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## Oncocytic adenoma of thyroid with papillary architecture: A diagnostic dilemma

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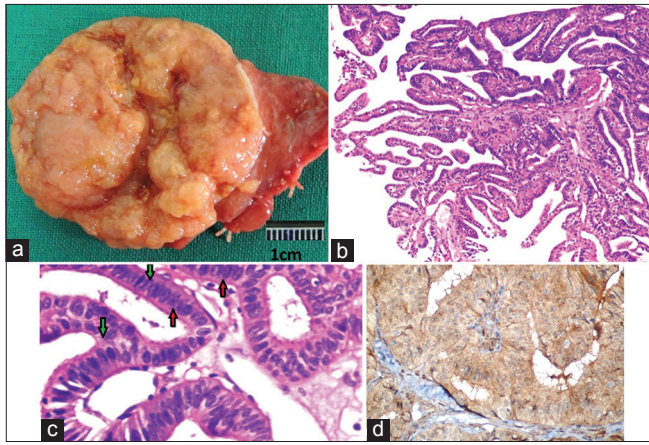
Dear Editor,

Neoplasms of thyroid pose diagnostic challenges when they contain papillary architecture without the characteristic nuclear features [CNF] diagnostic of papillary thyroid carcinomas [PTC]. These CNF of PTC include-enlarged nuclei, fine or ground glass chromatin, optical clearing, intranuclear grooves, intranuclear cytoplasmic inclusions (ICI) and nuclear overcrowding.<sup>[1]</sup> Follicular adenomas (FA) and oncocytic adenomas (OA) have been described to contain papillary areas without the CNF of PTC. It has been documented that, FA and OA with papillary architecture (OAPA) and microscopically showing CNF of PTC in <30% of the cells may be considered as limited nuclear features (LNF) of PTC.<sup>[2,3]</sup>

In (OAPA) it is difficult to take a call between adenomas versus oncocytic PTC. In a comparative analytical study on FA; the cases grouped as OAPA displayed LNF of PTC.<sup>[3]</sup> The control PTC's used in this study displayed CNF of PTC in >30% cells. Cases did not develop metastases on follow up. The authors recommend papillary adenomas are well recognized in order to avoid over-diagnosis.<sup>[2]</sup>

We encountered a case with an encapsulated thyroid nodule containing papillary architecture but with LNF not diagnostic of PTC, which prompted us to write this commentary.

A 30-year-old female presented with a swelling in the neck since 6 months measuring 4 cm × 5 cm, in right thyroid lobe. Ultrasonography revealed a solitary nodule in the right lobe of the thyroid measuring 40 mm × 48 mm × 44 mm. Thyroid scan revealed a nonfunctioning nodule. Fine-needle aspiration



**Figure 1:** Gross and light microscopy on haematoxylin and eosin (a) Gross (b) Cells had abundant eosinophilic opaque granular cytoplasm, suggestive of oncocytic change,  $\times 40$ . (c) Intra-nuclear grooves (green arrows); nuclear overcrowding (red arrows),  $\times 400$ , (d) CK19; nonspecific staining (negative)

cytology was suggestive of follicular neoplasm of thyroid with Hurthle cell change. She was euthyroid.

Right hemi-thyroidectomy specimen received was encapsulated nodule 4.5 cm in diameter. Cut surface of the nodule was tan/mahogany brown, with solid and papillary excrescences [Figure 1a]. Microscopically, it showed a well-encapsulated lesion composed of columnar cells arranged in glandular and at places in papillary structures [Figure 1b and c]. The coarse irregularly clumped chromatin was in contrast to the fine ground glass chromatin, irregularity of nuclear borders and chromatin clearing deemed to be diagnostic for PTC<sup>[1]</sup> [Figure 1c]. A small percentage of nuclei showed grooves and nuclear overlapping (<10%). There were no ICI or mitotic activity. On immunohistochemistry (IHC), the tumor cells showed expression for panCK, p53 and S100; being negative for CK19 [Figure 1d]. There was no reactivity of tumor cells to Galectin-3 and Ki67 labeling index was approximately 2%.

On IHC PTC cells express CK7, CK 19, vimentin and Galectin-3, while benign thyroid lesions are negative.<sup>[1,4]</sup> Between 6% and 30% adenomas can show

reactivity to Galectin-3; while 10–40% of adenomas and normal thyroid tissue can show focal reactivity to CK19.<sup>[4]</sup> S100 immunoreactivity is seen in PTC's<sup>[1]</sup> and oncocytic tumors. Expression of p53 has not been observed in PTC, but is expressed in OA's.<sup>[5]</sup> No single marker can be used in isolation to make a diagnosis of papillary carcinoma. In view of papillary architecture, but in the absence of other gross and microscopic features of PTC, OA with papillary features was considered in this case. On followup for 20 months, the patient is free of recurrence or metastases.

There is a dearth of information on prognosis of thyroid OA's and FA's with papillary features without the CNF of PTC, compounded by small sample size and absence of long-term follow-up.<sup>[2-4]</sup> Our experience with the present case and similar ones if compiled can elucidate and eventually resolve the diagnostic difficulties in this gray zone area of thyroid histopathology.

**Sanjay D. Deshmukh, Pallavi A. Patil,  
Siddhi G. S. Khandeparker, Chetana Naik<sup>1</sup>**

Departments of Pathology and <sup>1</sup>Otorhinolaryngology,  
Smt. Kashibai Navale Medical College and Hospital, Narhe, Pune,  
Maharashtra, India

**Correspondence to:** Dr. Sanjay D. Deshmukh,  
E-mail: drsanjay123in@yahoo.co.in

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