



Scalp Metastasis from Thyroid Carcinoma 12 Years Post-thyroidectomy: Clinical and Ethical Lessons

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Authors' contributions

This work was carried out in collaboration between all authors. Author DFM wrote the first draft of the manuscript. Author MOU reported the histology slides, managed the literature searches and wrote the discussion. Author CO provided the clinical history, investigation and follow up details. Author UOI reported the immunohistochemistry and prepared the photomicrographs. All authors read and approved the final manuscript.

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Case Report

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ABSTRACT

Aim: We describe a rare presentation of thyroid carcinoma, to highlight thyroid carcinoma in the differential diagnosis of skin lesions; and emphasize the importance of efficient record keeping in patient management.

Presentation of Case: A 73 year old man who presented with an occipital scalp nodule. This solitary skin lesion was the presenting symptom of the recurrence of a thyroid tumor surgically treated 12 years earlier. All records of the initial presentation and treatment could not be retrieved. Immunohistochemistry of the scalp lesion confirmed a thyroid carcinoma. Further examination revealed nodules in the thyroid bed, liver and lung metastases. He was referred for radio iodine therapy.

Discussion: Recurrences of thyroid carcinoma are common and can occur several years after

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initial diagnosis. Our patient presented with a scalp metastasis 12 years post thyroidectomy. The non-availability of the patient's medical records makes it difficult to evaluate the management of the patient at initial presentation, and the follow up period.

Conclusion: Thyroid lesions in elderly males are more likely to be cancerous, and can recur several years after initial treatment. Proper investigation, efficient record keeping and, long term follow-up is advocated.

Keywords: Thyroid carcinoma; scalp metastasis; recurrence; medical records.

1. INTRODUCTION

Thyroid carcinoma is the most common endocrine malignancy and constitutes 1% of all thyroid tumours [1]. The presence of metastatic disease at the time of diagnosis is a poor prognostic feature [2]. Carcinomas derived from follicular epithelial cells include papillary carcinoma, follicular carcinoma, poorly differentiated carcinoma and anaplastic carcinoma. Medullary carcinomas of the thyroid are neuroendocrine neoplasms originating from the parafollicular cells of the thyroid. The most common site of metastasis is to lymph nodes in the neck. Distant metastases usually affect the liver, lungs, bone and brain [3]. Cutaneous metastasis from differentiated thyroid carcinoma is a rare manifestation, it usually points to advanced disease; and the commonest site is the scalp. When a scalp metastasis is the presenting symptom of an occult neoplasm; it may be misdiagnosed as a primary skin tumor [4]. There is a need therefore, to highlight metastatic thyroid carcinoma; in the differential diagnosis of skin lesions.

This case also shows the importance of efficient records keeping in patient care. It points out the need to change from manual record keeping in centers like ours, to Electronic record keeping; and to explore other Health Information Management options that are available elsewhere.

2. CASE REPORT

We report the case of a 73-year old man who presented at the University of Benin teaching hospital, a tertiary health facility in Edo state, Nigeria. He had an occipital scalp nodule of six months' duration. It measured 2cm x 0.6cm x 0.5cm; it was painless, non-tender and bled on minimal trauma. It was clinically assessed to be a benign skin lesion. He was otherwise asymptomatic. The scalp nodule was excised under local anesthesia using 2% xylocaine. There were no complications, the immediate

post-op period was uneventful, and the surgical wound healed well.

Histology of the scalp nodule showed a dermal lesion, with a narrow deep resection margin (\approx 1 mm). The tissue sections showed closely apposed follicular structures, lined by relatively monomorphic cuboidal epithelial cells with vesicular nuclei and minimal cytoplasm; the follicles contained eosinophilic colloid material (Figs. 1 and 2). A preliminary report of a possible metastatic thyroid carcinoma was issued with comments advising examination of the patient's thyroid and ancillary investigations. Immunohistochemistry of the excised scalp nodule done at a referral institution, showed strongly uniform cytoplasmic staining with thyroglobulin (Figs. 3 and 4); and nuclear staining with TTF-1 (Figs. 5 and 6), in the follicular epithelial cells. These features are those of a metastatic thyroid carcinoma.

