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Intravagal parathyroid adenoma

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Abstract
An extremely rare case of intravagal parathyroid adenoma is presented. The tumour caused fusiform swelling of the left vagus nerve was shelled out. Post-operatively the left recurrent nerve palsy was recovered in the two months. Serum calcium level returned to normal on the tenth day after the surgical operation without symptoms of hypocalcaemia.

Introduction

Ectopic parathyroid gland tissue is well recognized and can be found in many locations. However, intravagal parathyroid adenomas are very rare. We report the second example of a ectopic parathyroid adenoma within the vagus nerve.

Case report

On July 20, 1987, a 79-year-old Japanese woman was admitted to our department complaining of a mass on the left side of the neck that had been enlarging for three years.

Physical examination revealed about 1.7 × 2.5 cm painless mass in the left anterior cervical triangle. Direct pressure on the mass caused the patient to cough. Scans were undertaken using ultrasound and computered tomography (CT). The ultrasound and CT scan both suggested a neurinoma of the left vagus nerve (Figs. 1, 2).

On the other hand, the serum calcium was 6.4 mEq/l (normal 4.3 to 5.8 mEq/l), serum phosphate was 1.6 mEq/l (normal 1.8 to 3.8 mEq/l), and circulating parathyroid hormone (PTH) concentration was 2.14 ng/ml (normal 0.20 to 1.00 ng/ml). In addition, Thallium 201 scintigraphy with technetium subtraction revealed an area of increased uptake in the left lateral neck (Fig. 3). These examinations suggested an ectopic parathyroid adenoma adjacent to or within the vagus nerve, although there was no relevant past history such as nephrolothiasis, bone disease or peptic ulcer.

At surgery, four parathyroid glands adjacent to the thyroid gland were identified and all were biopsied and found to be normal. Thereafter, further exploration was made over the left mass and a fusiform swelling beefy-red in colour surrounded by fibres of the vagus nerve was shelled out (Fig. 4). On permanent sections this mass proved to be a parathyroid adenoma with cystic degeneration (Fig. 5).



Fig. 1

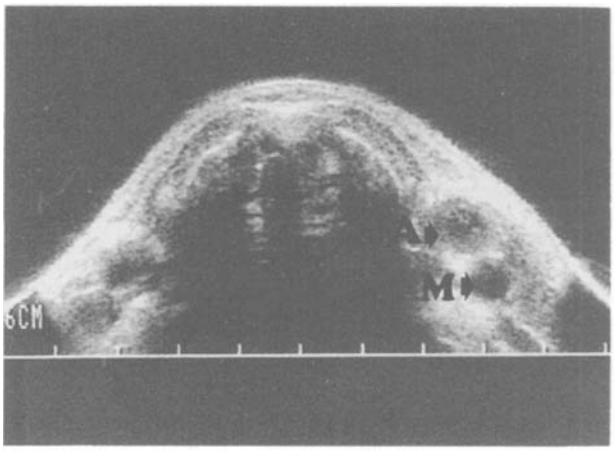


Fig. 2

Fig. 1
On computered tomography, the mass (M) is noted to be located between the carotid artery (A) and internal jugular vein (I).

Fig. 2
On ultrasonographic examination, the mass (M) is noted to be lateral to the carotid artery (A).

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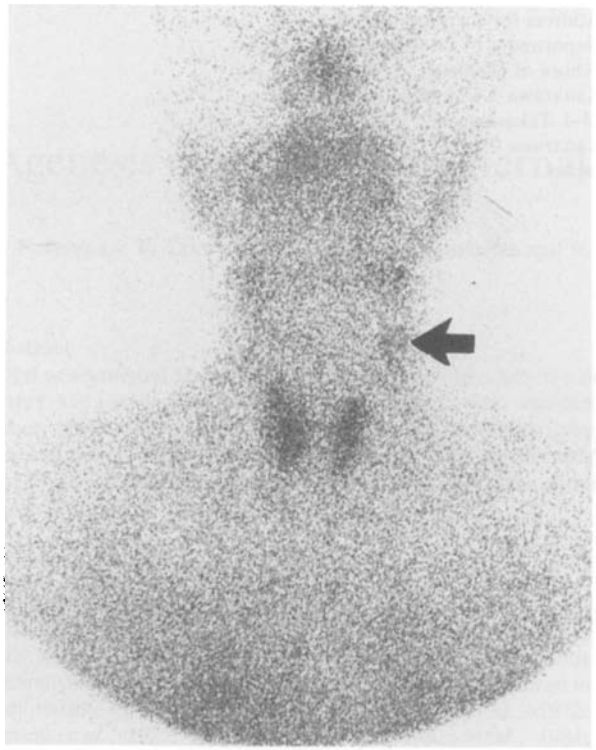


