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ORIGINAL ARTICLE

The lateral "backdoor" approach to open thyroid surgery: A comparative study

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KEYWORDS
Lateral approach;
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Summary *Introduction:* The traditionally taught technique for conventional open thyroidectomy is via a midline splitting of the strap muscles following a skin crease neck incision – midline approach (MA). The lateral "backdoor" approach (LA) uses the same central neck incision but approaches the thyroid gland between the anterior border of sternocleidomastoid (SCM) and strap muscles. This technique is usually reserved for re-do thyroid surgery. We compared the results of the two approaches in patients undergoing conventional thyroidectomy for the first time.
Methods: A case-control study was performed on 90 patients undergoing conventional open thyroidectomy from 2012 to 2014. The first 45 patients underwent MA and subsequent 45 patients underwent LA. All patients were given 10 ml of 1% Marcaine infiltration into the neck incision before closure. Basic demographic data, operative time, incision length, weight of gland, need for transection of strap muscles and complications were recorded. Revision thyroid surgery and minimally invasive thyroid operations were excluded.
Results: The demographics, operative timing, gland weight and incisional length showed no significant difference. Post-operative pain was significantly lower in the LA group. 5 patients (11%) in MA group needed horizontal transection of strap muscles to extract large goitres compared to 1 patient (2.2%) in the LA group. No major complications occurred in either group.
Conclusion: The LA method is as safe as the midline technique with comparable operative time and significantly lower pain scores. It avoids midline separation and suturing of strap muscles and reduces the need for strap muscle transection to removal large goitres.

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1. Introduction

Thyroidectomy is the commonest endocrine surgical procedure. The traditionally taught technique for conventional thyroidectomy is via midline splitting of strap muscles (Midline Approach-MA).[1] Lateral approach (LA) uses the same central neck incision but approaches thyroid gland posterolaterally between the anterior border of sternocleidomastoid (SCM) and strap muscles. It is also known as the sternomastoid or "backdoor" or lateral approach (LA) to the thyroid gland.[2–4] The critical structures that require identification and preservation in thyroid gland surgery such as parathyroid glands and recurrent laryngeal nerves are posterolaterally located in relation to the thyroid lobe. LA allows an easier access in delivering the thyroid gland into surgical field for easier identification of these critical structures with minimum retraction and pulling of strap muscles.[2] This technique is usually reserved for re-do thyroid surgery performed previously using the MA due to extensive scarring and adhesions after midline division and suturing back of strap muscles.[3] The transaxillary endoscopic and robotic thyroidectomy approaches also use the same lateral approach to reach and dissect the thyroid gland.[5–9] There have been a few publications studying the efficacy of the lateral approach and most authors conclude that a lateral approach offers excellent visualization of the vital structures.[4]

2. Methods

We conducted a case control study comparing 90 patients undergoing conventional open thyroidectomy from 1st January 2011 to 31st December 2012 after obtaining institutional review board approval. The first 45 patients underwent MA and next 45 underwent LA. Re-operative thyroid surgery and minimally invasive endoscopic surgeries were excluded. Basic demographic data, type of surgery done in the 2 groups, operative time, incision length, complications, thyroid gland weight, the need to divide strap muscles and post-operative day 1 pain score were recorded and compared between these 2 groups. The pain score was measured using the visual analogue score (VAS) on a scale of 0—10 by the ward nurses and recorded in the case sheets.

Data was analyzed using T-test and Chi-square test.

2.1. Operative technique

In LA technique, the same 4—6 cm skin crease neck incision was used but instead of midline separation and retraction of strap muscles, the anterior border of SCM was identified and mobilized laterally. The superior belly of omohyoid that crosses the field was retracted cranially. The lateral edge of strap muscles was identified and retracted medially to expose the underlying goitre. The ansa cervicalis is identified coursing downwards anterior to the sternohyoid muscle and retracted medially with the sternohyoid and sternothyroid muscles to expose the anterior surface of the thyroid lobe. The plane between anterior surface of goitre and overlying strap muscles was created as the strap muscles get pushed medially with retractors (Fig. 1). Next the carotid artery was identified and the avascular plane posterolateral to thyroid gland was opened to deliver the superior pole of thyroid and allow it to be retracted downwards and outwards to free it from larynx. The superior vascular pedicle could be easily identified in this technique allowing individual ligation of vessels and preservation of external laryngeal nerve. Once the middle thyroid vein was identified (if present) and ligated, the rest of thyroid lobe can be easily dissected and retracted medially for easier identification of recurrent laryngeal nerve and parathyroid glands. The inferior thyroid veins were then ligated and divided and the thyroid lobe was freed from its attachment to the ligament of Berry and underlying trachea rings. For hemithyroidectomy, the isthmus was then transected to complete the operation. For patients undergoing total thyroidectomy, similar dissection of the opposite lobe was performed after identifying and retracting the opposite SCM. Once both the thyroid lobes were fully dissected and freed from the overlying strap muscles, the smaller of the lobes could be easily pushed beneath strap muscles to the opposite site and the entire specimen was removed en-bloc for histology (Fig. 2). At the end of operation, the midline strap muscles

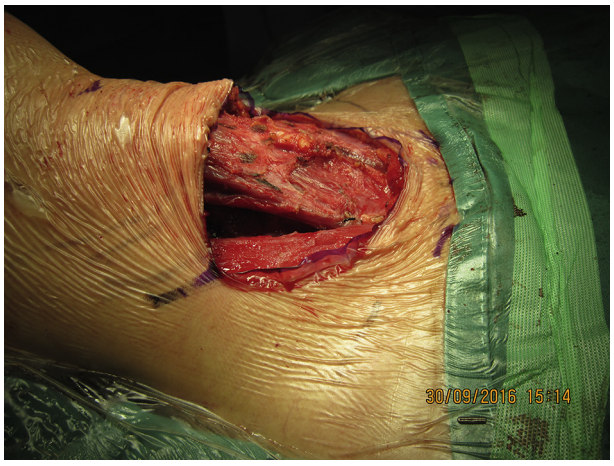

Figure 1 Dissection between sternomastoid and strap muscles.

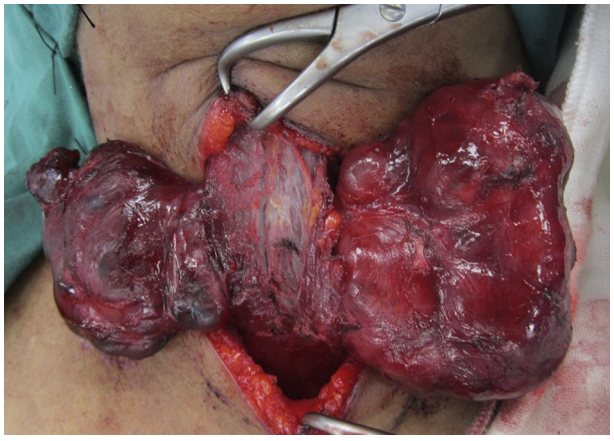

Figure 2 Both lobes freed to be delivered under the strap muscles.

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