Left Thyroid Lobectomy and Isthmusectomy

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Introduction

Open thyroidectomy remains the most common approach for the management of benign and malignant thyroid pathologies. While recurrent laryngeal nerve monitoring (RLNM) has become an increasingly popular adjunct in thyroid surgery over the past few decades, no large-scale multi-institutional studies have demonstrated a significant difference in RLN injury rates with its use, and many high-volume surgeons continue to rely solely on intraoperative visualization and knowledge of normal and variant anatomy to preserve RLN structure and function during thyroidectomy. In addition, novel hemostatic devices, such as electrothermal bipolar vessel sealers and ultrasonically activated shears, have become increasingly utilized in thyroid surgery; while these tools have been shown to be effective, they are also more expensive than traditional modes of effective hemostasis, such as knot tying, clips, and monopolar electrocautery. In this chapter, a safe, reliable, efficient, and low-cost technique for left thyroid lobectomy and isthmusectomy, without the use of RLNM or a vessel-sealing device, is described.

Description: Left Thyroid Lobectomy and Isthmusectomy

A 45-year-old man presented with a 1.2-cm left thyroid nodule, which was found to be suspicious for follicular neoplasm on a fine-needle aspiration biopsy. After a discussion of the risks, benefits, and alternatives to surgery, the patient opted to undergo a left thyroid lobectomy. He was brought to the operating room and positioned supine. After general endotracheal anesthesia was induced, the patient's neck was extended and prepared and draped in a sterile fashion.

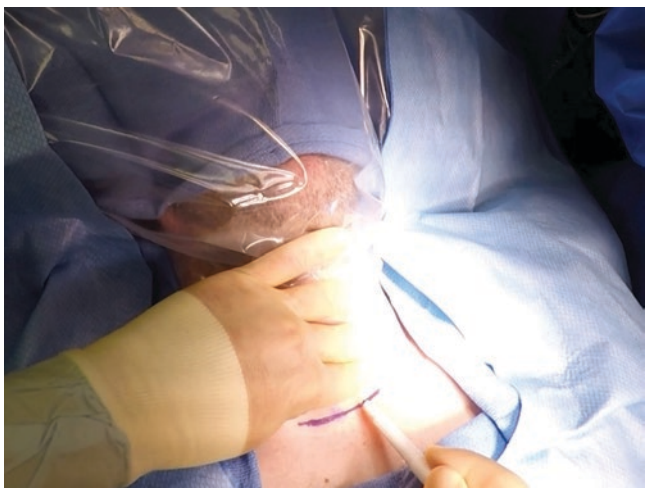

Fig. 9.1 A natural skin crease between the cricoid cartilage and sternal notch was marked in the preoperative area and remarked prior to skin incision

After a time-out was performed to verify patient, procedure, laterality, and other important case details, a standard skin incision was made in a natural skin crease, which was initially marked in the preoperative area (Fig. 9.1). The subcutaneous tissues and platysma were divided with electrocautery (Fig. 9.2). Subplatysmal flaps were raised superiorly and inferiorly (Fig. 9.3). After insertion of a self-retaining spring retractor (Fig. 9.4), the cervical fascia was incised in the midline. Electrocautery was used to expose the trachea at the inferior border of the isthmus (Fig. 9.5), and then the isthmus was divided with electrocautery at its junction with the right thyroid lobe (Fig. 9.6).

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The left strap muscles were reflected laterally, and the left thyroid lobe was mobilized medially (Fig. 9.7). The thyroid lobe contained a palpable nodule, and no extracapsular extension or adenopathy was seen. Next, the superior pole vessels were exposed and ligated (Figs. 9.8, 9.9, 9.10, and 9.11). Care was taken to avoid injury to the external branch of the superior laryngeal nerve. The loose areolar tissue attached to the thyroid capsule was gently swept posteriorly, which enabled the preservation of both the superior and inferior parathyroid glands (Fig. 9.12). The recurrent laryngeal nerve was then identified close to its insertion in the larynx, and a right-angle dissector was used to trace the nerve inferiorly (Figs. 9.13 and 9.14). With the recurrent laryngeal nerve in view, the lower pole attachments were clipped close to the thyroid capsule and ligated with electrocautery down to the level of the trachea (Fig. 9.15). The thyroid lobe was dissected off the trachea using a combination of clips and electrocautery, leaving a tiny remnant in the adherent zone for safety reasons (Figs. 9.16 and 9.17). The isthmus and pyramidal lobe were removed with the specimen. Cautery was applied to the cut edge of the right thyroid lobe for hemostasis (Fig. 9.18).

