## Pre-operative localisation of parathyroid adenomas

## Descriptor

An audit of the accuracy of imaging localisation of parathyroid adenomas prior to minimally invasive surgery, using ultrasound and sestamibi imaging.

## Background

Primary hyperparathyroidism is a common endocrine disorder that is caused in the majority of cases by a solitary parathyroid adenoma. Surgical removal of the parathyroid adenoma is curative, but traditionally involves bilateral neck exploration, with relatively long operative and recovery times, complications such as neck fibrosis, and the risks of GA. More recently, trends have been towards minimally invasive unilateral techniques under local anaesthesia, with the benefit of shorter operative and recovery times, better cosmetic results and the avoidance of GA. However, the success of minimally invasive surgery depends on accurate pre-operative localisation of parathyroid adenomas by ultrasound, Sestamibi scintigraphy and multiphase CT. It is therefore important to demonstrate that high levels of accuracy in pre-operative imaging are being achieved.

## The Cycle

### The Standard

Reported sensitivity for imaging localisation of parathyroid adenomas varies in the published literature. Ultrasound is reported to have a sensitivity of 38-85%, sestamibi scintigraphy 49-92% and multiphase CT 58-79%. Target sensitivites are taken from recent publications [4, 5, 6].

Target

Suggested targets:

- Sensitivity of ultrasound 81% [4]

- Sensitivity of sestamibi scintigraphy 79% [4]

- Sensitivity of multiphase CT 79% [6]

## Assess local practice

### Indicators

- Sensitivities of pre-operative ultrasound, sestamibi scintigraphy and multiphase CT in the detection of parathyroid adenoma using surgical and histological findings as the reference standard

### Data items to be collected

- Consecutive patients undergoing surgery for suspected parathyroid adenoma following pre-operative imaging localisation to be identified

- Imaging reports to be obtained in each case, specifically noting whether a parathyroid adenoma was identified and in which location

- Histological reports and/or operative notes to be obtained in each case, noting whether a parathyroid adenoma was identified and in which location

### Suggested number

30 consecutive cases or all relevant patients over a one-year period

## Suggestions for change if target not met

• Present the audit to all involved radiologists, radiographers and surgeons.

• Arrange for parathyroid ultrasound to be performed by experienced operators, and in nuclear medicine and CT - Imaging to be reported by suitably trained operators.

• Consider external training and review of combination of modalities.

• Use cases identified during the audit for teaching and training purposes of involved staff

• Establish a system to review imaging in cases where surgical and imaging findings are discordant.

## Resources

• RIS and HIS searches. Assistance may be required in retrieval of case records, though in many cases histological reports are available electronically and may contain the relevant operative findings in the clinical details of the report.

• Radiologist’s time involved in data collection (6 hours)

• Radiologist’s time involved in calculation of sensitivities and collation of data (2 hours)

## References

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## Editors Comments

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