrograde Balloon Compression and Gamma Knife Radiosurgery for the Treatment of Trigeminal Neuralgia in Multiple Sclerosis

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## Introduction

Trigeminal neuralgia is characterized by brief paroxysmal unilateral facial pain that is severe. In patients with MS, TN is attributed to demyelinating lesions of the central trigeminal pathways or the trigeminal REZ. The management for TN in MS must be adapted to each individual patient. The aim of this clinical research study was to evaluate and compare percutaneous Retrograde Balloon Compression (PBC) and Gamma Knife Radiosurgery (GKRS) in terms of effectiveness, complications and technical aspects in MS population.

## Methods

This is a single center, retrospective, comparative study. Minimum follow up 24 months. Patients with history of microvascular decompression or previous intervention for the management was excluded. Seventy eight PBC procedures were performed by one experienced neurosurgeon and one hundred twenty four first dosage GKRS in a total of 202 patients between Feb 2009 and December 2013. The PBC procedures were completed in all cases. The 2 groups compared initial effect, duration of effect, and rates of complications as well as severity and type of complications.

## Results

The rates for immediate pain relief were 72% for patients treated with PBC and 35% for patients treated with GKRS. The Kaplan-Meier plots for the 2 treatment modalities were similar. The 50% recurrence time was 12 months for the PBC and 18 months for the GKRS. The rates of complications (excluding numbness) were 3% for GKRS and 21% for PBC, and this difference was statistically significant (chi-square test,  $p = 0.03$ ).

## Conclusions

Both PBC and GKRS are effective techniques for the treatment of trigeminal neuralgia in MS. GKRS presenting advantages in terms of complications, long term relief and allowing treatment without general anesthesia. Authors consider GKRS first option for the treatment of TN in MS patients. PBC is reserved for patients in whom the effect of GKRS has proven to be short or due to acute intractable pain.

## Learning Objectives

Treatment of TN in MS

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