

# Dissection of the Superior Thyroid Pole

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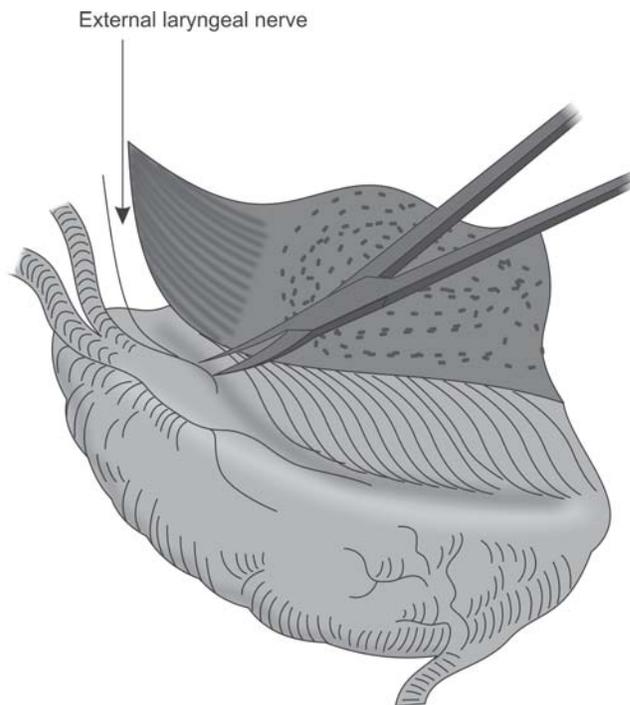
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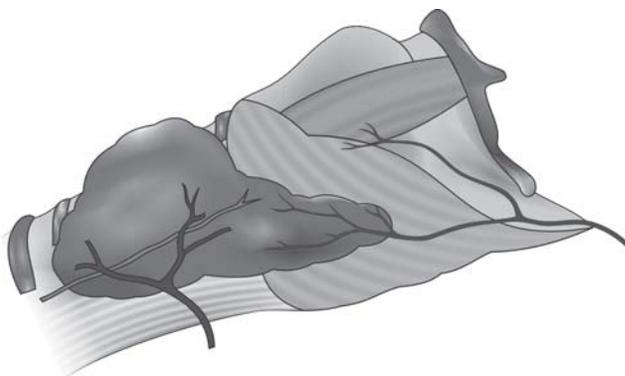
Special attention to the superior pole is pertinent to the success of a masterful thyroid operation. Meticulous dissection to separate the plane between the cricothyroid muscle and the thyroid parenchyma should be performed. Using two Kocher clamps to generously grasp the ipsilateral thyroid parenchyma in thirds, the thyroid lobe is retracted "down and out". This movement deviates the tissue caudally (down, towards the chest) and away (out, away from the midline towards to the ipsilateral shoulder). This technique easily defines the "space" between the gland and the cricothyroid muscle. A fine peanut is utilized to gently sweep the thyroid tissue laterally. A fine right angled instrument is used to carefully expose the avascular space between the medial, superior border of the thyroid lobe and the muscle fibers. We pay particular attention to maintain the tips of the dissecting instrument pointed lateral and "away" from the cricothyroid musculature (Fig. 1). Efforts to maintain "tips out" facilitates avoidance of inadvertent injury to the external laryngeal nerve as it crosses in this plane. Taking such precautions to prevent injury to the nerve, referred to as the "Amelita Gala Curci nerve" is mandatory to avoid loss of high-pitched sounds

After creation of the space, the superior thyroidal vessels are identified. The junction of the vessels and the superior-most thyroid parenchyma is noted. Reflection of the thyroid lobe by deviating the Kocher clamps towards the trachea allows for visualization of the space behind the lobe. We recommend the inspection of the posterior upper thyroid tissue prior to vessel ligation to assure that the recurrent laryngeal nerve (RLN) has maintained its course more posteriorly and has not been brought into the surgical plane and to confirm that the superior parathyroid gland has is laterally and unattached to the thyroid parenchyma. Albeit it rare, the RLN can occasionally be injured here if its insertion is more cephalad than expected.

Because the superior thyroidal artery stems from a prominent proximal source (the external carotid artery) ligation of this vessel is one of the most crucial to prevent life-threatening bleeding. Because of this, we routinely double ligate the superior thyroidal artery. A precise stick tie or silk suture passed on a right angle clamp technique are both acceptable. Surgical knots should be flat, tight, multiple and consistent. Frequently there is an anterior and posterior branch of the artery (Fig. 2). In such cases, each is individually divided and ligated. Ligation should be performed as low as possible on the thyroid parenchyma to avoid injury to the external laryngeal nerve. The superior



**Fig. 1:** Fine dissection with a right angled clamp facilitates dissection of the superior thyroidal vessels. The tips of the clamp should be directed outwards, away from the cricopharyngeal muscle, in order to avoid inadvertant injury to the external branch of superior laryngeal nerve



**Fig. 2:** Demonstrates how the superior thyroidal artery often branches into an anterior and posterior branch. The vessel should be ligated as it enters the thyroid parenchyma

thyroidal vein is also ligated separately and individually, close to the thyroid parenchyma. The harmonic scalpel is described by some as a means to thermally ligate this tissue although this is not our routine practice. No thyroid tissue should remain cephalad to the point of ligation. Leaving a remnant of tissue in this position could have several negative impacts: (1) It could result in a suggestion of metastatic thyroid cancer if the patient were to have a radioiodine scan postoperatively; (2) Serve as a site of remnant hypertrophy.

#### TECHNICAL HIGHLIGHTS

1. Grasp thyroid parenchyma with Kocher clamps to deviate tissue "Down and Out".
2. Dissect the avascular space between the thyroid lobe and cricothyroid muscle with a fine right angle clamp keeping tips "pointed out" at all times.
3. Check posterior surface of thyroid tissue to assure that superior parathyroid gland has "fallen back" and that recurrent laryngeal nerve is posterior.
4. Doubly ligate super thyroidal artery as it enters thyroid parenchyma.