Total Thyroidectomy en Bloc or Not? Prospective, Randomized Clinical Trial: Cerrahpasa Experience

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Abstract

Aim-Background: While significant changes in the last century have enabled safe and effective total thyroidectomy, the utility and reliability of techniques for patients with benign diseases is debatable. The purpose of this study was to compare the complication rates of division of the isthmus vs. non-division in thyroid surgery performed for bilateral multinodular goiter by experienced endocrine surgeons. To the best of our knowledge, no such study has been published in the literature to date.

Methods: This prospective study includes 60 consecutive serial patients who underwent total thyroidectomy. Patients were randomly assigned to a thyroidectomy technique by the arbitrary draw from a bag of paper tags marked as ‘U’ (thyroidectomy without dividing the isthmus) classified as Group 1 or ‘D’ (thyroidectomy by dividing the isthmus) as Group 2. Patients in Group 1 (n=30) had a total thyroidectomy without dividing the isthmus (en bloc), patients in Group 2 (n=30) had total thyroidectomy by dividing the isthmus.

Results: Postoperative serum mean calcium and parathyroid hormone (PTH) levels, operation period, visual analogue pain score and recurrent laryngeal nerve paralysis did not differ between the groups. Permanent hypocalcemia and permanent recurrent laryngeal nerve paralysis were not observed in either group, but total morbidity in Group 1 was higher (p=0.038). Postoperative PTH levels were significantly lower than preoperative PTH levels in both groups; (respectively, p=0.007, p=0.011). No surgical mortality was recorded.

Conclusion: Thyroidectomy without dividing the isthmus can be qualified as a safe and applicable surgical method.

Key words: Thyroidectomy; en bloc; complications of thyroidectomy; recurrent laryngeal nerve

Aim-Background

Thyroidectomy is one of the most common surgical operations in general surgery clinics since firstly performed by Kocher in 1872. Given that thyroid diseases are not uncommon in endemic regions like Turkey, all surgeons should endeavour to improve themselves in terms of surgical techniques and complications of thyroidectomy. Total thyroidectomy (TT) is applied in the majority of cases and is advocated by various publications for bilateral multinodular goiter (MNG) [1-3]. Proponents of TT maintain that, in the hands of experienced surgeons this technique has low complication rates [4,5].

Advanced energy-based vessel sealing devices that have been developed in recent years to control vascular pedicles have lead the way to important developments in thyroid surgery [6,7]. Sutureless thyroidectomy performed with advanced energy-based vessel sealing devices is preferred in our surgical unit for total thyroidectomy.

The purpose of this study was to compare the complication rates of total thyroidectomies performed by experienced endocrine surgeons by dividing or not dividing (en bloc) the isthmus. To the best of our knowledge, there is no record of a similar study in the actual literature.

Methods

This prospective study includes 60 consecutive patients who underwent a total thyroidectomy at Istanbul University, Cerrahpasa Medical Faculty, Department of General Surgery between September 2012 and December 2012. Patients were randomly assigned to a thyroidectomy technique by the arbitrary draw from a bag of paper tags marked as ‘U’ (thyroidectomy without dividing the isthmus) classified as Group 1, or ‘D’ (thyroidectomy by dividing the
Surgical Technique: Total thyroidectomy was performed by Ligasure™ LF1212 (Covidien, Boulder, CO, USA). The Ligasure™ LF1212 is a multifunctional instrument with a 16.5 mm long curved tip that can seal vessels up to 7 mm in diameter and has a tactile feedback activation button. This device is also capable of cutting with an integrated mechanism, and it is suitable for both blunt dissection and grasping and dividing tissue. In order to maintain haemostasis during thyroidectomy, ligation, clip or electrocautery was not used. As seen in Figure 1a, 2a the Koenig Guide Probe (Aesculap® Item No: BM901, Center Valley, PA, USA) which provides a clear tissue plane for optimal dissection with its energy-based vessel sealing system, was used to dissect the thyroid from the surrounding tissues together with the superior and inferior thyroid arteries and veins. On average, a 3-4 cm collar incision was made and strap muscles were retracted laterally. Bovie cautery was used to dissect the pyramidal lobe from the larynx and the isthmus from the trachea. Dissection was performed craniocaudally. The RLNs were identified.

Figure 1 a: Sealing of superior pole without stitches. b: En bloc thyroidectomy specimen.