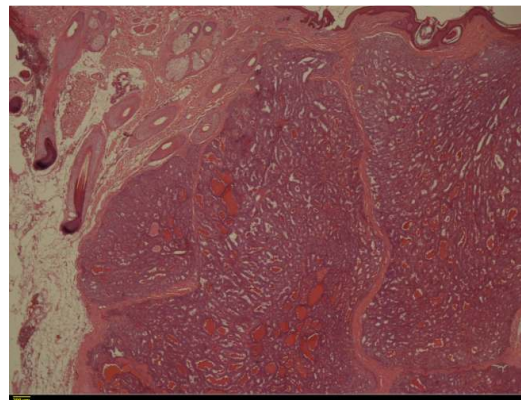


Fig. 1. Photomicrograph of scalp nodule. Hematoxylin and Eosin (x 2 objective). Thyroid follicles secreting colloid are within the dermis. Hair follicles and sebaceous glands are present in the top left corner. Epidermis is visible in the top right corner

A review of systems and past medical history revealed that the patient had undergone thyroidectomy 12 years before the present

presentation. He had been managed by a surgeon, now deceased. The patient's past hospital records could not be retrieved by the team that was presently managing. He gave a history of L-thyroxine treatment for 2 years post-surgery after which it was discontinued; the latter suggesting he had a subtotal thyroidectomy. Details of other treatment and investigations done are unclear. The report of histology done at that time is unknown to the patient. Backup record for histology done during that period are incomplete and tissue blocks could not be found. The patient believes he was managed for a benign thyroid lesion. A 'completion thyroidectomy' was to his knowledge never planned, nor done.

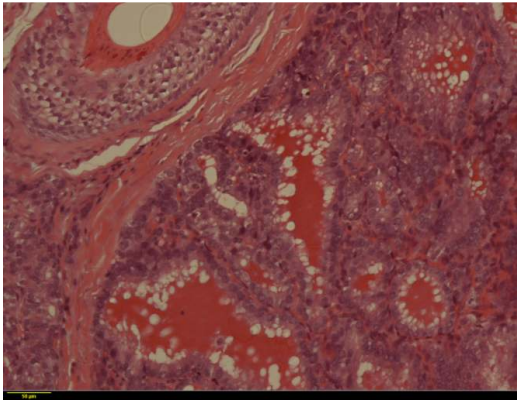


Fig. 2. Photomicrograph of scalp nodule. Hematoxylin and Eosin (x 20 objective). Thyroid follicles secreting colloid are present. Part of a hair follicle is visible in the top left corner

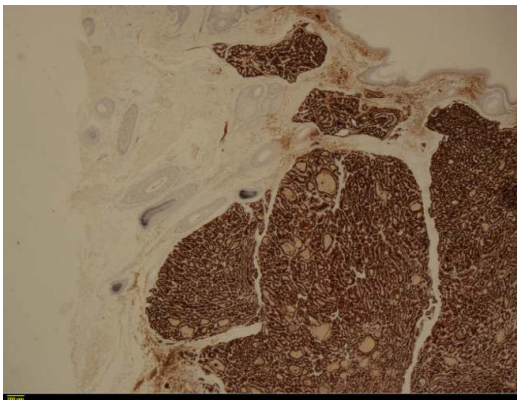


Fig. 3. Immunohistochemistry with thyroglobulin (x 2 objective) Photomicrograph showing thyroid follicles stained. Hair follicles and sebaceous glands remain unstained in the top left field

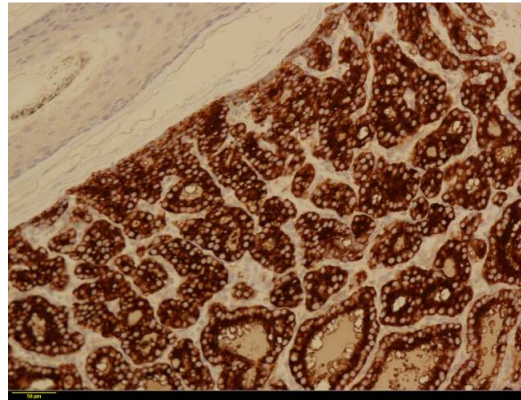


Fig. 4. Immunohistochemistry with thyroglobulin (x 20 objective) Micrograph shows dense cytoplasmic staining