The wound bed was irrigated, and hemostasis was tested in the Trendelenburg position with positive pressure. The wound was closed in layers using 4-0 silk stitches to approximate the strap muscles and platysma (Figs. 9.19 and 9.20). Absorbable sutures can be used instead of silk, but silk stitches are chosen to facilitate the identification of tissue layers if there is a need for a second operation (e.g., completion thyroidectomy). The skin was closed with a subcuticular stitch using 4-0 Monocryl, and the incision was covered with Steri-Strips (Fig. 9.21).

The patient tolerated the procedure well without complications. Total operative time, including the induction of anesthesia, was less than an hour. Perioperative steroids and ketorolac were administered to reduce perioperative pain and nausea. He was observed in the recovery room for 4 hours, where he remained hemodynamically stable with a soft neck and normal voice. His pain was controlled without the use of narcotics, and he was tolerating a diet. He was thus discharged home. His final pathology was notable for a 1.2-cm follicular adenoma.

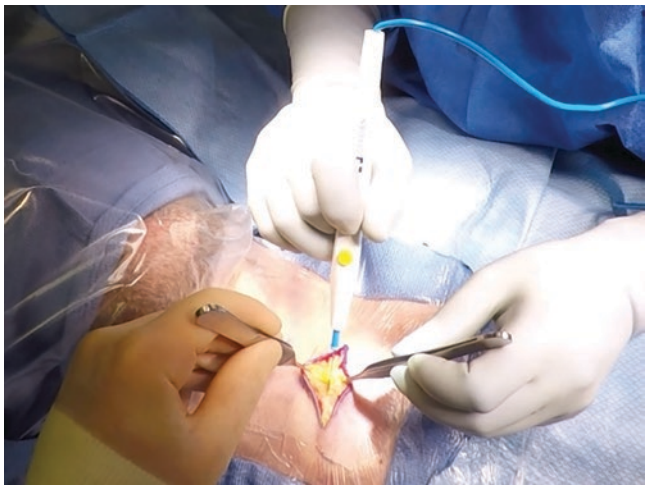


Fig. 9.2 The subcutaneous tissues and platysma were divided with electrocautery

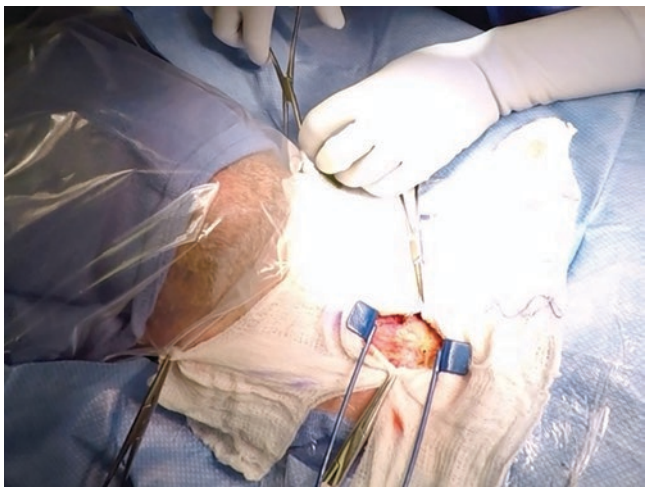


Fig. 9.4 Moist gauze was used to protect the skin edges, and an insulated spring retractor was used to provide exposure

