

Identification of The Facial Nerve Trunk and The Patterns of its Branching Inside The Parotid Gland: A Cadaveric Study of Surgical Significance

Abstract:

Preservation of facial nerve (FN) trunk during parotid surgery is a challenging task for surgeons. The goal of this study was to locate the FN trunk and clarify the types of anastomoses between its branches. Thirty halves of adult head specimens were used. The length of FN trunk was measured. The distances between its extracranial appearance and three anatomical landmarks (the tragal pointer, external auditory meatus and posterior belly of digastric) were measured then patterns of FN branching and interconnections were recorded.

The mean length of FN trunk was 10.5 ± 2.16 mm. The mean distances between the FN and tragal pointer, external auditory meatus and posterior belly of digastric muscle were 16 ± 1.96 , 12.6 ± 1.39 and 9 ± 3.83 mm respectively. The FN entered the parotid gland and bifurcated into upper temporo-facial (TF) and a smaller lower cervico-facial (CF) divisions in 24 heads (80%) and trifurcated with the buccal branch arising separately forming a middle division in six cadavers (20%). No interconnection was detected between FN branches In 18 cadavers (60%). Interconnections existed between TF branches in 10 cadavers (33.3%). The presence of anastomosis between TF branches, and between branches of TF and CF divisions were detected in two cadavers (6.6%). So interconnections between branches of FN were present with different anatomical variations in 40% of the dissected specimens.

Knowledge of detailed anatomy of FN and awareness of variable interconnections between its terminal branches is essential for surgeons to preserve the nerve and its branches during parotid surgery. More studies concerning FN anatomy are recommended.