bone pain with reduced mobility. Bone mineral density revealed Z scores of −2.9 (hip) and −3.3 (lumbar spine).

Multiphase computed tomography demonstrated a multilobulated 6.9 cm mass extending from C5 to T2, compressing the esophagus and raising suspicion for carcinoma. Endoscopic evaluation excluded mucosal invasion. She underwent en bloc left inferior parathyroidectomy with hemithyroidectomy. Intraoperative parathyroid hormone fell from 41.7 to 13.4 pmol/L, confirming complete excision. The gland measured 65 × 20 × 15 mm and weighed 18.4 g. Histopathology revealed a hypercellular parathyroid tumor with endocrine atypia but no invasion, consistent with a giant adenoma.

Postoperatively, calcium was initially stable (1.99 mmol/L at discharge) but fell to 1.68–1.82 mmol/L at 2 weeks despite high-dose supplementation. Hypocalcemia persisted for 6 weeks, consistent with delayed hungry bone syndrome, likely precipitated by preoperative vitamin D deficiency, markedly elevated alkaline phosphatase, and low bone mineral density. With intensive supplementation, calcium gradually stabilized, and symptoms improved.

CONCLUSION

GPAs can closely mimic carcinoma, with endocrine atypia complicating histopathological interpretation. This case illustrates both diagnostic overlap and the unusual, delayed onset of hungry bone syndrome, emphasizing the need for preoperative risk assessment, correction of metabolic deficiencies, and extended postoperative monitoring. Rare presentations such as delayed hungry bone syndrome refine management strategies and improve outcomes in primary hyperparathyroidism.

EP_A094

CLINICAL USE OF DENOSUMAB FOR REFRACTORY HYPERCALCEMIA: A RETROSPECTIVE CASE SERIES

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INTRODUCTION

Severe hypercalcemia is most commonly caused by primary hyperparathyroidism (PHPT) and malignancy. While standard therapies are effective in most cases, a subset of patients have persistent or refractory hypercalcemia. We present a retrospective case series detailing the clinical characteristics, biochemistry, and outcomes of patients treated with denosumab for hypercalcemia.

CASES

Seven patients with severe hypercalcemia were identified, comprising five with PHPT and two with malignancy-associated hypercalcemia. The mean age was 70.4 years (range 55–86), with 71% female (n = 5) and 29% male (n = 2). Baseline corrected calcium ranged from 2.92 to 4.59 mmol/L, with a mean of 3.26 mmol/L. In the PHPT cohort, parathyroid hormone (PTH) levels were significantly elevated (16.7–168 pmol/L), while malignancy patients had suppressed PTH (0.6 and 0.9 pmol/L).

Prior to denosumab, 4/7 patients (57%) received bisphosphonates, 3/7 (43%) received calcitonin, and 1/7 (14%) was treated with cinacalcet. Denosumab resulted in a mean reduction in corrected calcium of 0.22 mmol/L from 3.26 to 3.03 mmol/L.

Biochemical response was observed in 5/7 patients (71%). Of these, 3 patients (43%) achieved normocalcemia, while 2 patients (29%) demonstrated a partial response. The remaining 2/7 patients (29%) showed no significant improvement in calcium levels. Among responders, the mean time to calcium reduction to <3.0 mmol/L was 27 days (range 7–47). Repeat dosing was required in the majority of patients, with a mean of 1.7 doses per patient (range 1–4), indicating variability in both onset and durability of response. Among patients with PHPT, four underwent parathyroidectomy, and one declined surgery. Both patients with malignancy were managed nonsurgically.

CONCLUSION

Denosumab achieved normocalcemia in 43% of patients, with additional partial responses. Its effects were variable, with delayed response and frequent need for repeat dosing, supporting its role as an adjunctive or bridging therapy rather than as a definitive treatment.

EP_A095

THE HIGH BONE DENSITY PARADOX: PRIMARY HYPERPARATHYROIDISM IN THE SETTING OF OSTEOPETROSIS

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INTRODUCTION

Primary hyperparathyroidism (PHPT) is a common disorder that typically leads to increased bone turnover and reduced bone mineral density (BMD). Osteopetrosis, in contrast, is a rare, inherited disorder of defective osteoclast function, resulting in diffusely sclerotic but structurally fragile bones. The coexistence of both conditions is rare and can significantly alter the expected skeletal phenotype of PHPT.