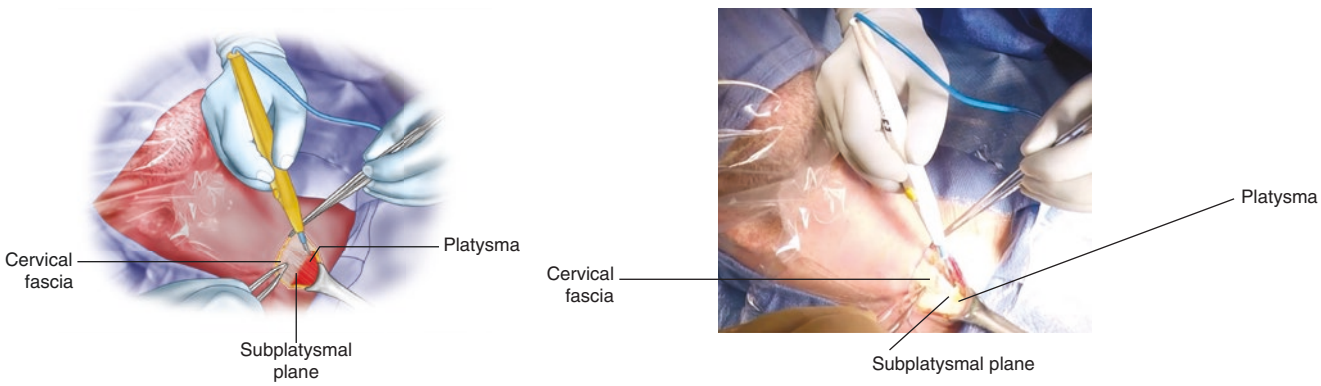


Fig. 9.3 An inferior subplatysmal flap was raised to the level of the sternal notch

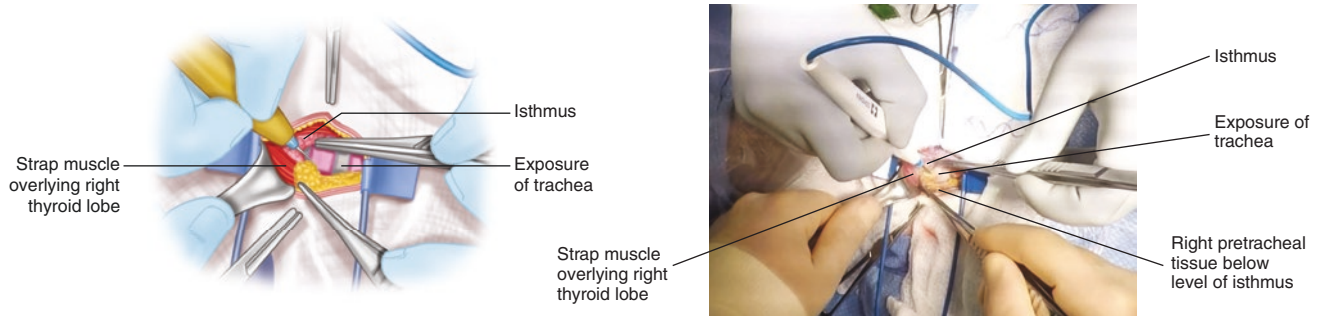


Fig. 9.5 Electrocautery was used to expose the trachea at the level of the inferior border of the isthmus

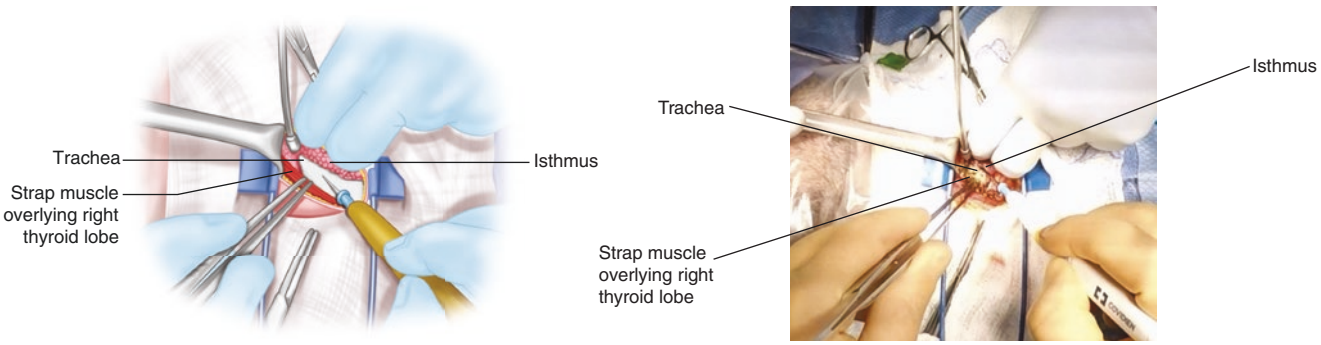


Fig. 9.6 The isthmus was divided at its junction with the right thyroid lobe using electrocautery

