Frontal bone metastasis from an occult follicular thyroid carcinoma: Diagnosed by FNAC

ABSTRACT
Metastatic deposits in skull bones from follicular thyroid carcinoma is rare, and metastatic disease in skull being the presenting symptom without obvious thyroid lesion (occult primary) is even rarer. A 60-year-old female patient presented with a mass in the frontal region of the skull. Fine needle aspiration cytology was done which revealed an adenocarcinaoma with repeated follicular pattern, reminiscent of follicular neoplasm of thyroid, which on immunocytochemistry revealed positivity for thyroglobulin. Patient was investigated further for primary thyroid malignancy, and imaging revealed a nodule in the left lobe of thyroid. Neuroimaging showed osteolytic lesion involving the cranium.

Key words: Frontal bone; occult follicular thyroid carcinoma; skull metastasis

Introduction
Follicular thyroid carcinoma (FTC) account for 10–20% of all thyroid malignancies, and it tends to occur more frequently in patients over 40 years of age.[1] The lung is the most common metastatic site for thyroid carcinoma followed by bone.[2] Metastatic tumors to the skull are most often from lung, breast, and prostate malignancies and rarely from thyroid cancer.[3] The incidence of skull metastasis of FTC is approximately 2.5–5.8%.[4] In almost all the reported cases of FTC metastasizing to the skull, metastasis occurred long after the diagnosis and institution of treatment for primary cancer; there are only a few cases in the literature in which solitary skull metastasis was the presenting feature of an occult FTC.[5] Here, we report a rare case with an occult FTC whose initial presentation was a frontal bone mass.

Case Report
A 60-year-old woman had a frontal mass which she incidentally noticed 1 year back. The mass had been painless and was slowly, but gradually, increasing in size, and hence the delay in presentation. On presentation, her general physical, systemic, and neurological examination were within normal limits. Local examination revealed a 4 × 3.5 × 3 cm mass in the right frontal region. It was pulsatile in nature, firm in consistency, and was fixed to the skull. The skin over the swelling was stretched but was otherwise normal. Routine blood tests and thyroid function tests were normal. Skull X-ray showed a large frontal lesion with some focal calcification in the soft component of the lesion. Fine needle aspiration cytology was done which revealed an adenocarcinoma with repeated follicular pattern, reminiscent of follicular neoplasm of thyroid, which on immunocytochemistry revealed positivity for thyroglobulin. Patient was investigated further for primary thyroid malignancy, and imaging revealed a nodule in the left lobe of thyroid. Neuroimaging showed osteolytic lesion involving the cranium.

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How to cite this article: Kalra R, Pawar R, Hasija S, Chandna A, Sankla M, Malhotra C. Frontal bone metastasis from an occult follicular thyroid carcinoma: Diagnosed by FNAC. J Cytol 2017;34:59-61.

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aspiration cytology (FNAC) from the skull swelling was obtained and stained with Leishman stain. Smears showed cells arranged in a repeated microfollicular pattern having monotonous enlarged, hyperchromatic nuclei, reminiscent of follicular neoplasm of thyroid and were suspected to be metastasis from FTC [Figure 1b]. Immunocytochemistry was done and the cells showed positive staining for thyroglobulin [Figure 1c] and cytokeratin.

The patient had no history related to thyroid disease and was clinically euthyroid. Her subsequent workup included thyroid ultrasonography which revealed an occult primary in form of 1 × 1 cm well-defined hyperechoic lesion in the left lobe, with flow on color Doppler, which was suggestive of malignancy. Contrast enhanced computed tomography (CT) demonstrated a 3 × 3 cm soft tissue lesion in scalp in frontal region with destruction of underlying bone [Figure 1a]. Hence, the patient diagnosis was skull metastasis with occult FTC. She was advised further investigation and treatment which she refused, and has since been lost to follow-up.

Discussion

Thyroid cancers account for approximately 0.5% of all cancers in men and 1.5% in women. Follicular carcinoma, when compared to papillary carcinoma, occur in older patients, has hematogenous route for spread, rather than lymphatic, is more aggressive, and FTC has a higher propensity to have distant metastasis at presentation. The lung and bone are the most common sites of metastasis of FTC. 1–3% of all well-differentiated thyroid carcinomas (papillary and follicular) metastasize to the bone. Bone metastasis from FTC is often to ribs, vertebrae, and sternum. Skull is a rare site for metastasis of FTC. In most reported cases, skull metastasis of FTC were located in the skull base and occipital area, however, in our case, it was seen at the frontal bone. Presenting feature of skull metastasis usually include a palpable scalp tumor, though unusual presentations with exophthalmos, disturbance of consciousness, hemiparesis, and headache have been reported. The sole complaint of a disfiguring scalp lump makes the case very unusual. These lesions are osteolytic on skull X-ray and CT scan and are highly vascular on angiographic assessment. Shamim et al. reported two healthy cases with no prior history of thyroid cancer who presented with a solitary scalp lump. Subsequent workup confirmed occult primary carcinoma of thyroid gland in both the patients. Kelessis et al. reported the case of a 72-year-old woman with a painless mass in the right supraorbital region with underlying bone destruction that proved to be metastasis from a well-differentiated thyroid carcinoma. The largest case series of skull metastasis from all types of thyroid cancers consisted of 12 cases reported by Negamine et al. In this series, mean time from the diagnosis of thyroid tumor until discovery of skull metastasis was 23.3 years.

Prognosis in case of metastasis is generally poor and the 10-year survival with bone metastasis from differentiated thyroid cancers is reported to be 27%. Mean survival in patients who present with skull metastasis in the case series by Negamine et al. was only 4.5 years.

Metastases are not an infrequent finding in the bone tissue, and they might present the initial manifestation of the disorder, however, they represent a poor prognostic factor. FNAC examination is important because it may help in determining the site of the primary tumor in many cases. In others, it limits the number of organs for investigation of the primary tumor and helps tremendously in initiating early treatment.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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ABSTRACT
Endometriosis involving the uterine cervix is a rare condition that can lead to diagnostic errors in the interpretation of Pap smear. We report the case of a 41-year-old patient in whom the initial Pap smear revealed three-dimensional clusters of glandular cells with elongated nuclei, occasional mitosis, and atypia, which was interpreted as atypical glandular cells, not otherwise specified (NOS). The patient was taken to colposcopy and endocervical biopsy. Colposcopy was normal and the biopsy presented glands with elongated nuclei and surrounded by endometrial stroma admixed with normal endocervical glands. Immunohistochemical studies were reactive for CD10 in the stromal cells and vimentin in endometrioid glands. The findings were consistent with cervical endometriosis. Endometriosis in the cervix is an uncommon pathology that mimics malignancy and may be interpreted as atypical or glandular neoplasia in the cytology.

Key words: Atypical glandular cells of undetermined significance (AGUS); cervical cytology; endometriosis

Introduction
Endometriosis is defined as the presence of endometrial glands and stroma in ectopic localizations outer than the uterine cavity. The most frequent site of implantation is the ovaries and pelvic cavity, followed by the bowel, bladder, umbilical region, skin, and perianal region.



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