Parathyroid Ectopia- Development of a Surgical Algorithm from Operative Findings

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ABSTRACT

To study the incidence of ectopic parathyroid adenomas from a single surgical unit and device a surgical algorithm from their operative results to follow when an adenoma cannot initially be located.

Background: Ectopic parathyroid adenomas are rare, and the best strategy to avoid recurrent hyperparathyroidism remains unclear.

Methods: Prospective data collection and analysis of all patients undergoing parathyroidectomy during the period June 2001 to February 2008 under the care of the senior surgeon (RJAE). A prospective surgical algorithm to locate a missing parathyroid gland was developed.

Results: Between June 2001 and February 2008, 371 procedures were performed for hyperparathyroidism on 346 patients; 257 (74%) were females and 89(26%) were male. Mean age was 53 range (14-88).

Flow of procedures and incidence of ectopic parathyroid:

- Superior: 33 (Mean age 49)
- Inferior: 64 (Mean age 51)
- Medial: 1 (Mean age 67)
- Lateral: 4 (Mean age 66)
- Oesophageal: 9 (Mean age 67)
- Retrooesophageal: 26 (Mean age 66)
- Transeosophageal: 1 (Mean age 78)
- Intrathoracic: 2 (Mean age 57)
- Retrolaryngeal: 3 (Mean age 57)
- Thymic: 10 (Mean age 61)
- Intrathyroidal: 1 (Mean age 66)

SURGICAL ALGORITHM

Objectives: To study the incidence of ectopic parathyroid adenomas from a single surgical unit and device a surgical algorithm from their operative results to follow when an adenoma cannot initially be located.

Methods: The study was undertaken at Castle Hill Hospital, Hull, UK, between June 2001 and February 2008 under the care of the senior surgeon (RJAE). A prospective surgical algorithm to locate a missing parathyroid gland was developed.

Results: Between June 2001 and February 2008, 371 procedures were performed for hyperparathyroidism on 346 patients; 257 (74%) were females and 89(26%) were male. Mean age was 53 range (14-88).

Flow of procedures and incidence of ectopic parathyroid:

1. Start at the superior parathyroid gland. If negative proceed inferiorly. If negative perform intrathoracic exploration.
2. Suggestive signs of invasion of the oesophagus, thyroid or thymus should prompt a transeosophageal, transcervical or transthoracic approach respectively.
3. If negative proceed to the thymus.

CONCLUSIONS

In our series, parathyroid ectopia was most common in the superior parathyroid gland. Superior parathyroid ectopia is more common than inferior parathyroid ectopia.

From our series we have devised a systematic surgical algorithm for searching for a missing adenoma.

REFERENCES

- attraction of a parathyroid gland to an ectopic location. An abnormally enlarged gland may be displaced due to its mass and the regional dynamics (i.e. swallowing, respiration, abnormal migration during embryogenesis or secondary to acquired abnormality). Ectopias can be classified in a number of ways: according to the position of the ectopic gland, the gland type, location of the ectopically placed parathyroid, as well as the association with clinical symptoms. The most logical explanation for this is acquired migration due to mass effect of enlarged glands. (See plot chart)

Box plot chart - Weight of pathological parathyroid glands (g) according to their position (X axes) according to their position (X axes)