

ENCAPSULATED COLUMNAR-CELL CARCINOMA OF THE THYROID: A CASE REPORT

Wan-Ting Huang, Sheau-Fang Yang, Sheng-Lan Wang, Hon-Man Chan,¹ and Chee-Yin Chai
Department of Pathology and ¹Division of General Surgery, Department of Surgery,
Kaohsiung Medical University Chung-Ho Memorial Hospital, Kaohsiung, Taiwan.

Columnar-cell carcinoma is a rare form of papillary thyroid carcinoma. It is a biologically aggressive variant, according to the World Health Organization classification, due to its rapid growth, high local recurrence rate, and frequent lung, brain, and bone metastases. However, recent reports indicate encapsulated tumors confined to the thyroid gland are associated with a more favorable prognosis. We report a case of encapsulated columnar-cell carcinoma occurring in the right lobe of the thyroid in a 25-year-old female and discuss the histopathologic features, differential diagnosis, and prognostic factors.

Key Words: columnar-cell carcinoma, papillary carcinoma, thyroid
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Columnar-cell carcinoma of the thyroid, first described by Evans in 1986, is considered an aggressive variant by the World Health Organization (WHO) [1-3]. It is a rare subtype, accounting for only 0.15-0.2% of all papillary thyroid tumors [4], and tends to be associated with increasing age and larger size and extrathyroid extension at presentation [5]. We describe a case of encapsulated columnar-cell carcinoma of the thyroid in a 25-year-old woman and discuss the clinical presentation, histologic features, differential diagnosis, and predictive factors.

CASE PRESENTATION

A 25-year-old woman observed a rapidly enlarging neck mass in the right thyroid region over 1 year with no dyspnea, dysphagia, hoarseness, or other associated symptoms. She had neither a history of thyroid disease nor of irradiation to the thyroid region.

Examination revealed an 8-cm nodule in the right lobe of the thyroid. Ultrasonography showed a well-circumscribed nodule that was hypofunctional on ¹³¹I isotopic imaging. Thyroid function tests were within normal limits. Right lobectomy of the thyroid was performed and no extrathyroid extension was noted.

On pathologic examination, the right thyroid lobe was encapsulated and totally replaced by a well-circumscribed gray-white solid tumor with a nodulated cut surface (Figure 1) that measured 7.5 × 5.3 × 3 cm. Focal hemorrhage was noted.

Histopathologically, the tumor showed multiple growth patterns, including papillary, follicular with elongated follicles arranged in parallel cords, cribriform, and solid. Colloid production was less apparent. The papillae and follicles were lined by columnar-appearing cells with elongated hyperchromatic nuclei showing nuclear stratification. The nucleoli were inconspicuous. Subnuclear vacuolization similar in appearance to secretory endometrium was found focally (Figure 2). Optically clear nuclei with intracellular grooves were observed. Mitotic figures were identifiable but not excessive in number. Foci of squamoid whorls were found (Figure 3).

Immunohistochemically, there was diffuse cytokeratin immunoreactivity and focal thyroglobulin reactivity. There was no immunoreactivity with calcitonin and chromogranin.

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Address correspondence and reprint requests to: Dr. Chee-Yin Chai, Department of Pathology, Kaohsiung Medical University Chung-Ho Memorial Hospital, 100 Tzyou 1st Road, Kaohsiung 807, Taiwan.
E-mail: cychai@kmu.edu.tw

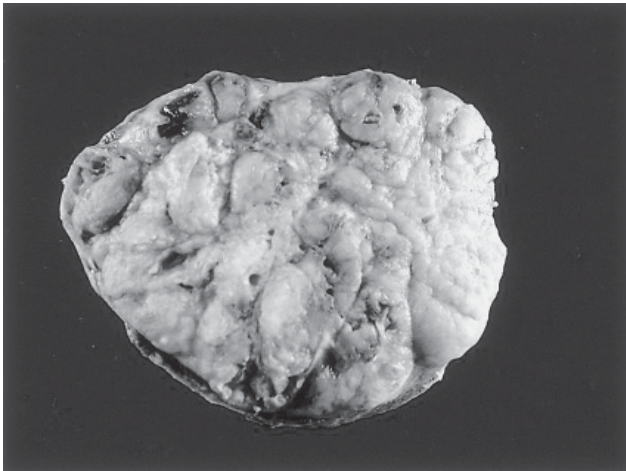


Figure 1. Well-encapsulated gray to tan tumor with nodulated cut surface.

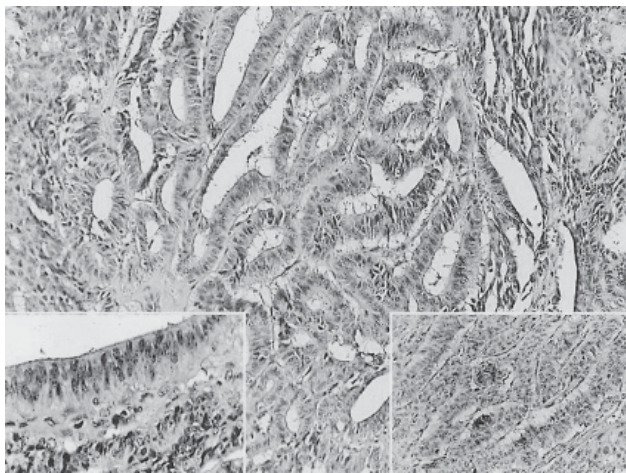


Figure 2. Microscopy showing mainly elongated follicles arranged in parallel cords with less apparent colloid production (hematoxylin & eosin, original magnification $\times 8$). There is focal insertion of columnar-appearing cells with elongated hyperchromatic nuclei showing nuclear stratification (left, original magnification $\times 80$) and subnuclear vacuolization similar in appearance to secretory endometrium (right, original magnification $\times 8$).