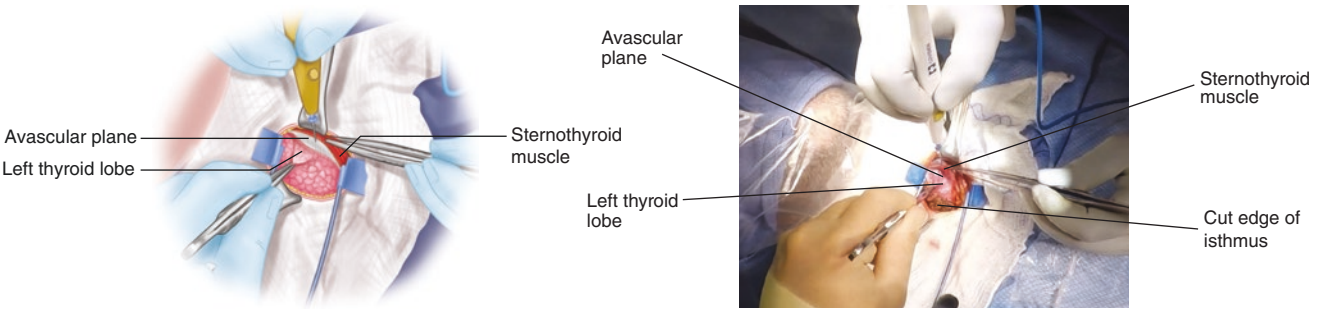


Fig. 9.7 The left strap muscles were reflected laterally, and the left thyroid lobe was mobilized medially by dividing the loose areolar tissue in this relatively avascular plane

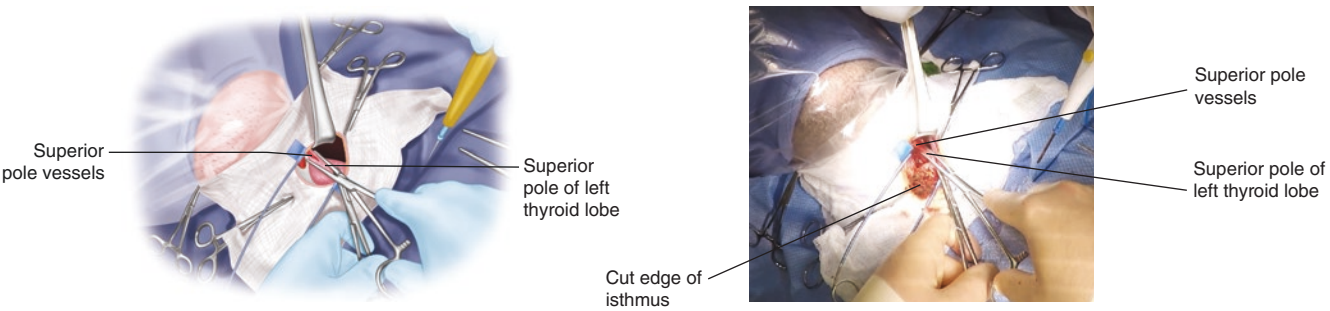


Fig. 9.8 The superior pole of the thyroid was grasped with a Kelly clamp and lifted anteriorly and laterally to facilitate exposure of the superior pole vessels

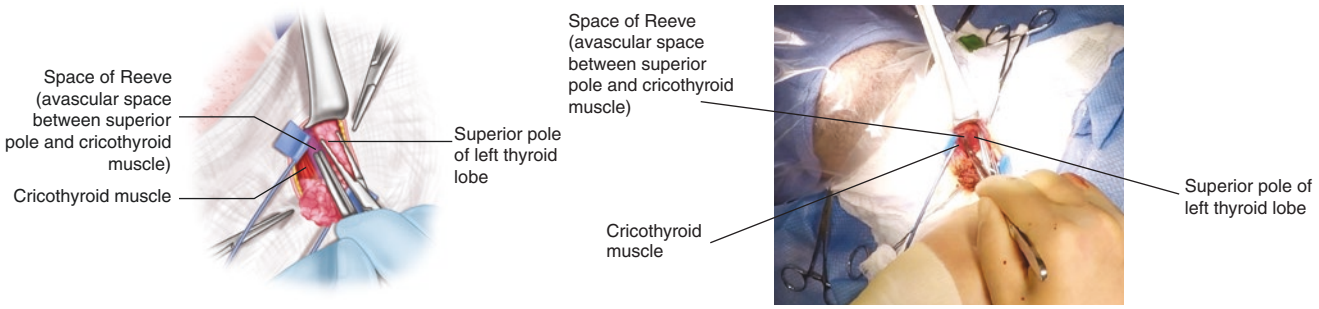


Fig. 9.9 Care was taken to avoid injury to the external branch of the superior laryngeal nerve by gingerly teasing away any muscle and tissue adhered to the thyroid capsule medially

