ANOMALOUS COURSE OF CHORDA TYMPANI NERVE: AN OPERATIVE FINDING

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ABSTRACT

Chorda tympani, branch of facial nerve arising from its vertical segment is at risk throughout its course during middle ear and mastoid surgeries. We observed an unusual course of the nerve during tympanoplasty. Course of nerve was carefully observed and compared with previous studies. This is the first case to best of our knowledge describing such an unusual course of chorda tympani nerve.

Key Words: Chorda tympani nerve, Middle Ear and Tympanoplasty

INTRODUCTION

The chorda tympani nerve, second branch of nervus intermedius segment of facial nerve runs upward and anteriorly and superior to the incus and inferior to the malleus. It traverses the tympanic cavity and leaves the temporal bone to join lingual nerve after passing through petrotympanic fissure (Djeric, 1993). It carries taste sensation from the anterior two third of the tongue and secretomotor fibres to submandibular salivary gland. Long course of chorda tympani makes it venerable to injury during various middle ear surgeries. There are various factors causing injury to the chorda tympani like transaction, stretching (most common mechanism), ischemia, thermal injury, excessive handling and desiccation (Mcmanus et al., 2011). Loss or altered taste sensation with or without xerostomia is the classical features of chorda tympani injury. Electrogustometry is done to measure its gustatory function (Purohit et al., 2007).

CASE REPORT

A 20 year-old female attended the OPD of department of ENT VCSCGGIMS&R Srinagar with presenting complaint of purulent discharge for left ear and difficulty in hearing from the same ear. Otoscopic examination was done under local anaesthesia and pure tone audiometry was done to determine the degree of hearing loss. Patient was diagnosed as a case of chronic suppurative otitis media with central perforation. Tympanoplasty was planned and performed by underlay technique using post-aural approach. During operation an aberrant course of chorda tympani nerve was seen. It was observed that chorda tympani nerve arose from the posterior canal wall about 5mm lateral to annulus and then moved under the tympanomeatal flap, running medially towards the annulus and crossing it to enter the middle ear cavity. In the middle ear it followed a normal course (Fig. 1). We could not trace it further due to surgical restrictions.

DISCUSSION

Lateral wall of tympanic cavity contains a bony ring to which tympanic membrane is attached. There are two small openings, anterior and posterior canaliculi for the chorda tympani nerve and petrotympanic fissure in the
upper part of this ring. Chorda tympani enters in tympanic cavity through posterior canaliculi and exits through anterior canaliculi which opens at the medial end of petrotympanic fissure (Standering, 2008).

Very few studies have described the variations in the origin and course of chorda tympani. A study conducted on 200 specimens of human temporal bones revealed the variant origin of chorda tympani. It was located in the proximal third (in 20% cases), middle third (in 70% cases) and in distal third (10% cases) of mastoid segment of facial nerve (Djeric, 1993). A cadaveric study showed the origin of chorda tympani from facial nerve outside the skull (in 34/40 specimens) and from within the facial canal (in 6/40 specimens) (Mcmanus et al., 2012). Chorda tympani was observed between tympanomeatal flap and bone during tympanoplasty surgery (Kalcioglu et al., 2011).

In our case we observed a unique course of chorda tympani during tympanoplasty surgery. It travelled medially towards the annulus under the tympanomeatal flap in the posterior canal wall after emerging on it about 5mm lateral to annulus and finally emerging through the posterior canaliculi (Fig. 1). Nerve entered the tympanic cavity through posterior canaliculus and adopted its usual course. Major variations of this nerve appear to be rare except in the presence of congenital malformation (Durcan et al., 1967). In our case, there was no congenital anomaly.

It appears to be the first case describing this unusual course of chorda tympani nerve to best of our knowledge. Knowledge of this variation is of great significance while performing middle ear surgeries like tympanoplasty to avoid damage to this nerve during surgeries. This variation may have novelty in the anatomy of chorda tympani nerve.

REFERENCES