Bone resorption in parathyroid carcinoma

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DESCRIPTION

A man in his 30s with a history of end-stage renal disease (ESRD) and metastatic parathyroid carcinoma presented to the hospital with severe shortness of breath, hypercalcaemia and diffuse bone pain. Chest radiograph (figure 1A) demonstrated profound demineralisation, and the distal phalanges appeared abnormal (figure 1B) due to bony resorption characteristic of severe hyperparathyroidism. Parathyroid carcinomas are an exceedingly rare cause of hyperparathyroidism. It is important to

distinguish between benign parathyroid adenomas and parathyroid malignancies, since the latter carries a very high mortality and the only successful treatment is surgical resection.^{1 2} As with this patient, those with parathyroid carcinomas, unlike their counterparts with benign adenomas, tend to be younger, have ESRD or some degree of renal insufficiency, have severe hypercalcaemia (>15 mg/dL) and present with intense symptoms.² Radiological findings such as osteitis fibrosa cystica (figure 1A) are far more common in parathyroid carcinomas (44–91%) compared with benign parathyroid adenomas (5%) due to the degree of parathyroid hormone elevation and bone resorption seen in the former.²

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Learning points

- ▶ Parathyroid carcinomas are a very rare cause of hyperparathyroidism. The HRPT2 gene mutations have been implicated in sporadic and familial variations of the disease.¹
- ▶ Currently, the only successful treatment for this disease is surgical intervention with en bloc resection of the tumour; there are no effective chemotherapeutic options.²
- ▶ For those who are not surgical candidates, control of hypercalcaemia with calcimimetic agents and bisphosphonates is the mainstay of treatment.²

REFERENCES

- 1 Cetani F, Pardi E, Borsari S, *et al.* Genetic analyses of the HRPT2 gene in primary hyperparathyroidism: germline and somatic mutations in familial and sporadic parathyroid tumors. *J Clin Endocrinol Metab* 2004;89:5583.
- 2 Shane E. Clinical review 122: parathyroid carcinoma. *J Clin Endocrinol Metab* 2001;86:485.

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Figure 1 (A) Chest radiograph demonstrating radiolucent bones and (B) distal phalangeal bone resorption.

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