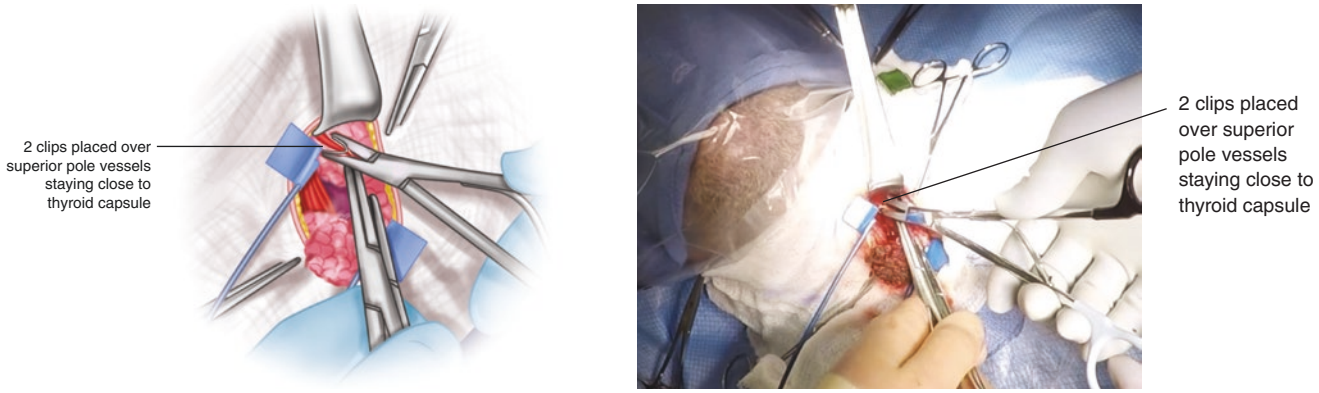
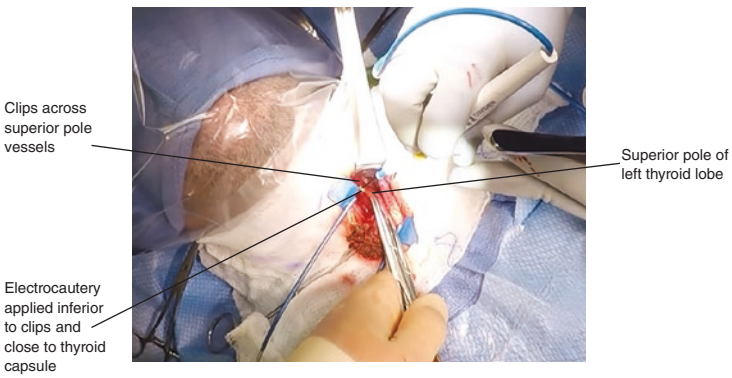


Fig. 9.10 After isolating the superior pole vessels, the vessels were doubly clipped close to the thyroid

Fig. 9.11 After the superior pole vessels were clipped, electrocautery was used to divide the tissue between the clips and the thyroid capsule. This sequence was repeated until the superior pole of the thyroid was free



