

## An Exceptional Case of Cutaneous Metastasis of Differentiated Thyroid Cancer

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### Abstract

Cutaneous metastasis from thyroid carcinoma is rare. It's often combined with other metastasis exceptionally isolated. We report the case of a 60 year- old patient operated in 2008 with thyroid surgery without a surgery report and an anatomico-pathological examination. She presents a huge scalp lesion with bone lysis visible with MRI and scanner. Samples confirmed the metastasis of a follicular thyroid cancer.

**Keywords:** Cutaneous metastasis; Vesicular thyroid cancer; Madagascar

### Introduction

The isolated skin metastases of a vesicular thyroid cancer are exceptional. They mainly concern the neck, scalp, and cover 3-5% of patients [1]. We report the case of a 60 year- old woman, native of the coastal region of northern Madagascar. She was hospitalized for a huge scalp lesion which was apparently isolated.

### Observation

Mrs M of age; 60 years belongs to Antakarana ethnicity and is a native of the northern coastal region of Madagascar. She complained of a monstrous fronto-parietal-occipital mass and this huge lesion has been observed clinically and gradually evolving since 2010 (Figures 1a and 1b).

The patient has no known hereditary thyroid problems. She underwent a partial surgery of thyroid without any prior examination in the year 2008 but there were neither the surgery report, nor an anatomico-pathological examination report. A brain scan was taken on 21 November, 2014. As in Figure 2, we could see a left fronto-parieto-occipital mass with a bone lysis and the beginning of a parenchymal infiltration. Observations revealed that there was also a left subcortical edema associated with a discreet visible intra-parenchymal edema but without secondary intra-cerebral location (Figure 2).

A mass biopsy and abdominal ultrasound was made and the result if anatomico-pathology was "Follicular thyroid metastasis". A mass tissue of endometrial origin was seen in the abdominal ultrasound.

### Biological Examinations and Results

Few Biology examinations were made on December 16, 2014 for further investigations. The results were as follows:

- FT3: 0.93 [4 to 8.3]
- FT4: 5.77 [9-20]
- TSH: 2.95
- Tg: > 5000 mg/l (no dilution).

The results of cervical ultrasound are as follows:

- Nodule more or less oval of 38 × 17 mm, with heterogeneous micro calcifications and partial necrosis, with a complete peripheral halo and an anarchic vascularization was seen on the right 9 cc Lobe.
- 2 hyperechoic nodules of 12 × 10 mm and 7 × 5 mm were seen on the left 4 cc Lobe.

The results of total thyroidectomy are as follows:



**Figure 1a:** Frontal view of the skull with Large cutaneous metastasis without any ulceration with significant collateral circulation in a 60 years old patient.

- A Nodular goiter on the right lobe.
- Follicles on the left lobe indicating Invasive cancer.

Histological pictures of thyroid lesions are identical to those of the biopsy of the skin lesion.

The MRI was also performed and the results were:

- A voluminous and highly vascularized mass of the left scalp down to the neck with the breaking of the frontal bone cortex which is responsible for mass effect on the frontal lobe and ipsilateral ventricular

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Figure 1b: Left side view of metastasis.

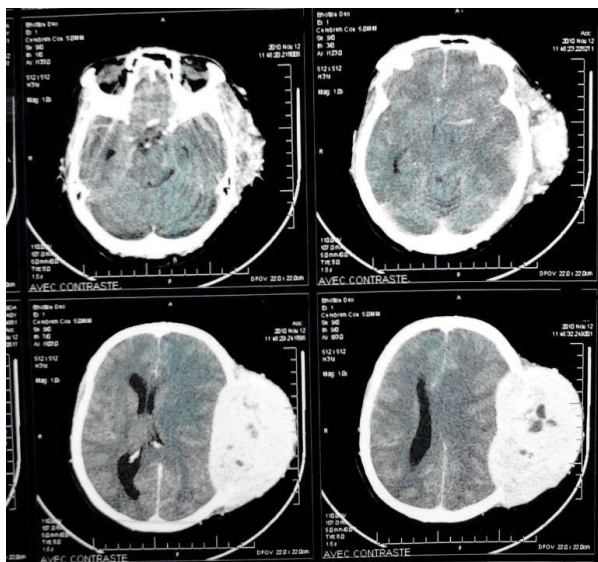


Figure 2: Brain Scan showing fronto-parietal mass, Left metastatic lesion disappearance of the parietal bone

system.

- A Compression of the left frontal lobe with compression of the left ventricle.
- There was no venous nor arterial vascular anomaly of the Willis polygon.
- No brain parenchymal abnormality.

A radiograph of the chest was also made. The patient was given 100 mCi iodine 131. She is under Levothyrox 100 µg per day and Calciprat D3 1 g per day and 10 days a month.

## Discussion

The management of this patient was seemed to be disastrous on appearance of the first symptoms. The initial thyroid surgery should have been led by a preoperative evaluation with ultrasound for exploration of the thyroid and lymph nodes as well as with a fine needle

aspiration.

Extending thyroid surgery is based on prognostic factors [2-6]. There is no thyroid surgery which is more vital than a total lobectomy. Any thyroid surgery is followed by an anatomic-pathological examination. The precise histological diagnosis and T<sub>p</sub>N classification are mandatory for the therapy follow-up, (irathery or not), and the patient follow-up [3-6].

