Trigeminal neuralgia (TN) is a disabling pain condition that has classically been treated using either surgical or medical techniques. Recently, several publications have shown that stereotactic radiosurgery can be an effective tool in the amelioration of this condition. In all studies, the Gamma Knife was used to deliver the radiation. The 4 mm cone was used for treatment and targeted at the proximal nerve at the root entry zone. Doses greater than 70 Gy in a single fraction were found to be effective in controlling pain in 80% of the treatments. Patients with no prior surgery had complete or near complete pain relief. Complications due to treatment were nearly non-existant in published studies.

Based on these results, we initiated a linac based stereotactic radiosurgery program to treat TN. We use the 5 mm cone, 6 MV X rays, the BRW headring, a pedestal mounted headstand, and a sub-gantry sytem to provide the treatment. Planning is done using commercially available software. The stereotactic system used for this procedure allows precise delivery of radiation that is comparable to that of the Gamma Knife system.

In this work, we compare the use of our pedestal based linac stereotactic radiosurgery for TN with Gamma Knife treatments. We compare the two treatment modalities based on dose distribution, dose volume histograms, treatment accuracy, and treatment time. We conclude that linac based SRS for TN is an effective means by which to treat this condition and compares favorably with Gamma Knife treatments.