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Case Series
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# Oncocytic Carcinoma: A Series of 5 Cases

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## Abstract

Oncocytic thyroid carcinoma is a rare tumor characterized by the proliferation of Hürthle (oncocytic) cells. It is an aggressive tumor and is insensitive to radioiodine therapy. We report a series of five patients diagnosed with oncocytic carcinoma.

**Keywords: Oncocytic Carcinoma; Hürthle Cell Tumor; Total Thyroidectomy; Radioiodine Therapy**



## Introduction

Oncocytic thyroid carcinomas are recognized as a distinct anatomo-clinical entity because of their poor prognosis, lack of sensitivity to radioiodine therapy, and high metastatic potential to lymph nodes and distant organs. In the 2017 WHO classification, these tumors were defined as a separate entity under oncocytic carcinoma (formerly known as the oncocytic variant of follicular carcinoma).

These tumors are rare and aggressive and are characterized by proliferation of Hürthle (oncocytic) cells that represent more than 70% of the tumor. A thyroid oncocytic tumor is usually encapsulated and composed of more than 75% oncocytic cells.

The objective of this study was to evaluate the usefulness of suppressive hormonal therapy in the management of oncocytic thyroid carcinoma.

## Materials and Methods

This retrospective study was carried out at Avicenne University Hospital in Rabat over four years, from 2019 to 2022.

For each patient, personal data were collected: age, sex, medical history, and EUTIRADS classification. Tumor characteristics were also recorded: size, number, presence of angioinvasion, and treatment. Follow-up included clinical, biological, and imaging evaluation.

The effectiveness of suppressive hormonal therapy was assessed clinically by cervical examination, biologically by measuring thyroglobulin and anti-thyroglobulin antibodies, and morphologically by the absence of recurrence on cervical ultrasound.

Patients with normal cervical examination, negative thyroglobulin and anti-thyroglobulin antibodies, and no recurrence or lymph node metastasis on ultrasound were considered good responders to suppressive therapy.

## Results

The mean age of patients was 54.6 years. The sex ratio (M/F) was 0.66 (2 men and 3 women). No compression symptoms (dysphagia, dyspnea, dysphonia) were reported. All patients were diagnosed because of palpable thyroid nodules.

EUTIRADS classification: EUTIRADS 4 (3 patients), EUTIRADS 5 (1 patient), and EUTIRADS 3 (1 patient).

Hormonal tests showed no thyroid dysfunction.

Mean tumor size was 5.6 ± 3.13 cm (range: 3–11 cm).

Our series included five oncocytic carcinomas, one associated with a papillary microcarcinoma, and one bifocal oncocytic carcinoma.

Two tumors were encapsulated with minimal invasion and no angioinvasion. Two were encapsulated with angioinvasion. One tumor showed massive invasion. A papillary microcarcinoma



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**Table 1:** Summary of Patient Characteristics.

| Case | Age | Sex | EUTIRADS | Histopathology | Tumor size | Treatment |
|---|---|---|---|---|---|---|
| **1** | 68 | M | 4 | Oncocytic carcinoma | 4cm | Suppressive therapy |
| **2** | 43 | F | 5 | Oncocytic carcinoma + papillary microcarcinoma | 5cm | Suppressive therapy |
| **3** | 50 | F | 3 | Oncocytic carcinoma | 5cm | Suppressive therapy |
| **4** | 36 | M | 4 | Oncocytic carcinoma | 3cm | Radioiodine + suppressive therapy |
| **5** | 49 | F | 5 | bifocal Oncocytic carcinoma | 11cm | Suppressive therapy |

was associated in one case.

All patients underwent total thyroidectomy with cervical lymph node dissection. One patient received radioiodine therapy followed by suppressive therapy. Four patients were treated only with suppressive hormonal therapy with a target TSH below 0.1 mU/L.

Follow-up at 3 months, 6 months, 1 year, and 2 years showed favorable clinical, biological (undetectable thyroglobulin and negative antibodies), and ultrasound outcomes with no recurrence or lymph node metastasis.

## Discussion

Oncocytic carcinomas, previously known as the oncocytic variant of follicular carcinoma, represent 20–25% of follicular carcinomas. They are a very aggressive and poorly differentiated subtype of thyroid cancer.

The mean age at diagnosis is generally between 51 and 55 years. Age above 50 years is recognized as a predictive factor of malignancy. In our series, the mean age was above 50 years. These tumors occur more frequently in women, although our series showed a sex ratio of 0.66.

Oncocytic carcinoma typically presents as a palpable thyroid nodule but may also be revealed by cervical lymph node metastasis or distant metastases (lung, bone).

Diagnosis is based on clinical factors (nodule size, age over 50, female sex, metastasis) and histological features (capsular invasion, multifocality, angioinvasion).

Fine-needle aspiration improves preoperative diagnosis of oncocytic tumors with high sensitivity and specificity, but it cannot distinguish oncocytic adenoma from carcinoma, which justifies surgical removal of any cytologically diagnosed oncocytic tumor.

FDG-PET scan is useful in aggressive thyroid cancers, including oncocytic carcinoma, especially during initial staging or in case of elevated thyroglobulin during follow-up.

Average tumor size in most series exceeds 4 cm, consistent with our findings.

Therapeutic management requires extensive oncologic surgery: total thyroidectomy with lymph node dissection when necessary.

Suppressive hormonal therapy is usually administered postoperatively to inhibit pituitary stimulation and prevent growth of any remaining thyroid tissue.

Radioiodine therapy has limited benefit in oncocytic tumors because they are generally poorly iodine-avid. Its use is therefore not systematic.

Radiotherapy and chemotherapy are rarely used and are reserved for unresectable tumors, extensive local invasion, or palliative management of metastatic disease. Reported 5-year survival rates range from 50% to 60%.

In our series, suppressive therapy was chosen for four patients due to the limited efficacy of radioiodine, while one patient received radioiodine because of massive angioinvasion. All patients had favorable clinical and biological outcomes.

## Conclusion

Oncocytic thyroid carcinoma is a rare anatomo-clinical entity with a high risk of lymph node and distant metastasis. Surgical management is similar to that of other thyroid carcinomas. Close monitoring, regardless of treatment modality, improves prognosis.

Our cases highlight the usefulness of suppressive hormonal therapy after extensive oncologic surgery and the importance of close follow-up to improve outcomes in oncocytic carcinoma.