

## Diagnostic Failures in a Patient with Parathyroid Carcinoma

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**Introduction.** Although parathyroid adenomas represent relatively frequent challenge in the endocrine surgery, parathyroid carcinoma is distinctly rare. The incidence of parathyroid carcinoma is estimated as 0.015 per 100,000 people, and the prevalence as 0.005% [Hundahl, et al., 1999; DeVita, et al., 2011]. The reported rate of parathyroid carcinoma among patients presenting with hyperparathyroidism ranges 0.017–5.2%, but is mostly estimated as lower than 1% [Favia, et al., 1998; Fraker, 2000; Shane, 2001; DeVita, et al., 2011]. The recurrence of parathyroid carcinoma occurs in 40–60% of surgically treated patients, typically 2–5 years after the initial operation [Sandelin, et al., 1992].

**Aim.** The aim of the present case report is to demonstrate failure of diagnosing parathyroid carcinoma resulting in progressing disease.

**Material and method.** The case demonstration and following discussion should enhance awareness of a rare, dangerous tumour. In order to accomplish the set aim, the medical documentation was re-evaluated. The clinical findings, surgical treatment, laboratory data and results of tissue investigation were analysed.

**Results.** In January 2011, a sixty-four-year-old female patient was admitted for surgery due to a suspicious mass lesion in the neck. The tumour measured 3.3 cm in diameter and was supposed to be located in the left thyroid lobe. However, immediately before the planned thyroid operation, hypercalcaemia was identified as the checked calcium level in blood was 3.01 mmol/L (laboratory reference interval: 2.20–2.40 mmol/L). Consequently, preoperative parathormone level exceeded 1000 pg/mL (laboratory reference interval for patients younger than 70 years: 12–72 pg/mL). On the same day, the patient underwent left inferior parathyroidectomy. Intraoperatively, parathormone levels dropped 6 times. Histologically, the mass was diagnosed as parathyroid adenoma.

Nevertheless, in 2013 the patient noted visible subcutaneous nodule in the neck causing marked aesthetic defect. The calcium and parathormone levels were significantly elevated again, and the clinical picture corresponded to hypercalcaemia. Preoperative ultrasound evaluation of the neck showed no pathological tissue around the thyroid gland. The visible mass was removed, and histological evaluation showed recurrence of parathyroid carcinoma featuring also vascular invasion. At present, the patient receives follow-up care. No distal metastasis has been found until now.

### Conclusions.

1. Patients with high parathormone levels are suspicious for parathyroid malignancy and require increased attention of surgeons and pathologists.
2. Close post-operative follow-up can be recommended to diagnose the recurrence as early as possible.
3. The recurrence of parathyroid carcinoma can have significant metabolic consequences in contrast to limited tumour burden.
4. The observed parathyroid carcinoma has developed in the left inferior parathyroid gland in accordance with the previously published observations that parathyroid carcinoma more frequently tends to involve inferior glands.