

Hürthle cell adenoma diagnosed by core needle biopsy in a male patient

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Hürthle cell adenomas (HCAs) are a rare and potentially lethal variant of follicular tumors of the thyroid. Considerable controversy exists regarding potential risk factors, diagnosis, and treatment of HCAs. The authors report the case of a 38-year-old male patient with an 8.3 cm × 3.5 cm HCA. Diagnosis was made preoperatively from a core needle biopsy and confirmed postoperatively on frozen section. Treatment consisted of a right lobectomy.

(Key words: Hürthle cell adenoma, fine-needle aspiration biopsy, core needle biopsy, frozen section, lobectomy)

There are approximately 300 known reports of Hürthle cell tumors (HCTs) in the literature.¹ HCTs represent 5% of all thyroid neoplasms.² In this article, the authors present a case report of a 38-year-old man in whom an 8.3 cm × 3.5 cm Hürthle cell adenoma (HCA) was diagnosed from a core needle biopsy and treated with a thyroid lobectomy.

Report of case

A 38-year-old white man presented for a surgery consult regarding a right neck mass that had been increasing in size over the past 6 months and was now causing dysphagia and lightheadedness on rotation of the head. He denied hav-

ing symptoms of hypothyroidism or hyperthyroidism—cold or heat intolerance, hypoactivity or hyperactivity, weight gain or loss, constipation or diarrhea, cool or dry skin, or coarse or fine hair.

Past medical history revealed he had had a ganglion removed from his right wrist, as well as nevi from his right arm. He smoked an occasional cigar, drank one to two beers per month, and consumed coffee daily. Family history was unremarkable for thyroid neoplasms.

On physical examination, the patient was approximately 6 feet tall and weighed 214 pounds. His vital signs were blood pressure, 124/80; heart rate, 80 beats/min; respiration, 20 breaths/min; and temperature, 98.3°F. The right thyroid was visible at a distance, and the left thyroid could be detected by palpation when the neck was fully extended. The remainder of the examination was unremarkable.

Two weeks prior to consultation, a technetium-99m nuclear scan revealed a huge cold nodule in the right lobe. Thyroid function studies were unremarkable: T₃ resin uptake, 29.1%; T₄ total, 6.3 mg/dL; free thyroxine index (normalized), 5.7; and TSH high sensitivity, 1.92 mU/mL. Eleven days later,

ultrasonography revealed a mildly enlarged left lobe (3.9 cm × 1.1 cm) and a markedly enlarged right lobe (8.3 cm × 3.5 cm), with a diffuse mixed echogenic pattern throughout. A fine-needle aspirate (*Figure 1*) of the right lobe yielded poorly differentiated tissue. Later, a core needle biopsy (*Figure 2*) revealed HCA, and a surgical resection was scheduled 1 week later.

Three days before surgery, the patient had a cough; a chest x-ray, posteroanterior x-ray, and lateral films were obtained and were unremarkable. Complete blood cell count revealed a minimally decreased white blood cell count of $4.9 \times 10^3/\mu\text{L}$ and mean platelet volume of 7.2 fL. Laboratory tests for glucose, blood urea nitrogen, creatinine, potassium, sodium, chloride, carbon dioxide, and serum calcium concentrations were unremarkable.

A right lobectomy with frozen section (*Figure 3*) was performed with minimal blood loss and without complications. Pathologic reports described cells with mild nuclear atypia characteristic of Hürthle cell proliferations. No evidence of capsular invasion or lymphatic or vascular involvement was seen. HCA was diagnosed on the basis of these findings. The patient was in stable condition and discharged the day after surgery. Postoperative thyroid and parathyroid function studies have since been unremarkable.

Discussion

According to the World Health Organization, HCTs are considered to be a variant of follicular tumors¹ and are classified as adenomas or carcinomas. Most adenomas of the thyroid gland are discrete, solitary nodules smaller than 4 cm. The morphologic criteria used to identify adenomas are (1) complete fibrous encapsulation, (2) distinction between the architecture inside and outside the capsule, (3) compression of the thyroid parenchyma around the adenoma, and (4) lack of multinodularity in the remaining gland. Compared to HCAs, HCCs demonstrate capsular or vascular invasion or both.^{2,3} Histologically, HCTs are characterized as large polyg-

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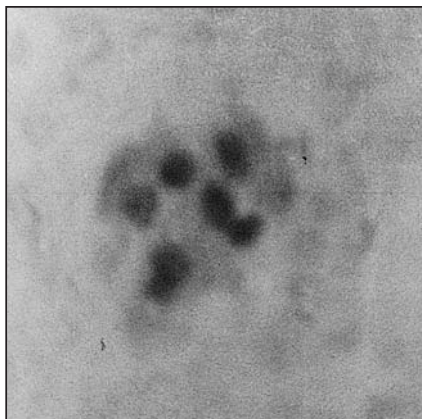


