

## THYROID SURGERY

Thyroidectomy is primarily reserved for patients with thyroid malignancy, autonomous adenomas, when drug therapy or radioactive iodine therapy is refused, ineffective or contraindicated (pregnancy or thionamide allergy), and in cases of esophageal or respiratory obstruction as a result of a large goiter. Before surgery, as with RAI therapy, patients are usually rendered euthyroid by pretreatment (6-8 weeks), with thionamides (propylthiouracil (PTU) or methimazole (MMI)), followed by iodide therapy (500 mg/d) for 10-14 days. This pretreatment decreases the vascularity of the gland and facilitates surgery, and reduces the likelihood of post-operative rise in thyroid hormone levels and the associated thyrotoxicosis. Levothyroxine may be added to maintain the euthyroid state during thionamide pretreatment. Also it may be appropriate also to administer a beta blocker (i.e propranolol) for several weeks before thyroidectomy and 7-10 days after surgery to control the adrenergic symptoms of thyrotoxicosis, including the maintenance of normal heart rate.

Surgical treatment of hyperthyroidism is safe and effective when performed by an experienced physician and the overall morbidity rate associated with this procedure is less than 3%. Surgical complications include injury to the recurrent laryngeal nerve (5%), recurrent hyperthyroidism (up to 18%), hypoparathyroidism (about 4%), hypothyroidism (as high as 50%), and all risks inherent to surgical procedures. Hyperthyroidism may persist or recur in many Graves' disease patients who have undergone thyroidectomy, especially children. The risk of hypothyroidism requires periodic monitoring and often treatment with thyroid supplementation (see below). Another disadvantage of surgery is the expense of the procedure and that hospitalization required.

Which operation is performed on a thyroid gland depends upon two major factors. The first is the thyroid disease present which is necessitating the operation. The second is the anatomy of the thyroid gland itself. If a dominant solitary nodule is present in a single lobe, then removal of that lobe is the preferred operation (if an operation is even warranted). If a massive goiter is compressing the trachea and esophagus, the goal of surgery will be to remove the mass and usually this means a sub-total or total thyroidectomy (occasionally a lobectomy will suffice). If a hot nodule is producing too much thyroid hormone resulting in hyperthyroidism, then removal of the lobe which harbors the hot nodule is all that is needed.

Most surgeons and endocrinologists recommend total or near total thyroidectomy in virtually all cases of thyroid carcinoma. In some patients with papillary carcinomas of small size, a less aggressive approach may be taken (lobectomy with removal of the isthmus). A lymph node dissection within the anterior and lateral neck is indicated in patients with well differentiated (papillary or follicular) thyroid cancer if the lymph nodes can be palpated. This is a more extensive operation than is needed in the majority of thyroid cancer patients. All patients with medullary carcinoma of the thyroid require total thyroidectomy and aggressive lymph node dissection.

The surgical options include:

- Partial Thyroid Lobectomy. This operation is not performed very often because there are not many conditions that will allow this limited approach. Additionally, a benign lesion must be ideally located in the upper or lower portion of one lobe for this operation to be a choice.
- Thyroid Lobectomy. This is typically the "smallest" operation performed on the thyroid gland. It is performed for solitary dominant nodules that are worrisome for cancer or those which are indeterminate following fine needle biopsy. Also appropriate for follicular adenomas, solitary hot or cold nodules, or goiters which are isolated to one lobe (not common).
- Thyroid Lobectomy with Isthmusectomy. This simply means removal of a thyroid lobe and the isthmus (the part that connects the two lobes). This removes more thyroid tissue than a simple lobectomy, and is used when a larger margin of tissue is needed to assure that the "problem" has been removed. Appropriate for those indications listed under thyroid lobectomy as well as for Hurthle cell tumors, and some very small and non-aggressive thyroid cancers.
- Subtotal Thyroidectomy. As the name implies, this operation removes all the "problem" side of the gland as well as the isthmus and the majority of the opposite lobe. This operation is typical for small, non-aggressive thyroid cancers and a common operation for goiters which are causing problems in the neck or even those which extend into the chest (substernal goiters).
- Total Thyroidectomy. This operation is designed to remove all of the thyroid gland. It is the operation of choice for all thyroid cancers that are not small and non-aggressive in young patients. Most surgeons prefer this complete removal of thyroid tissue for all thyroid cancers regardless of the type.