DISCUSSION

Thyroid papillary carcinoma is the most common form of thyroid malignancy and is considered an indolent tumor due to the excellent prognosis. However, some histologic variants of thyroid papillary carcinoma are classified by the WHO as aggressive, including diffuse sclerosing, tall-cell, and columnar-cell carcinomas [1].

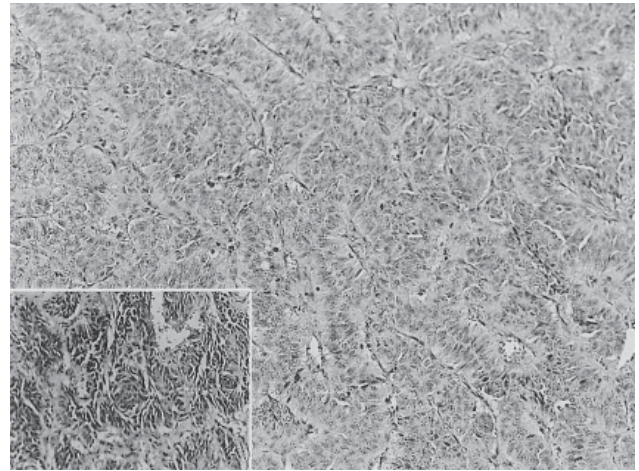


Figure 3. Marked elongated follicles arranged in parallel cords, almost forming "train tracks" (hematoxylin & eosin, original magnification $\times 8$). Squamoid whorls were found (left, original magnification $\times 8$).

The most common manifestation of columnar-cell carcinoma is an asymptomatic enlarging neck mass. Early reports suggested a higher incidence in males, but a literature review revealed a female preponderance [4]. The patient population is older than normal for papillary carcinoma, with a mean age of 44 years [4].

The differential diagnosis of columnar-cell carcinoma includes a tall-cell variant of thyroid papillary carcinoma (TCV-TPC), carcinoid tumor, and metastatic carcinoma, particularly from adenocarcinoma of the colon or endometrium [6–11]. In contrast to TCV-TPC, neoplastic cells of columnar-cell carcinoma have nonoxyphilic cytoplasm and pseudo-stratified nuclei that lack the classic nuclear features of papillary carcinoma. An additional pathologic feature of columnar-cell carcinoma is subnuclear or supranuclear vacuolization similar to that of secretory endometrium [6, 7]. Carcinoid tumor shows neuroendocrine differentiation, as manifest by chromogranin activity, while thyroid columnar-cell carcinoma lacks this differentiation.

Carcinoembryonic antigen immunohistochemistry is helpful in distinguishing columnar-cell carcinoma from metastatic carcinoma of the colon and endometrium because columnar-cell carcinoma is negative for this antibody [11–13]. Thyroglobulin is not used because it may not be reactive or focal positive as columnar-cell carcinoma is less differentiated than the usual types of papillary carcinoma [14].

Several reports have emphasized that columnar-cell carcinoma is highly aggressive and is usually fatal. However, in 1996, Evans reported four cases of encapsulated columnar-

cell carcinoma with more favorable prognosis [15]. Gaertner et al also indicate that tumors confined to the thyroid gland are associated with an excellent prognosis [7]. In our case, the columnar-cell carcinoma was well encapsulated without extrathyroid extension. Therefore, we expected a favorable prognosis.

Treatment for columnar-cell carcinoma is mainly surgical resection. Due to the frequent recurrences and metastases, unencapsulated tumors that invade beyond the thyroid capsule require more aggressive management, while encapsulated tumors can be managed conservatively [1,10,14–16]. Careful observation of the tumor can both demonstrate the best appropriate treatment and predict the prognosis.

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甲狀腺高柱狀細胞上皮癌 — 病例報告

黃琬婷¹ 楊曉芳¹ 王勝嵐¹ 陳漢文² 蔡志仁¹

高雄醫學大學附設醫院 ¹病理科 ²一般外科

高柱狀細胞上皮癌為一罕見的甲狀腺乳突上皮癌亞型，其組織學及免疫組織學的特徵和典型的甲狀腺乳突上皮癌不盡相同。由於它生長快速、容易再發以及遠處轉移，所以被世界衛生組織指為甲狀腺乳突上皮癌的侵略型變異。本篇報告一位發生在 25 歲女性的甲狀腺高柱狀細胞上皮癌，並回顧文獻並討論其組織病理特徵、鑑別診斷、以及預後因子。

關鍵詞：高柱狀細胞上皮癌，甲狀腺乳突上皮癌，甲狀腺
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高雄醫學大學附設中和紀念醫院病理部

高雄市 807 三民區自由一路 100 號