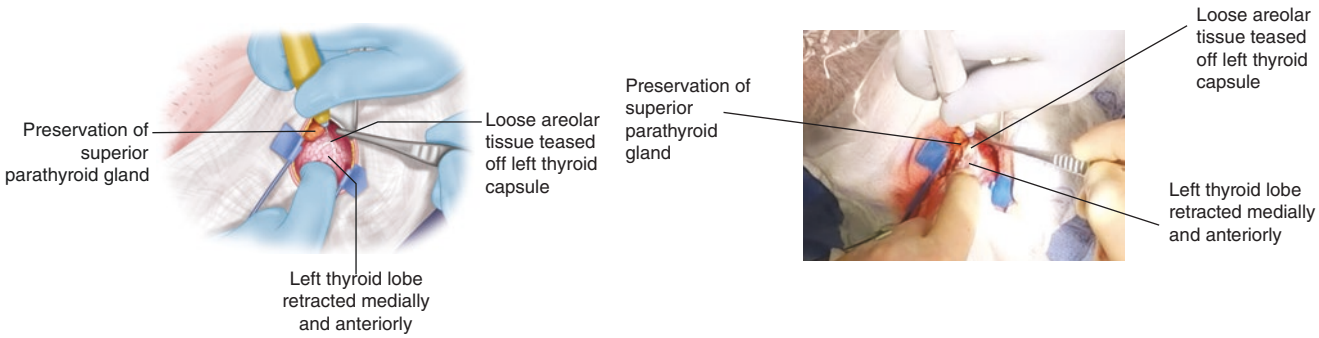


Fig. 9.12 The loose areolar tissue attached to the thyroid capsule was gently swept posteriorly. This maneuver enabled the preservation of both the superior and inferior parathyroid glands

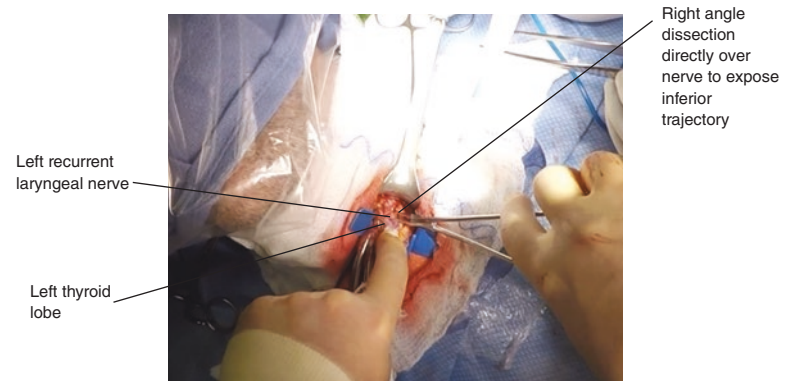


Fig. 9.13 The recurrent laryngeal nerve was identified close to its insertion in the larynx, and a right-angle dissector was used to trace the nerve inferiorly

