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Supraomohyoid Neck Dissection: Tips and Tricks

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Abstract

Neck dissection is an important procedure for the head and neck surgeon with diagnostic, therapeutic and prognostic role. Supraomohyoid neck dissection (SOND) is type of selective neck dissection for a node negative oral cavity cancer, malignant parotid tumor or a skin cancer anterior to tragus. We demonstrate the basic surgical steps with essential tips and tricks in SOND in a case of node negative carcinoma of tongue.

Introduction

Neck dissection has proved to be a vital and central procedure in the treatment of head and neck cancer. Ever since GW Crile has introduced radical neck dissection in 1906 [1], neck dissection has evolved onto functional neck dissection suggested by Osvaldo Suarez in 1963 [2] and later onto selective neck dissection. In selective neck dissection technique, selective lymph nodes groups that have highest risk of containing metastases are removed in sequence in a clinically disease free neck. The lymph node levels dissected are determined by the patterns of metastatic spread for specific tumor location.

Supraomohyoid neck dissection: Anatomic consideration

In supraomohyoid neck dissection (SOND) level I, II and III and submandibular gland are removed by preserving non-lymphatic structures including the accessory nerve, the internal jugular vein and the sternocleidomastoid muscle. SOND is indicated for oral cavity cancer T1 to T4 with clinical N0 neck, contralateral neck in midline lesions of the floor of mouth or ventral tongue, malignant parotid tumor or facial skin malignancies in a line anterior to the tragus [3,4]. In extended SOND, level IV lymph nodes are also removed in addition to level I to III in carcinoma tongue which has high propensity for metastasis to level IV. Surgical field for SOND has the following boundaries: superior, the inferior border of mandible; anterior, the contralateral anterior belly of digastric muscle; posterior, anterior border of sternocleidomastoid muscle; inferior, superior belly of omohyoid muscle and hyoid bone. Here, we demonstrate steps of supraomohyoid neck dissection in a case of clinically N0 neck carcinoma right lateral border of tongue, T2N0M0.

Surgical steps (Video):

SOND incision was made and subplatysmal flap was raised superiorly up to inferior border of mandible anteriorly up to midline, posteriorly up to posterior border of sternocleidomastoid muscle and inferiorly up to omohyoid muscle superior belly and preserving greater auricular nerve. After adequate exposure was established, investing fascia of sternomastoid muscle was mobilized anteriorly and muscle was retracted

laterally while dissecting the investing fascia off the undersurface of muscle along its entire length. Fat and lymphatic tissue in posterior triangle was dissected of the prevertebral fascia while clearing level II and III keeping above superior belly of omohyoid. Spinal accessory nerve was identified as it crosses the internal jugular vein to enter the sternomastoid muscle in relation with posterior belly of digastric muscle. Level II b which lies posterior-superior of spinal accessory nerve was dissected by mobilizing the fibro-fatty tissue off the underlying splenius capitus and levator scapulae. Working along the inferior belly of omohyoid muscle, the lymph nodal tissue was mobilized further anteriorly in a plane superficial to prevertebral fascia along a broad front. The IJV was encountered and meticulous dissection helps in swinging the specimen towards superior belly of omohyoid. Fatty contents of submandibular and submental triangles were cleared along with submandibular gland after ligating facial vein and artery and dissection should reach anteriorly up to anterior belly of contralateral digastric muscle. A thorough knowledge of three-dimensional anatomy of neck and basic technique of neck dissection is necessary for all head and neck surgeons.

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