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BLACK THYROID - A CASE REPORT

Otorhinolaryngology

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ABSTRACT

Thyroid swellings are a quite common and frequently encountered condition, however black depigmentation of thyroid gland is a rare and insufficiently acknowledged clinical entity. More often than not, its association is linked with chronic use of antibiotic Minocycline, a drug from class Tetracycline usually used for treatment of Acne. However, it can also be an incidental finding as in our case, with no previous history of Minocycline therapy. Taking in consideration such a clinical entity; it should necessitate further investigations and treatment for a possibility of underlying malignancy.

KEYWORDS

Black thyroid, Thyroid, Follicular adenoma, Papillary variant

INTRODUCTION

Black thyroid refers to a rare condition where the thyroid gland turns black due to the accumulation of a pigment called melanin also known as melanosis of the thyroid.

Black thyroid is often associated with the use of certain medications, such as minocycline, which is an antibiotic used to treat acne and other infections[1] and rarely Doxycycline[8].

Case Presentation:

A 29-year-old female presented with a gradually progressive painless swelling in the neck for 2 years, a known case of hypothyroidism on tablet thyroxine 25 micrograms for 2 years. On clinical examination, the swelling was approximately a size of 3 x 4 x 4 cm, which was firm in consistency, non-tender, moves with deglutition and does not move on tongue protrusion. There was no retrosternal extension of the swelling. There was no lymphadenopathy, no suspicion of malignancy either. There were no signs of infection or inflammation.

Investigations-

Thyroid function test (TFT): Preoperatively showed euthyroid status.
Sonography (USG): Revealed the presence of a solid cystic lesion measuring 3 x 4 x 3.7 cm, with solid component measuring 8 x 14 x 21 mm, which showed internal vascularity on Doppler study without any evidence of calcifications, being classified in TIRADS III lesion[6].

Fine Needle Aspiration Cytology (FNAC): showcased thyroid follicular cells in microfollicular and macrofollicular pattern, in sheets and singly scattered with impression being Benign Follicular Nodular disease classified in BETHESDA Category Ii[7].

Fig-1. *Black Staining of surrounding tissue at the surgical bed, on elevation of Right thyroid.*

Intraoperatively-

The patient was planned for Right Hemi-thyroidectomy under General Anesthesia.

On further dissection, after lifting the thyroid gland from bed revealed black discoloration of adipose tissue surrounding the gland as demonstrated in (*Fig-1).*

Patient underwent hemi-thyroidectomy and the specimen removed was sent for histopathology examination. On slicing the specimen, presence of black-chocolate colored fluid is seen as depicted in *(Fig-2)*.

Fig-2. *Black-chocolate colored fluid within the specimen of thyroid nodule.*

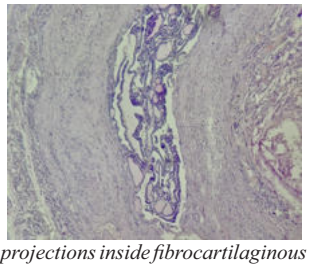

Fig-3. *Papillary projections inside fibrocartilaginous cyst wall.*

Histopathology-

On *gross examination*: well-circumscribed solid cystic nodule of 3.5 x 3.5 x 1 cm, at a minimum distance of 0.2 cm from thyroid capsule, which showed presence of papillary excrescences within, with surrounding normal thyroid tissue.

On *microscopic examination*: Thyroid follicles are arranged in

microfollicular, normofollicular and macrofollicular pattern, lined by follicular cells which are cuboidal with round and regular nuclei, fine chromatin, and are filled with colloid.

The nodule also presents with fibrocollagenous cyst containing hyperchromatic nuclei, and eosinophilic cytoplasm, along with papillary projections inside the cyst wall as shown in *(Fig-3)*.

Another slide depicts the presence of thyroid follicles lined by cuboidal epithelium filled with colloid, with finger-like papillary excrescences *(Fig-4)*.

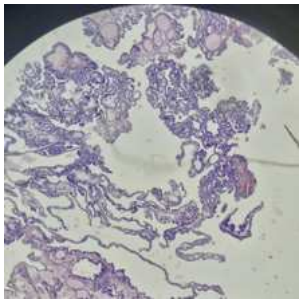

Fig-4. *Thyroid follicles with colloid (top) with papillary excrescences (centre).*

There are no nuclear features of papillary carcinoma or capsular / vascular invasion seen.

DISCUSSION:

Black Thyroid depigmentation has been reported in association to tumors like papillary thyroid carcinoma (PTC)[2]], Follicular carcinoma[3], Hyalinizing tubercular adenoma[4] and Follicular adenoma[5]. In a study by Kandil and colleagues, reported that 65% of patients with black thyroid were associated with thyroid cancer[2]. Most frequent association with black thyroid is that of papillary thyroid carcinoma (PTC), which is about 30-39% of black thyroid cases[1].

Papillary variant of Follicular adenoma is a rare, benign entity which shows papillary structure but lacks the presence of nuclear characteristics and malignant features.

Mostly such a finding is incidental on exploration but should spark the concern of coexistent malignancies as well, even though clinical presentation and tests point otherwise.

CONCLUSION:

Due to paucity in identification of black thyroid on USG as well as FNAC, regular clinical and laboratory thyroid examinations should be done, to watch for possible development of malignant features in thyroid swellings.

Even though there is no causal relationship between minocycline use and black thyroid, it can be an incidental finding and should be a consideration to avoid chronic use of minocycline for treatment of rosacea.

Furthermore, classification TIRADS and BETHESDA should not just be the parmeters on which operative decision should rely, but history, clinical evaluation and high index of suspicion play a crucial role as well.

Conflicts Of Interest- None declared

Funding- None

Ethical Approval- Taken

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