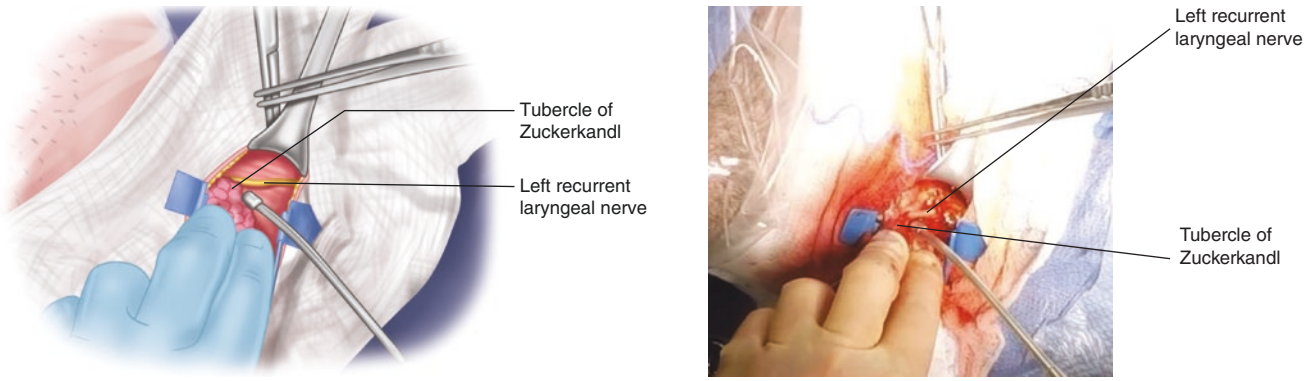


Fig. 9.14 The left recurrent laryngeal nerve was further exposed

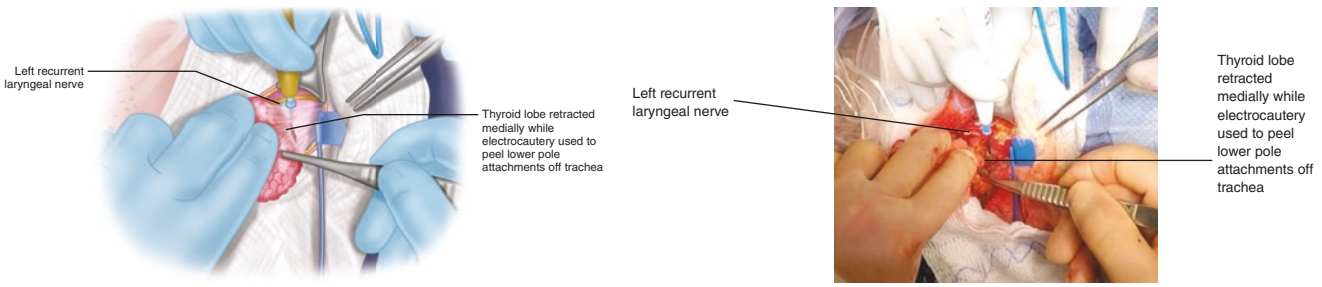


Fig. 9.15 With the recurrent laryngeal nerve in view, the lower pole attachments were clipped close to the thyroid capsule and ligated with electrocautery down to the level of the trachea

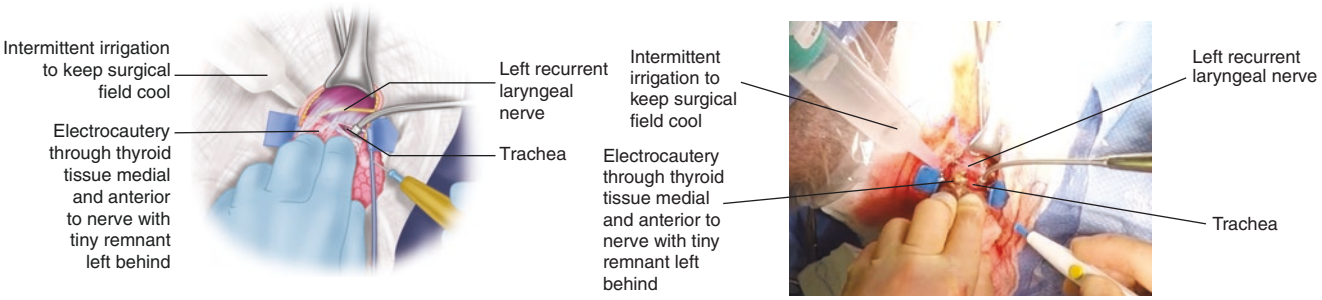


Fig. 9.16 With the entire trajectory of the nerve in view, the thyroid tissue medial and anterior to the nerve was incised with electrocautery, leaving a tiny remnant in the adherent zone for safety reasons. Intermittent irrigation was used during this maneuver to keep the surgical field cool

