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PAPILLARY THYROID MICROCARCINOMA IN A BENIGN THYROID NODULE: AN UNDERDIAGNOSED ENTITY.

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Abstract: Fine needle aspiration cytology, though, is a reliable, minimally invasive procedure with high sensitivity, specificity and diagnostic accuracy, still it has its limitations in making out diagnosis of thyroid nodules. Here we present an uncommon case of 52 years old Indian female with complaint of mass on antero-medial aspect neck. Fine needle aspiration cytology was suggestive of colloidal goiter. For cosmetic indication, thyroidectomy was done and histopathological examination sought to confirm the cytological diagnosis. The incidental finding was uncommon, revealing papillary thyroid microcarcinoma. Worth emphasizing is the possibility of uncommon malignant disease like thyroid microcarcinoma, in view of limitations of fine needle aspiration cytology in apparently benign thyroid nodule/s.

Introduction

Thyroid carcinoma is the most common malignancy of the endocrine system with incidence of approximately 9/100,000 per year. The spectrum of behaviour of these cancers ranges from incidentally detected and clinically inconsequential microcarcinoma to aggressive and virtually untreatable anaplastic malignant neoplasms.¹⁻²

Papillary carcinoma is the most common form of thyroid cancer, accounting for 70–90% of well-differentiated thyroid malignancies. Papillary thyroid microcarcinoma (PTMC) is a specific subgroup of papillary thyroid carcinoma (PTC) and is defined by WHO on the largest dimension of 1.0 cm or less. The widespread use and the technical improvement of thyroid ultrasonography and fine-needle aspiration biopsy (FNAB) contributed to an increase in the

rate of preoperative diagnosis of PTMC over the last few decades.³

It is a common experience in thyroid cancer referral centers now a days, that nearly 60% to 80% of thyroid carcinoma detected are papillary thyroid microcarcinoma (<1 cm in size) which has an excellent long-term prognosis.³ We present an uncommon case of colloid goiter with an associated incidental finding of papillary thyroid microcarcinoma.

Case Report

This, 52 years female, Indian patient came with the complaints of nodule over antero-medial aspect of neck of size 3 cm x 4 cm and heaviness for last 3 years. Ultrasound guided fine needle aspiration cytology (FNAC) of the nodule

was performed. The cytology smear revealed benign follicular epithelial cells in small clusters with many foamy macrophages, in a background of blood mixed colloid. Diagnosis of colloid goiter with cystic change was made. The patient was operated for the same on cosmetic ground and the specimen was subjected to histopathological assessment. The histomorphological features of colloid goiter with cystic changes were seen in most of sections, while one of the sections revealed a small focus of papillary microcarcinoma (unencapsulated), measuring 8 mm in maximum dimension (Figure 1 and 2). A final diagnosis of colloid goiter with cystic changes with papillary microcarcinoma was made.

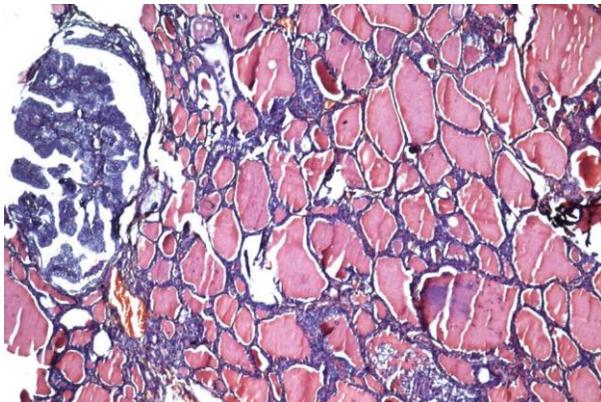


FIGURE 1: H&E, 20X Shows a focus with papillary architecture incidentally detected between the colloid filled follicles.

