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Subcutaneous implantation of metastatic carcinoma: An unpredicted event following endoscopic parathroidectomy for adenoma

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Dear Editor,

Parathyroid carcinoma (PTC) accounts for <1% of primary hyperparathyroidism.[1-3] Differentiating carcinoma from adenoma is difficult in preoperative and intraoperative stages, and even after histopathological examination. Often, the diagnosis is made in retrospect.[1] To the best of our knowledge, we report the first case of metastatic recurrence of PTC in the trans axillary tract of endoscopic parathyroidectomy, done for a supposedly benign adenoma 3 years ago.

A 32-year-old female presented with a nodular swelling over the medial aspect of the right clavicle and an outside fine-needle aspiration cytology (FNAC) report of metastatic carcinoma. She had a past history of endoscopic left inferior parathyroidectomy done 3 years ago. Furthermore, interestingly, the surgery was done through the right trans axillary approach. The final diagnosis was a benign adenoma both on frozen section and histology. Presently, her serum calcium was 15.2 mg/dl, and intact parathyroid hormone (PTH) was 1886 pg/ml. Sesta methoxyisobutylisonitrile (MIBI) scan showed abnormal focal uptake anterior to the right

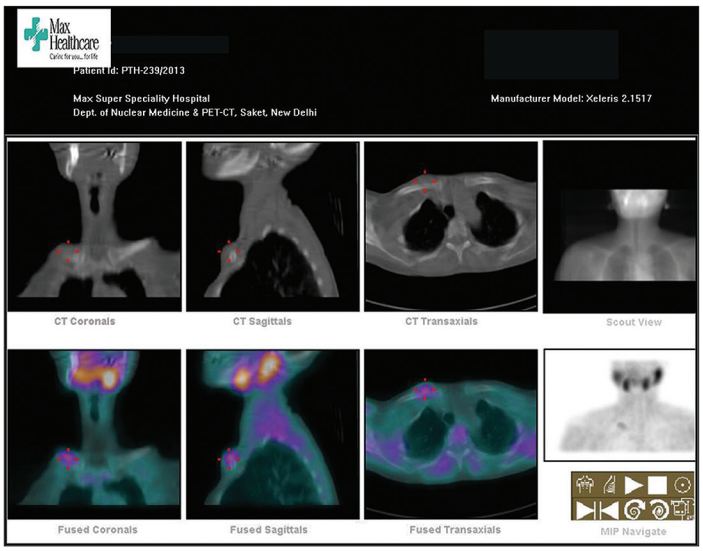

Figure 1: Sesta-methoxyisobutylisonitrile scan showing abnormal focal soft tissue density anterior to the medial end of right clavicle

clavicle [Figure 1]. This was reminiscent of recurrence in the endoscopic tract. She underwent wide local excision of the metastatic deposit and the tract with left hemithyroidectomy and the central compartment clearance. Histopathology revealed a metastatic deposit of PTC with infiltration into thyroid parenchyma. The initial pathology was reviewed and showed features consistent with a benign parathyroid adenoma.

Parathyroid carcinoma results in severe hyperparathyroidism and complications from recurrence and metastatic spread. Patients usually present with a severe form of hyperparathyroidism, such as bone disease, renal disease or hyperkalcemic crisis. According to the literature, diagnosis of PTC must be based on the concurrence of the following evidence:[1,4]

- Concomitant renal and bone disease
- Palpable neck mass
- Elevated serum calcium levels (14-16 mg/dl)
- Elevated PTH (>500 pg/ml and often >1000 pg/ml)
- Recurrent laryngeal palsy from direct tumor invasion.

With a sensitivity of 91% MIBI scintigraphy may be a valid tool to assess the presence and localization of PTC.[2] FNAC may not be effective and should be avoided to prevent capsular rupture and seeding of tumor cells.[3] Frozen section may assist in the diagnosis, but subtle pathological findings may overlap with benign disease.[4]

Surgery is the only effective and curative treatment of PTC.[2] It should be performed as "*en bloc*" tumor resection with the ipsilateral thyroid lobe, adjacent musculature, level VI lymphatic tissue. Intraoperative monitoring of intact PTH with a significant drop (>50%) has proved accurate in reflecting an optimal resection.[2]

The histological diagnosis of PTC, based on the Schantz and Castleman criteria published in 1973, include trabecular pattern, thick fibrous bands, mitotic figures, necrosis, capsular invasion, and angioinvasion.[4] Recently, immunohistochemistry with negative staining for parafibromin and/or positive for protein gene product 9.5 is being related to malignancy.

Recurrent PTC is suspected when serum calcium rises. Although complete cure is unlikely, recurrent disease should also be treated surgically. The role of radiotherapy is not well-defined. The data from MD Anderson group and mayo clinic suggests that adjuvant radiotherapy appears to increase disease free survival.[5] The prognosis of PTC is extremely variable, depending on early diagnosis and success of initial surgical procedure.

Conclusion

This case report has shown that it's preferable to have a high index of suspicion for PTC in patients with severe forms of primary hyperthyroidism, than to miss the opportunity for surgical cure in the first go. Furthermore, this limits the applicability of minimally invasive surgery for primary hyperthyroidism, warranting a proper selection of patients undergoing these procedures.

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