Figure 1. Fine-needle aspiration biopsy demonstrating an aggregate of benign-appearing Hürthle tumor cells. Hematoxylin and eosin (H&E) stain, $\times 500$.

onal cells with granular cytoplasm filled with abundant mitochondria.⁴

Hürthle cell carcinomas (HCCs) have the highest incidence of metastasis among the well-differentiated thyroid cancers.⁵ Although fine-needle aspiration biopsy is one of the initial steps in the evaluation of a thyroid nodule, it is not possible to differentiate HCAs from HCCs with this method.^{5,6} Thus, some experienced surgeons continue to perform total thyroidectomies.³ However, the majority of surgeons recommend thyroid lobectomy for HCAs and total thyroidectomy for HCCs.⁷

Current trends in the literature suggest the following risk factors for HCC: age greater than 40 years,² male gender,³ and tumors larger than 4 cm.^{3,4} A study by Wasvary and colleagues³ of 39 retrospective patients who received surgical intervention for a HCT from 1980 to 1995 found males to have a statistically significant higher rate of HCCs (6:2) and predilection for tumors larger than 4 cm to be malignant. Chen and colleagues⁴ retrospectively analyzed the medical records from 57 patients who also received surgical intervention for a HCT from 1984 to 1995 and found the number of patients with HCCs to be statistically significantly larger than those with HCAs (4.0 ± 0.4 cm versus 2.4 ± 0.2 cm).

This case presents congruities and incongruities with previous studies in

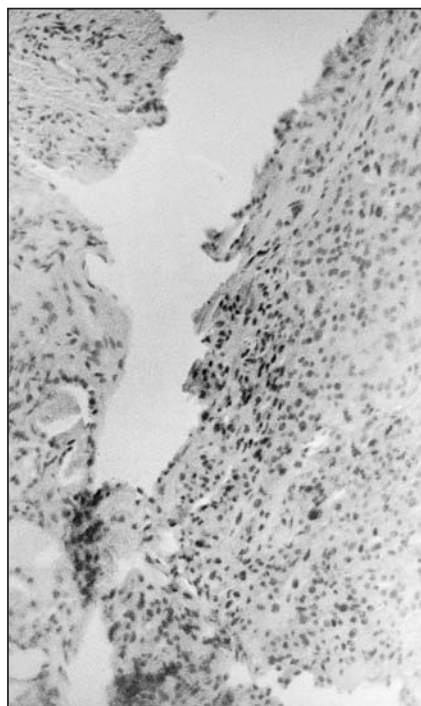


Figure 2. Core needle biopsy: left side—normal thyroid follicles filled with colloid; right side—uniform Hürthle tumor cells. H&E stain, $\times 150$.

terms of preoperative risk factors, diagnosis, and treatment of HCAs.

■ As in past studies, this patient's age (less than 40 years old) was in accordance with the reported trend of a probable benign Hürthle cell. However, this patient's gender and the extreme size of the tumor suggested a malignant HCC.

■ Preoperative diagnosis with a fine-needle aspirate, as well as being unable to differentiate HCAs from HCCs, can also yield a poor sample as demonstrated with this case, further limiting this method's usefulness. Perhaps core biopsy should be considered as a routine method in the preoperative diagnosis of HCTs.

■ Treatment with a right lobectomy was in accordance with the standard of care of HCAs and allowed the patient to live without thyroid pharmacotherapy.

Because so few cases of HCTs have been reported in the literature, future case studies continue to be warranted. It is crucial to obtain an understanding of this treatable benign tumor, which can rapidly turn metastatic if capsular or vascular invasion or both occurs.

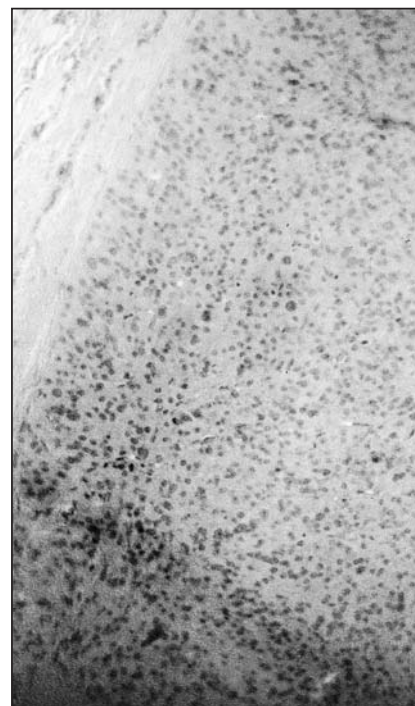


Figure 3. Frozen section reveals Hürthle cell tumor with predominant capsule intact. H&E stain, $\times 150$.

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