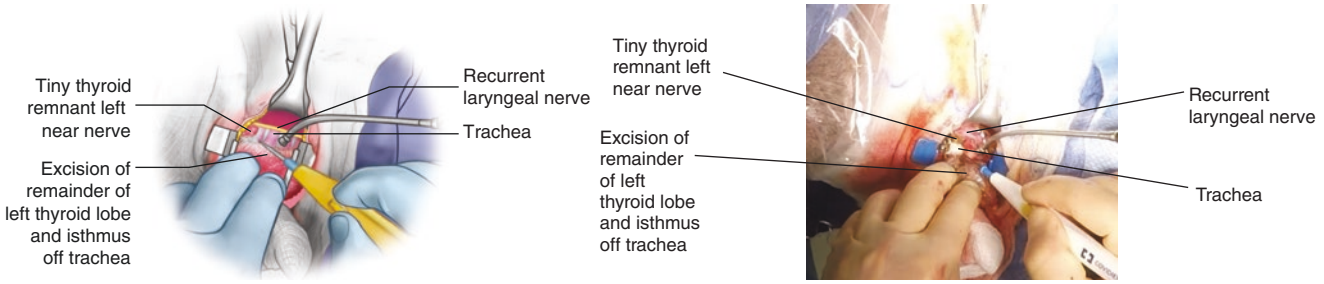


Fig. 9.17 The isthmus and pyramidal lobe were removed with the specimen

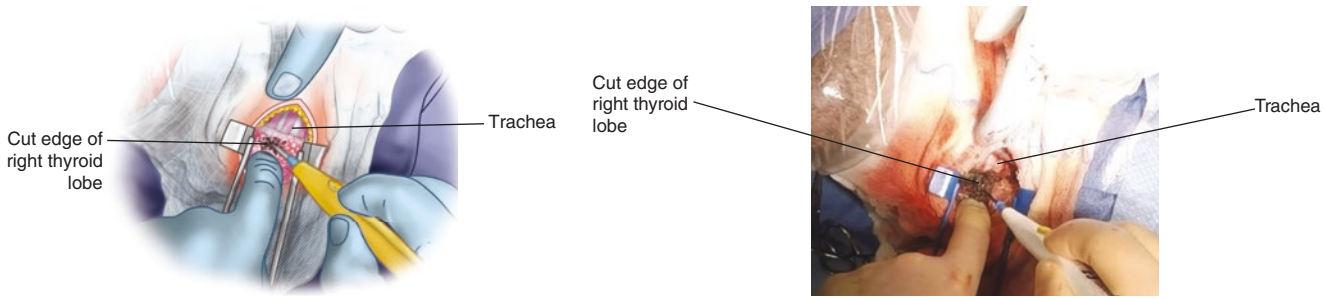


Fig. 9.18 Electrocautery was applied to the cut edge of the right lobe for hemostasis

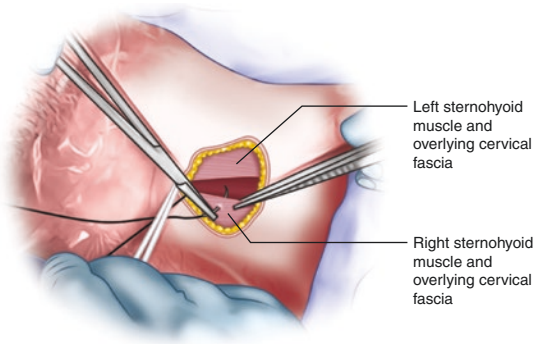


Fig. 9.19 The sternothyroid was approximated with one 4-0 silk figure-of-eight stitch, and the sternohyoid and cervical fascia were reapproximated with a running 4-0 silk stitch to provide coverage of the trachea

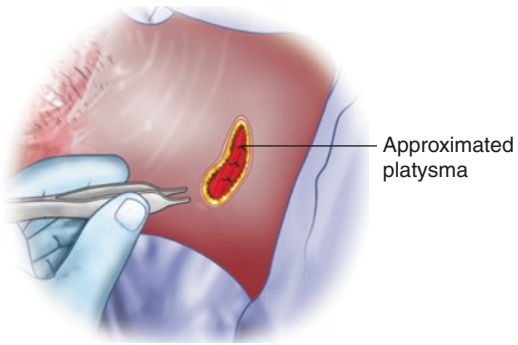


Fig. 9.20 The platysma was reapproximated with interrupted 4.0 silk stitches

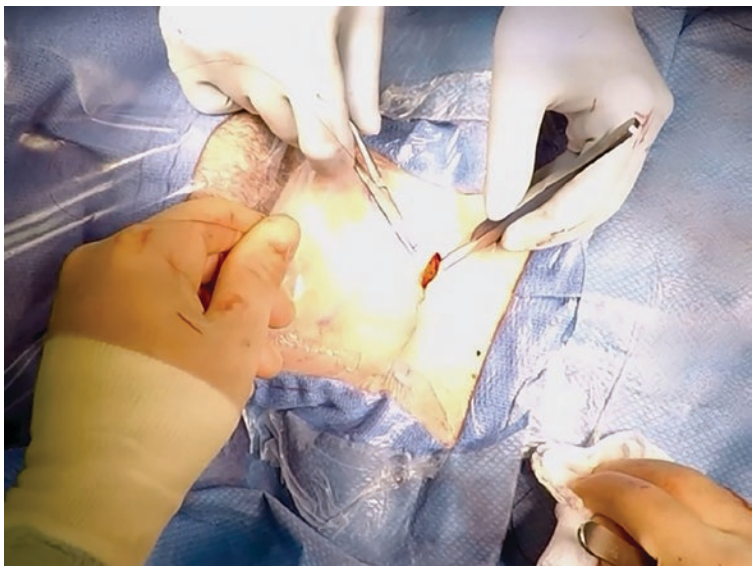


Fig. 9.21 The skin was closed with a running subcuticular 4-0 Monocryl stitch and topped with Steri-Strips

Suggested Reading

Chen H. Fine needle aspiration biopsy of the thyroid: thyroid lobectomy and total thyroidectomy. In: Fischer J, Jones D, Pomposelli F, Upchurch G, Klimberg V, Schwaitzberg S, Bland K, editors. Fischer's mastery of surgery. 6th ed. Philadelphia: Wolters Kluwer Health/Lippincott Williams & Wilkins; 2012. p. 468–78.

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