CASE

We report a 77-year-old female with a previous history of resected ovarian carcinoma in remission, chronic iron deficiency anemia, and hypothyroidism. During a hospital admission for a lacunar infarct, an incidental finding of sclerotic skull lesions on computed tomography (CT) brain prompted further investigation. She had no history of fractures, hearing impairment, or family history of parathyroid or bone disorders. Biochemistry revealed parathyroid-dependent hypercalcemia with normal renal function. Bone turnover markers showed a normal resorption marker (BCTx) but an elevated formation marker (P1NP), with a mildly raised alkaline phosphatase. A sestamibi scan localized a probable left upper parathyroid adenoma, despite a negative neck ultrasound. Skeletal survey unexpectedly revealed widespread osteosclerosis of the skull, spine, and long bones, with a markedly elevated BMD on densitometry. Review of prior imaging confirmed that these sclerotic changes predated her current presentation, having been present on CTs from over a decade ago. Recurrent malignancy was excluded with repeat imaging and tumor markers. A diagnosis of PHPT secondary to parathyroid adenoma, coexisting with underlying, previously unrecognized osteopetrosis, was made. The patient declined both recommended parathyroidectomy and genetic studies.

CONCLUSION

This case demonstrates a rare coexistence of two pathologies with opposing effects on bone metabolism. The underlying osteopetrosis, characterized by defective osteoclasts, likely rendered the patient's osteoclasts resistant to the catabolic effects of elevated PTH. This resulted in an atypically normal bone resorption marker and an unexpectedly high BMD, despite the diagnosis of PHPT.

EP_A096

THE CALCIUM CHASE: UNMASKING PARATHYROID CARCINOMA WITH CONCURRENT PAPILLARY THYROID MICROCARCINOMA

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INTRODUCTION

Parathyroid carcinoma is a rare endocrine malignancy found in 1–5% of patients with primary hyperparathyroidism. It commonly presents with severe hypercalcemia and markedly elevated parathyroid hormone (PTH) levels. We report a challenging case of parathyroid carcinoma presenting with refractory hypercalcemia with incidental papillary thyroid microcarcinoma.

CASE

A 63-year-old female with hypertension, diabetes mellitus, dyslipidemia, and ischemic heart disease had been followed for primary hyperparathyroidism since 2014 (PTH5.5 pmol/L, calcium range 2.3–4.7 mmol/L). Initial neck ultrasound was suggestive of parathyroid adenoma over left side, but parathyroid scintigraphy failed to localize a lesion. She refused surgical intervention initially until April 2025, then she later agreed. Re-evaluation prior to operation revealed PTH level 76 pmol/L, and repeated parathyroid scintigraphy showed mild sestamibi avid uptake on left thyroid nodule. While awaiting surgery, she was admitted with a hypercalcemic crisis (serum calcium 3.7–5.38 mmol/L), complicated with acute kidney injury. Repeated ultrasound neck revealed extrathyroidal lesion adjacent to inferior pole of left thyroid (1.6 × 1.7 × 1.2 cm). She required aggressive intravenous hydration, intravenous pamidronate, calcitonin, and Denosumab to optimize her calcium level peri-operatively. She underwent left neck exploration with en-bloc left inferior parathyroidectomy, left hemithyroidectomy, and central neck dissection in November 2025. Histopathological examination confirmed parathyroid carcinoma (pT3N1) with nodal metastasis (1/4 lymph nodes positive) and an incidental papillary thyroid microcarcinoma measuring 1 mm (pT1a).

CONCLUSION

This case highlights the challenges of perioperative hypercalcemia management in parathyroid carcinoma. Effective preoperative control often requires multiple treatment modalities. Severe refractory hypercalcemia and high PTH level should raise a high index of suspicion for malignancy. Early complete resection is the cornerstone of treatment and is associated with optimal outcomes.