For petrous apex meningioma induced trigeminal pain, Surgery produces better pain control compared to radiosurgery.

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Disclosure

• We have no conflict of interest
Introduction

Petrous apex meningiomas are among the most common causes of tumor-induced trigeminal pain. Their size at presentation is usually small (<3 cm), creating a therapeutic dilemma because of the many available therapeutic options including stereotactic radiosurgery (SRS), microsurgery and others. Accordingly, the aim of this study is to compare the outcome of pain control in petrous apex meningioma-induced trigeminal pain between SRS and microsurgery.
Methods

The study was conducted as a retrospective, comparative (historical) cohort study in the period from January 2010 to October 2016. The study included 35 patients with small (<3 cm in maximum diameter) petrous apex meningiomas, presenting with intractable trigeminal nerve pain. The primary outcome variable was pain relief according to the BNI (Barrow Neurological Institute) scale. Secondary outcome variables included time to onset of pain relief, duration of pain relief during follow up, occurrence of new neurologic deficits, worsening of neurological deficits and tumor control. Surgical cases were operated in Neurosurgery Department in Cairo University, Whereas radiosurgery cases were operated in the International Medical Center (IMC) in Cairo, Egypt.
Results

The patients were divided into two groups the first group included 17 patients, and these were the patients treated by microsurgical resection, and the second group included 18 patients treated with radiosurgery. The outcome of pain, as measured by the BNI scale was compared between both groups. This showed a significantly better outcome in the surgical group with a P=0.032 (P<0.05).
Illustrative case from the surgical group (pre and post operative MRI)
Intra operative illustration

Discussion

There is no agreement on the ideal choice of treatment of the trigeminal neuralgia (TN) caused by small petrous apex tumors less than 3 cm in size. Stereotactic radiosurgery is noninvasive, produces a good tumor control, requires no general anesthesia, and has a lower rate of complications. It does not, however, produce satisfactory quantitative as well as qualitative outcomes, as TN often persists or may even worsen which is not the case in the micro-surgically removed lesions after which TN improves. The main drawbacks of surgery include the high incidence of surgical complications such as cranial nerve deficits, intracranial hemorrhage, cerebrospinal fluid leakage, in addition to approach-related morbidities. However those complications mainly occur in larger tumors.
Summary points and conclusion

Although microsurgery is invasive, requires general anesthesia and is more expensive in most western healthcare systems, it provides immediate long lasting pain control as well as, pathologically proven, tumor control.