

Anatomical landmarks for localizing the otic ganglion, a possible new treatment target for headache disorders

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Abstract

Background

The otic ganglion (OG) is a cranial parasympathetic ganglia located in the infratemporal fossa under the foramen ovale and adjacent to the medial part of the mandibular nerve. Parasympathetic innervation of intracranial vessels from the OG has been shown both in animal and human models and evidence suggests that the OG plays an important role in the cranial vasomotor response. We review the evidence that positions the OG as a viable target for headache disorders. The OG is a small structure and not detectable on medical imaging. The foramen ovale is easily identifiable on CT scans and the mandibular nerve on MRI, hence the position of the OG may be predicted if the mean distance from the foramen ovale is known.

Objective

To describe the average distance between the foramen ovale and the OG in a sample of 18 infratemporal fossae from 21 cadavers.

Methods

A total of 21 high definition photographs of 21 infratemporal fossae from 18 cadavers were analysed. The distance between the inferior edge of the medial part of the foramen ovale to the OG was measured.

Results

Four photographs of infratemporal fossae of 4 patients were excluded due to the inability to localize the inferior edge of the foramen ovale. A total of 15 infratemporal fossae from 17 patients were measured. The mean distance from the foramen ovale to the OG was 4.5 mm (SD 1.7), range 2.1 – 7.7 mm.

Conclusions

We have described the average distance from the OG to an easily identifiable anatomical landmark that is visible in CT-scans, the foramen ovale. This anatomical study may aid in the development of strategies to localize the OG in order to explore its role as a therapeutic target for headache disorders.