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Impasse in the management of recurrent basal cell carcinoma of the skull with sagittal sinus erosion

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ABSTRACT

Basal cell carcinoma (BCC) is a non melanocytic skin cancer that arises from basal cells, affecting commonly fair-skinned human beings. Although the tumor is well known for local recurrences, extension into the intracranial space is reported. A case of a giant BCC of the scalp invading the middle and posterior third of the superior sagittal sinus (SSS) is reported. A 70-year-old male with a basal cell carcinoma history presented with a massive bleeding from the SSS invaded by the tumor. Since the patient refused surgery the bleeding was managed through direct compression by applying a thrombin-based hemostatic agents and sterile dressings. This procedure was performed daily in order to stimulate the spontaneous thrombosis of the dural sinus and development of collateral circle. BCC invading the SSS is rarely reported. A technical description of this case is provided. This case underscores the importance of early and appropriate treatment for high risk BCC, and whenever surgical procedure is not suitable appropriate conservative treatment may be efficacious.

1. Introduction

Basal cell carcinoma (BCC) is the most common malignancy in Caucasian people, with a reported incidence of 1–2% per year. More than 1 million cases of non-melanoma skin cancer (basal or squamous cell) occur in the United States every year and the incidence of BCC increases by approximately 5% annually [1]. These lesions affect mainly the head and neck region because of the high cumulative chronic ultraviolet light exposure. Common predisposing conditions include lightly pigmented skin, family history of skin cancer and immunodeficiency conditions. These tumors generally give ulcerative lesions with indurated margins on the skin and tend to be slow-growing and indolent. However they can be locally invasive if left untreated for a long period of time [2]. Malignant skin cancer of the scalp with skull invasion, dural infiltration and brain involvement is an uncommon lesion. Such an occurrence can be encountered in patients with underestimated scalp lesions and the prognosis is poor [3]. We report a case of a massive infiltration of the SSS by a skin cancer managed conservatively.

2. Case report

2.1. History and physical

A 70-year-old male was initially referred to the Department of Plastic Surgery of our University in 2003 for the excision of a histopathologically-confirmed basal cell carcinoma of the parieto-occipital region. The lesion was operated several times since recurrences were observed over 10 years. Post-operative radiation therapy was performed with a total dose of 40 Gy delivered in 20 fractions over a period of 48 days. At once the patient was reluctant in attending the follow-up examinations and the lesion significantly enlarged and eroded the skull. The patient was finally referred to our Neurosurgical Unit in 2014. At admission the clinical examination revealed a large, exophytic, irregular bordered and ulcerated tumor, extending bilaterally over the parieto-occipital area of the scalp (Fig. 1).

Brain CT and MRI examinations were scheduled. While the patient was undergoing contrast-enhanced brain CT scan a massive venous bleeding through the skin lesion from the SSS occurred. A surgical procedure was attempted in order to stop the bleeding. A mechanical hemostasis was performed through compression by applying a thrombin-based hemostatic agent (Floseal®Haemostatic Matrix and Vivostat® autologous fibrin glue) to the bleeding site until the hemorrhage was stopped. TachoSil® slices were placed along the borders of the ulcerated area, and a medication with several sterile dressings was performed. The neurological examination was unremarkable.

Abbreviations: BCC, Basal cell carcinoma; MRI, Magnetic resonance imaging; CT, Computed tomography.