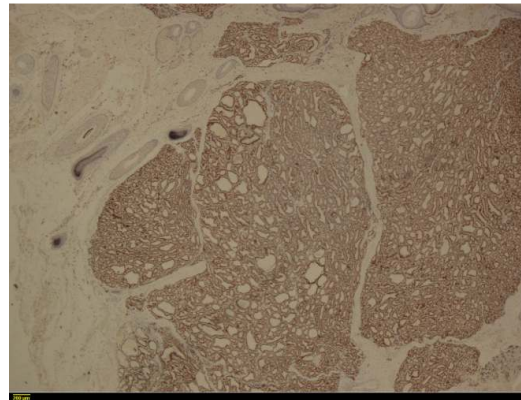


Fig. 5. Immunohistochemistry with Thyroid Transcription Factor-1 (x 2 objective)

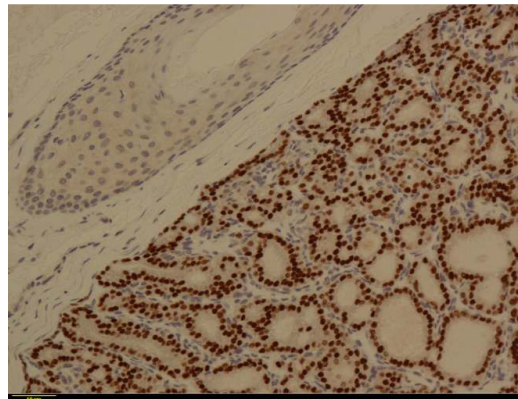


Fig. 6. Immunohistochemistry with Thyroid Transcription Factor-1 Showing strong nuclear staining(x 20 objective)

Systemic examination and investigation of the patient revealed, an ultrasound scan finding of

bilateral small nodules in the thyroid bed; and CT scan findings of metastatic lesions in both lungs and in the Liver. Triiodothyronine (T3) and Thyroxine (T4) assays were within reference limits. Thyroid Stimulating Hormone (TSH) values were elevated. He was placed on 100mcg Levothyroxine (LT4) daily. Thyroglobulin and anti-thyroglobulin antibody assays were not done. He was referred for radioiodine therapy (RAI). Patient has had two courses of RAI treatment. Scintigraphy showed radioactive iodine uptake in the thyroid, liver and lungs; confirming the presence of significant residual functioning thyroid tissue and metastases to the liver and lungs. Patient continues to attend outpatient clinic.

3. DISCUSSION

Thyroid cancer though a relatively rare form of malignancy, is the commonest endocrine malignancy. Ninety percent of these are differentiated thyroid cancers which include papillary, follicular, and hurthle cell thyroid carcinomas [5]. Others include the poorly differentiated and anaplastic thyroid carcinomas.

Cutaneous metastases from cancers in general are uncommon, varying between 2% and 9%. The incidence of various tumors that are metastatic to the skin correlates well with the frequency of occurrence of the primary malignant tumor in each gender [6-8]. Besides melanomas, the commonest cancers metastasizing to the skin in women are breast; large intestinal; ovarian and lung cancers. While in men, lung, large intestinal, oral cavity, gastric and renal cancers are the commonest [9]. Cutaneous metastases from thyroid carcinoma are uncommon, and occur usually in the setting of disseminated neoplastic disease. In 1997 Dahl et al. found a total of 43 cases reported in literature. Papillary thyroid carcinoma (PTC) was the most common histologic type representing 41% of cases of cutaneous metastases [6]. Koller et al. [10] in 1998, however reported that follicular thyroid carcinoma (FTC) has a higher propensity for cutaneous metastasis. Both reports identify the scalp as the commonest site of cutaneous metastasis. More recently in 2014, Arslan and Arslan reviewed all reported cases of scalp metastases from thyroid carcinoma. They found that the most common histologic type was follicular carcinoma (46%), followed by papillary thyroid carcinoma (35%) [4].

Skin metastasis can very rarely be the presenting feature of thyroid malignancy. It can then easily

be mistaken for a primary skin lesion. A high index of suspicion and use of immunohistochemistry may be needed to make a definitive diagnosis. Antibodies against the thyroid transcription factor (TTF-1) and thyroglobulin are helpful. TTF-1 positivity limits the origin of the lesion to the lungs or thyroid, while thyroglobulin expression is specific for cells of thyroid follicular origin [11,12].

