



## Parathyroid Carcinoma

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### Clinical Image

A 72-year-old woman presented to the emergency department with altered mental status for 2 days. She had diabetes and a history of left-side ureteral cancer, which was surgically removed five years ago. Physical examination revealed a Glasgow Coma Scale of 11 (eyes 4; verbal 2; motor 5) and no focal weakness. Laboratory studies showed a serum calcium level of 15.9 mg per deciliter (normal range, 8.4 to 10.2) and an intact Parathyroid Hormone (PTH) level of 1152.5 pg per milliliter (normal range: 15-68.3). A chest radiograph showed a rim calcified tumor in the right neck with mild compression to the trachea (Figure 1). Computed tomography of the neck revealed the calcified tumor, which was located in the right lower lobe of the thyroid gland (Figure 2). There was no abnormal uptake in the Technetium-99m-labeled sestamibi scintigraphy. The patient received parenteral fluid therapy and then surgical removal of the tumor. The resected right lower parathyroid gland revealed an encapsulated tumor (measuring 3.2 cm × 3.2 cm × 2.5 cm) with neoplastic cells invading the capsule and growing into the adjacent thyroid tissue (Figure 3), indicating parathyroid carcinoma. The patient became clear after fluid therapy, and the serum calcium and PTH levels returned to normal after the surgery. Parathyroid carcinoma is a rare endocrine malignancy and a rare cause of primary hyperparathyroidism [1]. Patients with parathyroid carcinoma usually present with parathyroid crisis (i.e., severe hypercalcemia and very high level of PTH) [2]. Surgery

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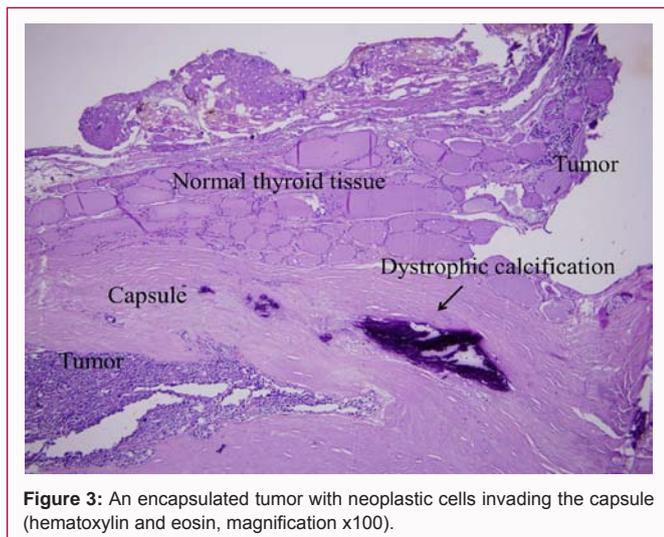
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Figure 1: Chest X-ray shows a rim calcified tumor in the right neck with mild compression to the trachea (arrow).



Figure 2: Computed tomography of the neck shows a rim calcified tumor, locating in the right lower lobe of the thyroid gland (arrow).



**Figure 3:** An encapsulated tumor with neoplastic cells invading the capsule (hematoxylin and eosin, magnification x100).

is required for a definitive diagnosis and treatment [3].

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