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The Appropriate Extent of Thyroidectomy for Different Thyroid Diseases

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Introduction

When thyroidectomy is indicated as a treatment in a patient, one of the questions we have to ask ourselves what is the appropriate extension of the surgical intervention. The efficacy of the intervention should be evaluated in terms of disease elimination, if possible, and the safety of the intervention based on the complications of the operation.

Despite, mortality of thyroid operations has been reported around zero in several large series, around 1-3% of thyroid surgeries develop permanent laryngeal palsy and temporary laryngeal palsy occurs in 1.4%-38% of thyroid operations [1] while the incidence of transient and permanent hypoparathyroidism after thyroidectomy is 27.4% and 12.1% respectively [2]. It is well known that total thyroidectomy is accompanied by increased risk of complications.

But, nevertheless, it is assumed that thyroid function is easily compensated by the administration of pills of levothyroxine, which is not true. The thyroid is a gland with multiple actions on the body, which are performed automatically, regulated by internal systems, both hormonal and physical-chemical, which are not supplied by the oral administration of fixed doses of levothyroxine. For this reason, it is not uncommon for patients with hypothyroidism to be dissatisfied with the replacement therapy they receive. Thus, a high percentage of patients with hypothyroidism remain symptomatic and with impaired quality of life [3], a fact that is accentuated in the case of hypothyroidism after total thyroidectomy. We also know that patients with athyreotic hypothyroidism are more difficult to treat [4]. Finally, the thyroid function tests used to monitor levothyroxine treatment have important limitations [5]. Therefore, it is preferable, whenever possible, from the point of view of thyroid function that after thyroidectomy there is remaining thyroid tissue.

In the present article, I discuss the appropriate extent of thyroidectomy for each thyroid disorder.

Malignant Diseases

The most frequent malignant tumors of the thyroid gland are well-differentiated thyroid carcinomas (WDTCs). Papillary carcinomas comprise 85% and follicular carcinomas comprise 12% of these cancers.

The main treatment for all kinds of thyroid tumors was until a couple of decades ago total thyroidectomy with or without adjuvant radioiodine treatment. Since a decade ago, the recommended treatment for tumors smaller than 10 mm has been lobectomy with the option of surveillance without operation [6]. The ATA guidelines 2015, determined that low-risk patients with WDTC smaller than 4 cm may be treated with lobectomy alone. This recommendation is limited to patients without extrathyroidal extension or clinical lymph node metastasis.

Benign lesions

It is debated whether a Total Thyroidectomy (TT) or a subtotal thyroidectomy (ST) is the best option to treat multinodular benign goiter. Total or near total thyroidectomy procedures are preferred for surgeons in order to avoid the significant higher recurrence rates [7]. While other authors observed similar outcomes and surgical complications when compares total vs. subtotal thyroidectomy that depends on good and proper preoperative preparation and the use of a meticulous surgical technique [8].

When surgical treatment is indicated to treat Graves' disease, the best option is TT to eradicate the disease and prevent recurrences [9].

Surgery as diagnostic procedure

Ultrasound and fine needle aspiration cytology (FNA) is the main diagnostic tools for the assessment of the risk of malignancy of thyroid nodules, being safe, minimally invasive and cost-effective. The Bethesda system for reporting thyroid Cytopathology classifies the FNA in 6 diagnostic categories. I. Non-diagnostic; II. Benign; III. Atypia/follicular lesion of undetermined significance; IV. Follicular neoplasm or suspicious for follicular neoplasm; V. suspicious for malignancy, and VI. Malignant. The current thyroid nodule guidelines, considering either surgery or molecular testing for patients with Bethesda IV cytology, while for Bethesda III nodules a further cytological sampling is recommended. However, management guidelines are controversial in which surgery, total or lobectomy to be performed. Nevertheless, due to the low rate of malignancy revealed by post-surgical histology, the surgical approach represents an overtreatment in a high number of patients, regardless the type of surgery [10], but, when thyroidectomy is indicated, the procedure of choice should be the lobectomy.

Conclusion

Considering that each patient must be evaluated individually, and with the aim of preserving the quality of life of patients, while maintaining, although partially, the endogenous production of thyroid hormones. It is advisable to treat with partial thyroidectomy those adult patients with: Differentiated cancer less than 10 mm, those differentiated thyroid cancer with low risk (without extrathyroidal extension or clinical lymph node metastasis) up to 40 mm, the multinodular benign goiter and when the surgery intervention has a diagnostic objective, but always by surgeons with experience in thyroid surgery.

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