

The Surgeon and Hyperparathyroidism



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Certainly one of the most important aspects for a surgeon about to begin a parathyroidectomy is the conviction, in his/her own mind, that the patient has primary hyperparathyroidism. The surgeon who is certain of the diagnosis is far more likely to persist until all abnormal parathyroid tissue has been removed than one who has been instructed to “cut here” by an endocrinologist. This means, that the surgeon must understand and be aware of the value and limits of pre-operative investigations. At a minimum, the surgeon needs to see:

- more than one elevated ionized calcium level and total molecule parathyroid hormone value,
- a protein electrophoresis/immunoglobulin study that rules out myeloma and,
- in most cases (particularly young people), a 24-hour urine for calcium.

History

An appropriate family history that helps to rule out familial hypocalciuric hypercalcemia and multiple endocrine neoplasia is essential, as is a history of kidney stones (since multiglandular hyperparathyroidism almost never causes kidney stones).

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Surgical techniques

Multi-slice spiral CT scans

Among pre-operative localization techniques, rapid multi-slice spiral CT scans are the modality of choice for a patient with primary hyperparathyroidism who has had a failed initial exploration. This scan is not used before first exploration on a routine basis, unless the patient has a significantly abnormal thyroid gland and, in particular, if there is a retrosternal component.

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CAT scan

In the situation where the patient does have a very abnormal thyroid, the CAT scan rarely identifies abnormal parathyroid tissue but does help to rule out mediastinal disease and define the extent of the abnormal thyroid tissue.

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Although the dual-phase technetium-99m sestamibi scan has a false-positive rate of < 5%, the false-negative rate varies between 50% and 80% and there is definitely a variability in the accuracy of these scans from centre to centre.

It is valuable primarily for ruling out ectopic parathyroid tissue, especially in the mediastinum.

Gamma-probe localization

Gamma-probe localization, done intra-operatively, is used to verify that the tissue removed in a parathyroidectomy is indeed abnormal parathyroid gland tissue; however, an expert parathyroid surgeon should be able to do this visually.

Parathyroid hormone sampling

Intra-operative parathyroid hormone sampling is of limited value in the average hyperparathyroid patient, but is most valuable in patients who have had previous negative explorations, in particular, in the hands of someone who is not experienced in re-operative procedures. 

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