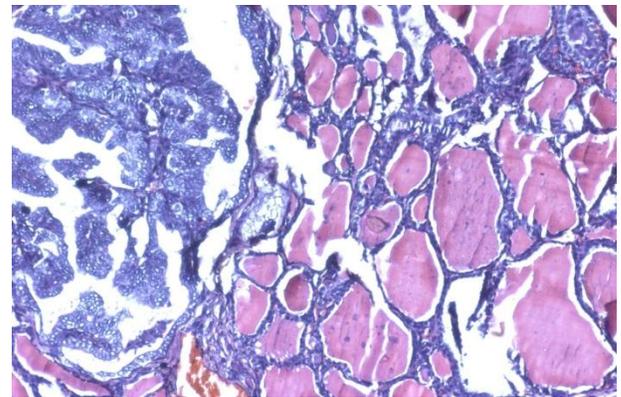


FIGURE 2: H&E, 40X: Shows papillae with optically clear nuclei conforming to the diagnosis of papillary microcarcinoma

Discussion

Contrary to frequency of being clinically apparent, microcarcinoma of the thyroid is not an uncommon entity. In many surgical studies conducted on patients with a presumably benign thyroid diseases, incidental foci of PTMC, ranged from 2-24 percent.^{4,5} The incidence of PTMC in autopsy studies varies from 3-36%. Multifocality is more commonly seen in PTMC and in many studies has been observed to be

present in 20-46% of cases.⁵⁻⁷ Studies have suggested that most of the thyroid microcarcinomas behave in a benign fashion, as a significant percentage of patients who died of diseases other than thyroid cancer had PTMC that remained asymptomatic throughout their lives.^{8,9} The prevalence of PTMC and death from cancer do not coincide and this further supports that PTMC is an indolent disease.^{10,11}

The diagnosis of PTMC is usually based on a combination of clinical examination, laboratory investigations and radiological techniques. However, as mentioned above, these are often clinically undetectable because of their small size. But, in the recent years, more cases of PTMC are being diagnosed because of the more frequent use and improvement of ultrasonography and image-guided FNAC. The diagnosis can now often be made preoperatively.

The basic question the physician wants answered is whether the thyroid nodule is benign or malignant, to define the further management of the patient- active intervention or careful observation. Fine-needle aspiration biopsy is the most helpful diagnostic method and is now considered essential in the initial workup of any thyroid nodule. On ultrasonography, irregularity, vascularity and calcification are important features for suspicious thyroid nodules.¹²

Nowadays, with the help of high resolution transducers, tumors measuring even 1 and 2 mm in diameter can be detected. Most authors recommend ultrasound-guided FNAC for thyroid nodules larger than 10 mm.^{13,14}

Age under 30 or over 60 years, male sex (8% versus 4% in female), history of head and neck irradiation in childhood and family history of medullary thyroid carcinoma (MTC) or multiple endocrine neoplasia type 2 (MEN-2) are the risk factors that increase the probability of malignancy in a thyroid nodule.^{15,16}

It is an uncommon clinical scenario to incidentally diagnose thyroid microcarcinoma on histology of the resected thyroid following surgery for a presumably benign thyroid disease. It frequently remains clinically occult.¹⁷

Roti et al have stated that 79% of the patients with microcarcinoma had classic papillary thyroid cancer and a relatively low number of follicular variant of papillary thyroid cancer.¹⁸

Patients with incidentally noted papillary thyroid microcarcinoma (discovered on histopathology after surgery for benign thyroid disease) had a lower risk (5.2%) for tumor persistence or recurrence than the patients with non-incident disease (10.4%). Though, overall clinical outcomes for patients with papillary thyroid microcarcinoma are excellent, it still remains the cause of mortality or substantial morbidity in a small subset of patients. Prognostic factors have not been well defined in papillary thyroid microcarcinoma but patients have favorable long term prognosis.

Earlier, unilateral lobectomy used to be a form of conservative treatment in the patients with papillary microcarcinoma.¹⁹ But, loco-regional recurrence has been reported in 0-11% patients with few cases of distant metastases and deaths as well. Therefore, many authors now consider total or subtotal thyroidectomy to be the treatment of choice for such carcinomas.¹⁹⁻²⁰

Conclusion

Awareness and better understanding of the characteristics of PTMC and manage it as a distinct and valuable tumor can be an effective step in promoting health of the patients. The numbers of detected PTMCs are increasing due to the development of new sensitive and diagnostic methods. Overall, identifying this tumor and paying attention to its markers has dual benefits, one is prevention of advanced papillary thyroid carcinoma that need aggressive and longer treatment, and the other benefit is managing the tumor as a distinct disease.

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