Total thyroidectomy performed on our patient in 2014 has enabled the diagnosis of invasive cancer of the left follicular thyroid lobe which histological images are similar to the lesion of the scalp. This surgery is quite illusory, the prognosis is essentially to the voluminous left fronto-parieto-occipital mass. The evolution of these skin lesions is to necrotic ulcerations with frequent super infections [7,8]. The erosion of the underlying bone is possible, but is discrete and sometimes non-obvious during morphological examination [7-11]. Bone erosion is important in the case of our patient.

Cutaneous metastasis is rarely isolated [12-14]. This patient has a predominant metastasis, but obviously we did not have the opportunity to realize further tests that could confirm or deny the presence of other metastases. Indeed, we could administer 100 ml of iodine 131. But in Madagascar it is not possible to make a whole body scan because there is no high-energy collimator that would allow us to realize this scintigraphy in search for distant metastases.

Certainly, a first administration of iodine 131 will show a preferential binding on the neck level. However, metastases, even those which are well differentiated, less fix the hyoid iode131 than thyroid itself. In this case, the scalp metastasis is large and small metastases may well go unnoticed. The whole body scan after administration of iodine 131 is the only consideration and the earliest, which enables the detection of thyroid cancer metastasis [11-13]. There is no high-energy collimator in Madagascar that allows us achieving whole body scan after the administration of iodine 131. This is the only consideration in differentiated thyroid cancer which could visualize metastases attaching fasteners (Figure 3).

The presence of this large metastasis is an unfavorable prognosis. Metastases are significantly associated with decreased survival and we have not found in the literature such samples with a so large cutaneous

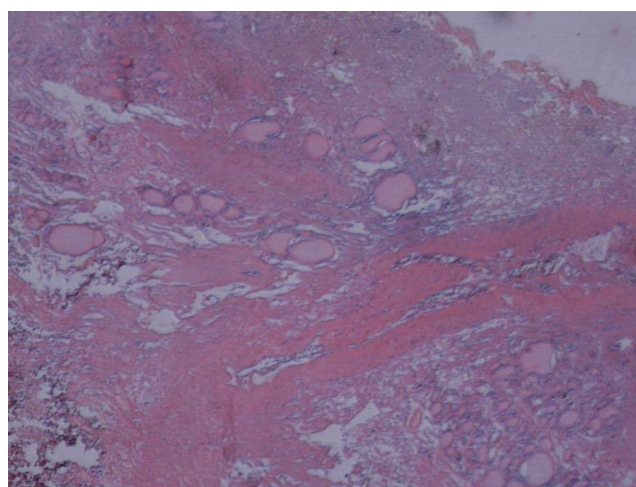


Figure 3: Histological section of a nodule of the left thyroid lobe. Image compatible with vesicular invasive cancer.

metastasis. Boumaaza relates scalp tumor which surgical resection has been complete. The literature reports less than 50 scalp tumors falling within the scope of diffuse metastatic diseases [7,9,10]. The scalp is the predilection of skin metastases and there is no gender difference (Figure 4) [11].

## Conclusion

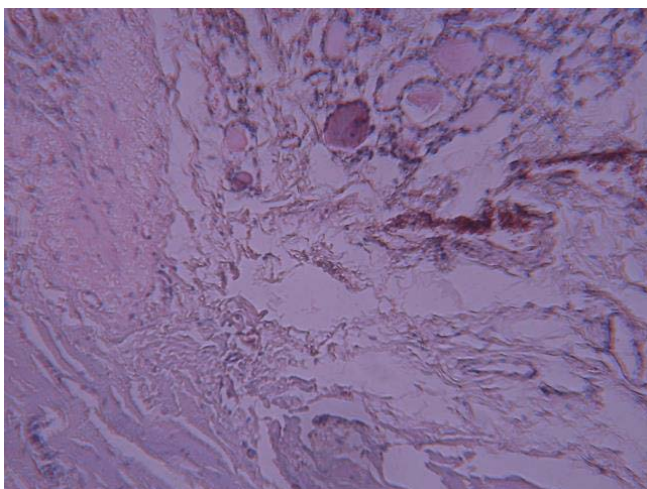
Any morphological thyroid disease should be explored with ultrasound and/or fine needle aspiration cytology. Prior exploration will guide the surgery, with total thyroidectomy or lobectomy, with lymph nodes dissection or not. The surgical specimen must be examined by pathologists. The report must be known by the attending physician. Subsequent treatment decisions depend on the anatomo-pathological description and MNT classification with for instance a therapeutic dose of iodine 131 or not.

Any administration of iodine 131 must be followed by a whole body scan. Then patients can be treated with a curbing hormonal therapy with TSH. Thyroid exploration began at the University Hospital of Antananarivo with dedicated ultrasound, fine needle aspiration and trained cytologist in a French thyroid treatment center. All medical equipment are coming from France and has already been provided by manufacturers. Madagascar is in a major poverty condition that does not allow the full support of thyroid diseases.

So we suggested a number of measures:

- The ultrasound findings are noted by a listing prepared with the team; the conclusion will respect the TI-RADS classification
- Cytology findings will be given according to the Bethesda International Classification.
- The surgeon will have to give its surgical report on a standardized plug and the pathologist will have to clearly answer to set the TpNp.

Moreover, high energy camera would be essential to achieve the full body scans after administration of iodine 131 to avoid ending up in front of metastasis as large as that of our patient, beyond any therapeutic resource, however financing is still not assured.



**Figure 4:** Histological section of the skin lesion. The image is similar to the lesion of the left lobe of the thyroid. It can be considered to have metastatic gallbladder cancer infiltrating thyroid.

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