Recurrence of differentiated thyroid carcinoma after initial surgery can occur in up to 30% of cases, and most times it does not change the generally good prognosis [13,14]. Recurrence may be treated with surgery and/or radioactive iodine. Early recurrences of papillary or follicular thyroid carcinoma, especially those occurring within a year of surgery, have poor prognosis; late recurrences have a better prognosis and can occur as late as 20 or more years, after initial diagnosis and treatment [13,15]. According to Lin JD et al. at 10 years follow up, 85% of patients with late recurrences were still alive; compared to 52.5% of those with early recurrence [13].

Our patient presented with a scalp metastasis, 12 years post thyroidectomy. Histology of the lesion shows a differentiated thyroid carcinoma. The histology, tumour stage and treatment history of patient at initial presentation 12 years prior to present presentation, is unknown due to unavailability of past records. However, male gender and advanced age are recognized risk factors. Tumor size, radioactive iodine treatment, multifocality, node metastasis, distant metastases, extra thyroid extension; and extranodal extension are other parameters useful for risk stratification. Mortality and the risk of recurrence or persistence of disease vary amongst high, intermediate and low risk groups. Patients therefore need to be managed and followed-up accordingly [14,16].

Medical records are an important part of patient management. The loss of previous medical records was a challenge to the management of this patient. Manual record keeping is what is practiced in most Nigerian hospitals, and it is still the norm in our center. Challenges associated with manual record keeping include the need for large storage space, and difficulties in record retrieval. Records are often missing, misplaced, or incomplete; or sometimes perhaps, accidentally destroyed. Our hospital lacks a purpose built archive for old case files, which are removed from active areas after 10 years. These are never destroyed but are stored in the hospital

records library. When the library is full, they are stored in another dedicated space that lacks a proper filing system. This means retrieval is difficult and at times, near impossible. The preservation of these records is also not optimal. The building of an archive for old records, and conversion to electronic records has been proposed. The process of converting to electronic record keeping started since 2013, but is neither complete nor fully functional, though sections of the hospital like the pathology department; have of recent successfully introduced computerized recording, combined with manual back up of all test results/reports issued. Also, recent major renovations, rebuilding, and reorganizing of the pathology department in the last 7-8 years, has improved tissue block and slide preservation; archiving; record keeping and retrieval of results; and therefore, service delivery to patients. However, records or archival material predating this period may be incomplete.

In more developed economies medical record keeping is mostly in electronic format (Electronic Health Records) despite the obvious challenges to maintenance of confidentiality. It requires less space, is easily updated and reduces the number of lost records. Another option that is being explored is Patient-held records or personal health records. It could be in electronic or hand written format. This is not totally new and has been practiced in different parts of the world including Nigeria. There may be considerable benefits in giving patients their records, as studies show that, patients hardly lose their records [17]. Different types of patient held records have been the subject of research in different countries. They include full case-notes; shortened case-notes; pocket-sized summaries; wallet-sized summaries and smart cards (credit card sized medical records) [18,19]. Hopefully these will become widely used in Nigeria in the not too distant future.

4. CONCLUSION

We describe a case of metastasis of thyroid carcinoma to the scalp 12 years after thyroidectomy in an elderly male. The loss of medical records, make it difficult to ascertain if a diagnosis of thyroid carcinoma was established at initial presentation. It is most likely however that the scalp metastasis is the evidence of recurrence of a previous lesion rather than the presenting symptom of a new tumor arising de-novo in the remnant thyroid; since it is known

that thyroid lesions in elderly males tend to be cancerous, and can recur several years after initial treatment.

The case is an unusual presentation of thyroid carcinoma, and highlights thyroid carcinoma in the differential diagnosis of skin lesions. The importance of efficient record keeping and long term follow up is also emphasized.

CONSENT

All authors declare that written informed consent was obtained from the patient for publication of this paper and accompanying images.

ETHICAL APPROVAL

All authors hereby declare that this manuscript has been examined and approved by the ethics committee of the hospital and this case is reported in accordance with laid down ethical standards.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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