Rare malignant tumors of the scalp: a report of four cases, their treatment and a review of the literature

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Abstract. – Background and Objectives: Malignant tumors occurring in the scalp are not common and when asymptomatic or small in size, may be covered by hair and neglected by the patient, leading to a potential risk of delay in detection and resulting in poorer outcomes.

Materials and Methods: In our Departments in the last five years more than 200 malignant tumors of the scalp have been operated on. In this article we take into consideration four rare malignant tumours of the scalp taken from this study: a giant recurrent sebaceous carcinoma, a lung cancer metastatic lesion, a malignant melanoma and a breast cancer metastasis.

Results: The four patients with rare malignant tumours have been operated with good results.

Discussion: These four cases represent an important lesson for the plastic surgeon to learn: in the case of the presence of unusual, ulcerated/pigmented lesion of the scalp or in the case of alopecia we must consider the possibility of a tumour.

Key Words:
Tumors of scalp, Scalp malignancies.

Introduction

Malignant tumors occurring in the scalp are not common and when asymptomatic or small in size, may be covered by hair and neglected by patients, leading to a potential risk of delay in detection and therefore poorer results. Approximately 2% of epithelial tumors of the skin are located on the scalp. A study by Chiu et al revealed that tumours of the skin, like basal cell or squamous cell carcinoma were the most frequent types in both male and female patients, accounting for more than 50% of scalp malignancies. The same Author has showed in the same group that metastatic tumours ranked second with 12.8%. Among other malignant scalp tumours, those of skin appendages (10,1%) (follicular, sebaceous, eccrine and apocrine differentiation), tumours of soft tissue (angiosarcoma, dermatofibrosarcoma protuberans, leiomyosarcoma) and lymphoma were less frequent. In our Departments in the last five years more than 200 malignant tumors of the scalp have been operated. In this article we report four rare cases of this study group: a giant recurrent sebaceous carcinoma, a malignant melanoma, a lung cancer metastatic lesion and a breast cancer metastasis.

Patients and Methods

The first case was a 65-year-old white woman with a 8×10 cm neoplasm of the posterior scalp (Figure 1). Her history dated back to the age of 53 when she was noticed to have a subcutaneous nodule on the posterior scalp and for that reason a surgical excision was performed in a different hospital. Pathology report revealed a “Pilar tumour”. The patient was well for approximately 3 years, when she noticed to have during the same year other two lesions with an irregular shape near the scar of the original tumor and subsequently underwent a surgical excision with the same pathology report of “Pilar tumor”. After two years, she noticed to have a new mass, but she had no further medical consultations and thus it has grown to the present condition.
Figure 1. A 65-year-old white woman with a 8×10 cm sebaceous carcinoma of the posterior scalp.

On physical examination, the mass appeared from red to brown in colour, pigmented, partially ulcerated and bleeding and she lamented a rapid increase in size associated with pain in the last year. The tumor was fixed to the underlying skull. Lymph nodes of the suboccipital region and left upper cervical region were not palpable bilaterally. The patient had no history of cutaneous sebaceous neoplasms or any adenocarcinomas of other organs.

After written informed consent was obtained from the patient, a preoperative CT angiography (angio-CT) and MR angiography (angio-MR) study was performed for surgical planning in order to assess a potential bone involvement (Figure 2 a,b,c).

A wide excision of the scalp tumor and a small resection of the underlying bone was performed under general anesthesia. Free margins were obtained. Reconstruction of the defect was done with a rotation skin flap and skin grafts.

The second case was a 72-year-old man with a scalp lesion of unknown duration. On examination, the lesion was elevated and not very pigmented with a diameter of 7 cm. The lesion had been often treated with criotherapy and taking into consideration the difficulty of diagnosis a punch biopsy has been performed that revealed a nodular melanoma. Lymph nodes were palpated in the left neck, and a complete metastatic workup, including CT scan of the skull, revealed neither distant metastasis nor skull penetration of the tumor. The patient was treated by wide excision, reconstruction by rotation of skin flap and skin grafting along with a therapeutic modified neck dissection, and adjuvant chemotherapy.