FIG. 3

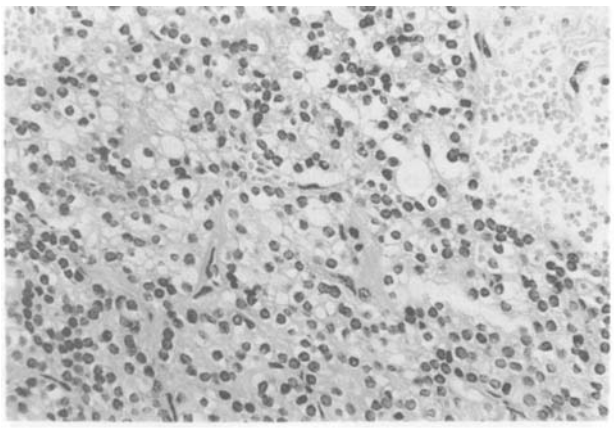


FIG. 5

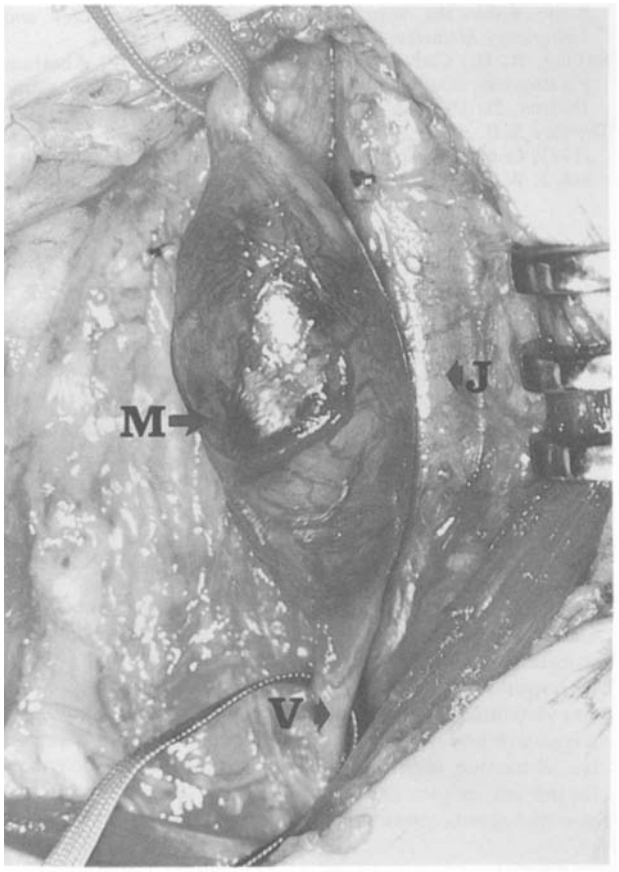


FIG. 4

FIG. 3
Thallium 201 scintigraphy demonstrated an area of increased uptake in the left lateral neck (arrow).

FIG. 4
Tumour mass (M) seen within the vagus (V). J: Internal jugular vein.

FIG. 5
Photomicrograph of parathyroid adenoma showing histological features of parathyroid adenoma with predominant chief cells. (Hematoxylin-eosin stain, ×200).

Post-operatively, the left recurrent nerve palsy completely recovered within two months. The serum calcium levels fell slowly in the post-operative period to a low of 5.6 mEq/1 on the tenth day without symptoms of hypocalcaemia.

Discussion

Anomalies in the anatomical position and number are common in the parathyroid glands. Ectopic parathyroid glands can be found in any region of the neck and thorax (Thawley *et al.*, 1987). However, parathyroid adenomas located within the vagus nerve are very rare. Only one similar case has been previously reported in our search of the English-language literature. Reiling *et al.* (1972) reported a parathyroid adenoma in the right vagus nerve. The abnormal parathyroid adenoma caused a fusiform swelling of the right vagus nerve was not found at the first neck exploration but was successfully identified at a second operation. Fortunately for our patient, the abnormal parathyroid adenoma was found at the initial neck exploration and the patient had not presented with clinical symptoms of hyperparathyroidism.

The exact embryological derivation of the ectopic parathyroid adenoma within the vagus nerve is uncertain. However, as suggested by Gilmour (1941) and Lack *et al.* (1988), the intravagal parathyroid gland probably arises from the third branchial pouch which gives rise to the inferior parathyroid glands, and the intravagal parathyroid tissue probably represents supernumerary tissue which is thought to arise by a splitting off of the primordia during embryogenesis. Our patient had four parathyroid glands in the normal positions adjacent to the thyroid gland. Therefore, the adenoma within the vagus nerve was thought to be a supernumerary parathyroid.

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