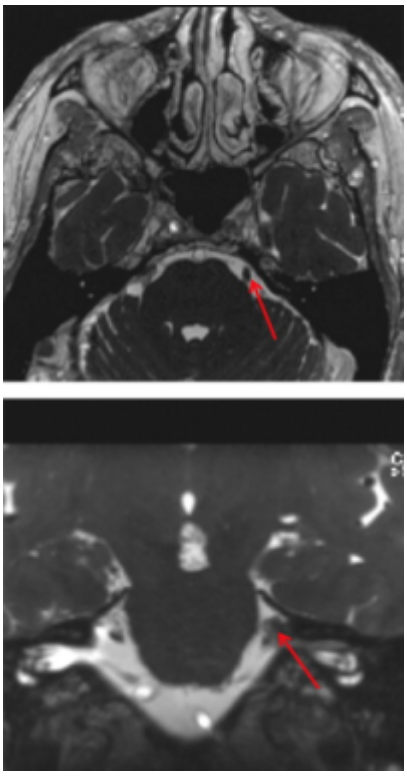
Retrosigmoid approach for glycerin rhizotomy



In 2013 Goodwin et al., performed a retrospective analysis of patients who received standard microvascular decompression and injection of glycerin to the inferior third of the Trigeminal nerve cisternal portion anterior to the root entry zone with lack of a compressive vessel on MRI as the primary indication. Fourteen patients were identified and demographic information, post-operative course and complications were recorded.

There were eleven females and three males with an average age at time of surgery of 54.8 years. 100% of patients reported that their trigeminal pain was significantly improved following surgical intervention. Four out of fourteen patients reported a 50-80% decrease from the pre-surgery baseline pain at one month and three month follow up. One patient developed a CSF leak, and no surgical site infections or motor deficits were observed.

Intra-operative glycerin rhizotomy in conjunction with microvascular decompression can be used to safely treat patients suffering from trigeminal neuralgia [1].

In 2019 their updated experience with this technique to further validate this novel approach by a retrospective analysis of data obtained in patients in whom glycerin was directly injected into the inferior third of the cisternal portion of the trigeminal nerve.

Seventy-four patients, including 14 patients from the authors' prior study, were identified, and demographic information, intraoperative findings, postoperative course, and complications were recorded. Fisher's exact test, unpaired t-tests, and Kaplan-Meier survival curves using Mantel logrank test were used to compare the 74 patients with a cohort of 476 patients who received standard MVD by the same surgeon.

The 74 patients who underwent MVD and glycerin injection had an average follow-up of 19.1 ± 18.0 months, and the male/female ratio was 1:2.9. In 33 patients (44.6%), a previous intervention for TN had failed. On average, patients had an improvement in the Barrow Neurological Institute Pain Intensity score from 4.1 ± 0.4 before surgery to 2.1 ± 1.2 after surgery. Pain improvement after the surgery was documented in 95.9% of patients. Thirteen patients (17.6%) developed burning pain following surgery. Five patients developed complications (6.7%), including incisional infection, facial palsy, CSF leakage, and hearing deficit, all of which were minor.

Intraoperative injection of glycerin into the trigeminal nerve is a generally safe and potentially effective treatment for TN when no distinct site of arterial compression is identified during surgery or when decompression of the nerve is deemed to be inadequate [2].

References

1)
Goodwin CR, Yang JX, Bettegowda C, Hwang B, James C, Biser A, Raza S, Bender M, Carson B, Lee JY, Lim M. Glycerol rhizotomy via a retrosigmoid approach as an alternative treatment for trigeminal neuralgia. Clin Neurol Neurosurg. 2013 Dec;115(12):2454-6. doi: 10.1016/j.clineuro.2013.09.009. Epub 2013 Sep 25. PubMed PMID: 24161889.

2)
Kim TY, Jackson CM, Xia Y, Mashouf LA, Patel KK, Kim ES, Hung AL, Wu A, Garzon-Muvdi T, Bender MT, Bettegowda C, Lee JYK, Lim M. Retrosigmoid approach for glycerin rhizotomy in the treatment of trigeminal neuralgia without overt arterial compression: updated case series. J Neurosurg. 2019 Mar 8:1-7. doi: 10.3171/2018.12.JNS182572. [Epub ahead of print] PubMed PMID: 30849763.