The other two patients, one female and a male, presented an alopecia of the scalp and a non pigmented elevated lesion. A histological diagnosis was made by a punch biopsy and revealed a breast and a lung metastases (Figure 3 a,b,c,d). Both the patients were treated with wide excision and reconstruction by local flaps and skin graft.

Results

All the patients had no complication connected to surgery. Local recurrences have not been observed after two years in the patients with se-
baceous carcinoma and in those ones with breast and lung metastases. After one year, the patient with melanoma came back with lung metastasis and died after six months. Both the patient with breast and lung metastases died after two years because of their primary tumors.

Discussion

To our knowledge, there is no large systematic study of malignant tumor of the scalp in European/Caucasian patients where as reports do exist about group studies of Asian patients\(^1,5\). However, among malignant scalp tumours, basal cell or squamous cell carcinoma were the most frequent types in both male and female patients, accounting for more than 50% of scalp malignancies while metastatic tumours ranked second.

In this article we reported four rare cases out of our study group of 200 scalp tumours: a giant recurrent sebaceous carcinoma, a malignant melanoma, a lung cancer metastatic lesion and a breast cancer metastasis.

Sebaceous carcinoma (SC) is a rare tumor from the adnexal epithelium of the sebaceous glands in the skin in which severe nuclear atypia with frequent mitoses are usually observed. It may arise anywhere on the body, where these glands exist, but approximately 75% of sebaceous carcinomas arise in the periocular region\(^6,12,13\) an area characterized by various types of sebaceous glands, such as meibomian glands or glands of Zeis\(^13,14\).

Among extraocular sebaceous carcinomas, most of them occur in the head and neck region\(^15,19\). The SC is often associated with Muir-Torre syndrome, a genetic condition presenting with sebaceous skin tumors associated with internal malignancy, as variant of hereditary nonpolyposis colon cancer (Lynch syndrome)\(^21,24\). Approximately 25% of all reported cases SC are extraocular. Some authors reported SC arises in external\(^25,27\) and internal genitalia\(^28\), feet\(^29\), trunk and arms\(^30,31\) hands\(^32\), legs\(^33\), breast\(^34,35\), oral cavity\(^36,37\) and nose\(^38,39\), but most of them occur in the head and neck region\(^15,20\). Sometimes it can arise on a nevus sebaceous\(^40,41\).

Diagnosis may be difficult, given the low incidence and inconsistencies in histopathologic classification. Recently, needle aspiration cytologic characteristics have been delineated, with this process it becomes increasingly useful to establish the diagnosis.

It has been suggested that extraocular lesion may have a better prognosis than peri-ocular sebaceous carcinoma\(^44,45\), but a review study results
of Dasgupta\textsuperscript{46} supporting the finding of a predominance of men among patients with sebaceous carcinoma, and no difference in the prognosis for orbital and periorbital involvement and also established that Asian/Pacific Islander ancestry is not a risk factor for developing this kind of tumor.

Melanoma of the scalp is a special clinical entity needing specific identification and management and it has a well-known malignancy.

This is especially evident for melanoma of the head and neck where survival variability exists among the anatomic subsites. For example, patients with melanoma of the scalp consistently have lower 5-year survival rates than those with lesion on the face.

Breast cancer was the primary malignancy in 84\% of patients with neoplastic alopecia. Other primary tumors whose metastases presented neoplasms-related hair loss occurred in also individuals with gastric carcinoma, colon carcinoma, cervical carcinoma and trophoblasti tumor\textsuperscript{47}.

These four cases represent an important lesson for the surgeon to learn: in the case of the presence of unusual, pigmented lesion of the scalp or in the case of alopecia we must consider the possibility of a tumor. However, although the most frequent kind of scalp tumor is basocellular or squamocellular, it is possible for the surgeon to encounter rare cancer like SC, melanoma or metastatic lesions. In these cases in order to have the right diagnoses we suggest a biopsy and others instrumental exams, like CT, to evaluate whether the bone is involved. Furthermore, a precocious diagnosis does evidently assure a better prognosis.

\textbf{References}


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