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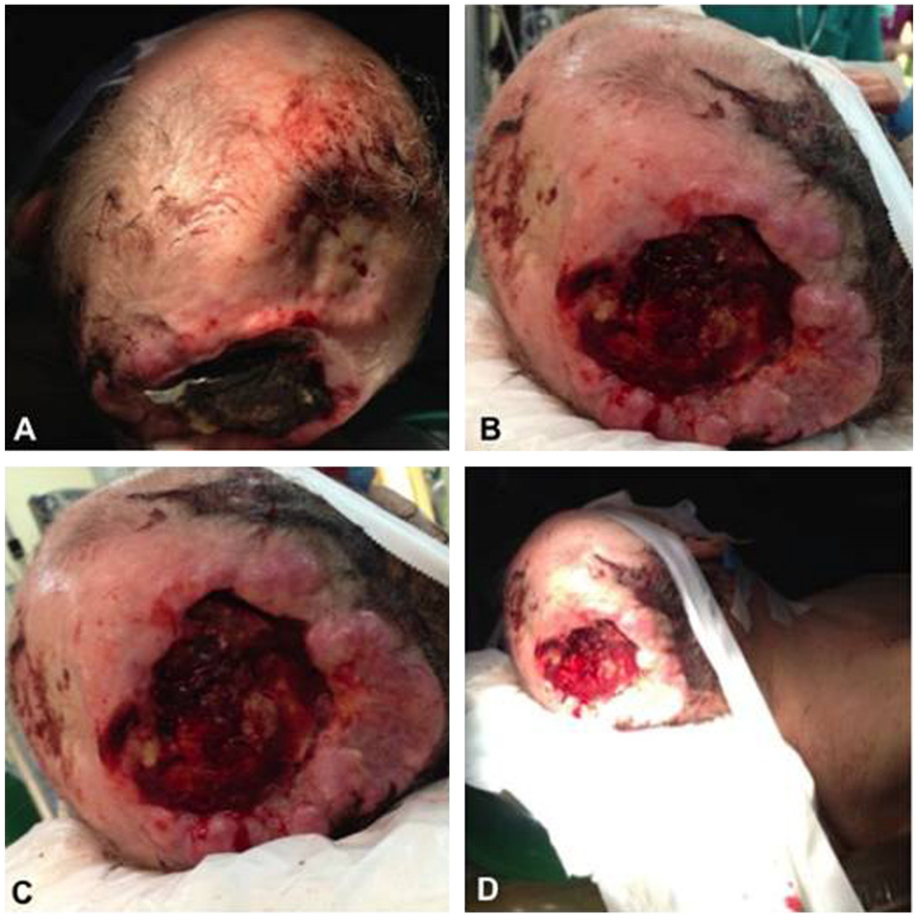

Fig. 1. A, The large crater-like soft tissue defect, covered by sterile dressings. Anteriorly to this lesion, a scar with a skin minus is depicted, represented by the previously treated parietal cutaneous malignant lesion. B–D, After the dressing is totally removed, the crater-like soft tissue defect is depicted surrounded by the exophytic mass of the malignant cutaneous lesion.

2.2. Neuroradiological investigations

Following general stabilization, a contrast-enhanced CT scan of the brain and angio-CT demonstrated an intracranial extension of the tumor on both sides of the falx cerebri affecting the SSS (Figs. 2 and 3). MRI showed an extensive extra-intradural lesion straddling the midline (Fig. 4). There was a bone destruction affecting the inner table with neoplastic tissue infiltrating the posterior and middle third of the SSS which was, however, not fully patent, but not already closed.

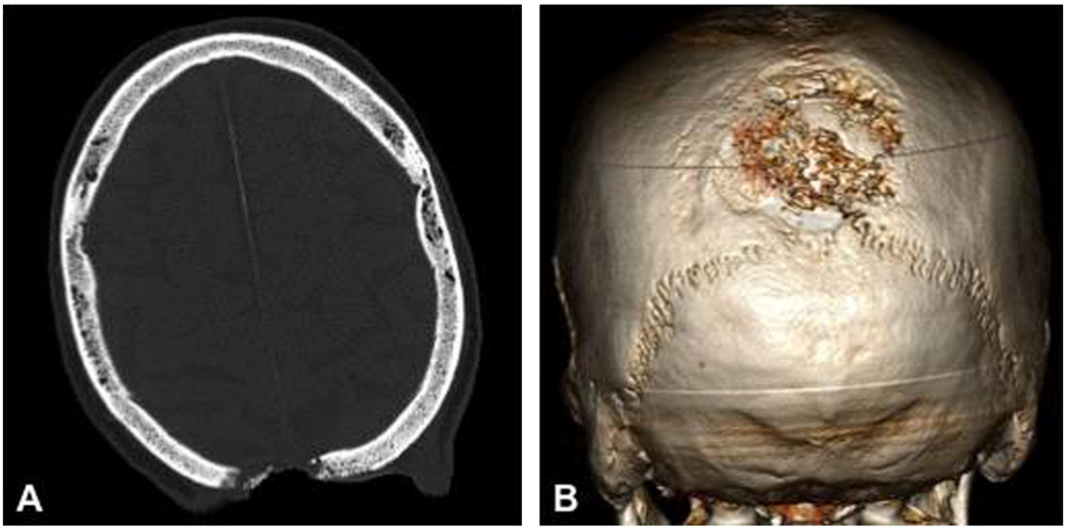

Fig. 2. A, Pre-operative CT scan showing the bone defect in the middle parieto-occipital region. B, 3-dimensional CT scan depicting the bone defect over the vertex.