The External Branch of the Superior Laryngeal Nerve
Its Topographical Anatomy as Related to Surgery of the Neck
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Objective: To determine the possible courses of the external branch of the superior laryngeal nerve (EBSLN) and its relationship to the superior thyroid artery (STA) to improve the chances of identifying and saving the nerve during head and neck surgery.

Design: Anatomical analysis of the exact topography of the EBSLN.

Subjects: Thirty-one perfusion-fixed human cadavers (ie, 62 preparations) of both sexes ranging in age from 50 to 94 years (mean, 78 years) with neither enlarged thyroid glands nor any other signs of abnormality in this region.

Results: Four types of relationship between the EBSLN, the upper pole of the thyroid gland, and the STA were found. In 23 preparations (42%), the EBSLN crossed the STA more than 1 cm above the upper pole of the thyroid gland (type 1). In 15 preparations (30%), the EBSLN crossed the STA less than 1 cm above the upper pole of the thyroid gland (type 2). In 7 preparations (14%), the EBSLN crossed the STA under cover of the upper pole of the thyroid gland (type 3). In 7 preparations (14%), the EBSLN descended dorsal to the artery and only crossed the branches of the STA immediately above the upper pole of the thyroid gland (type 4).

Conclusion: The description of the variable course of the EBSLN and its categorization may help minimize the risk of iatrogenic lesions of the nerve during surgery.

MATERIALS AND METHODS

Sixty-two hemilarynges were taken from 31 human bodies of both sexes (20 male and 11 female) donated to the Institute of Anatomy, University of Vienna, Vienna, Austria, ranging from 50 to 94 years (mean age, 78 years). The bodies were fixed as usual for anatomical dissection courses (4% phenolic acid and 0.5% formaldehyde).

Only specimens with neither enlarged thyroid glands nor any other sign of severe abnormality of that region were accepted. The anterior triangles of the neck were dissected by 1 of us (A.C.K.), who documented his findings immediately. Results had been verified independently by the other author (M.A.). To verify the data, cadavers were subsequently decapitated at the atlanto-occipital articulation, with the neck's visera staying with the head. After this additional examination, the course and topographical relations of the EBSLN could be classified unequivocally in 52 hemilarynges. Within 7 hemilarynges, the EBSLN was injured during preparation. In 3 hemilarynges, the type of the EBSLN was difficult to determine after all the surrounding soft tissue that keeps the nerve in position had been dissected. These 3 preparations are described separately below.

The EBSLN innervates parts of the intralaryngeal mucous membrane and sends some motor fibers to intrinsic muscles of the larynx as well.8,10-12 Palsy of the EBSLN or an intro-
the relationship between the EBSLN, the STA, and the upper pole of the thyroid gland as presented herein may help identify the nerve during neck surgery.

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REFERENCES


