Ulcerative fugating lesion on scalp

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CLINICAL FINDINGS

A 75-year-old patient with a history of type-2 diabetes mellitus, hypertension and hyperthyroidism presented to our dermatology OPD with the complaint of a large painful mass on her scalp over the last year. It initially started as a small lesion, then gradually progressed to the present size (5x6cm) within 3 months time. However, evidently it was neglected for much longer. Her past medical history included a total thyroidectomy due to thyroid carcinoma and now she was receiving regular sessions of radiotherapy. On examination, a solitary fungating ulcerated, mostly necrotic, offensive smelling, firm exophytic tumor, measuring about 5x6 cm in size with an everted margins that had developed over vertex area of the skull attached to the underlying structures (Fig. 1, 2). There was no evidence of regional lymphadenopathy or hepatomegaly. Systemic examination was within normal limits. Patients' routine laboratory and radiological investigations including CBC, CPR, blood sugar, hepatic and renal profile revealed no abnormal findings. Serology for hepatitis B and C and human immunodeficiency virus were non reactive. A computed tomography (CT) scan without contrast of the head showed a large, superficial mass with dimensions more than 5 cm with a raised summit of approximately 1 cm but no intracranial extension. There was no evidence of mass effect, hemorrhage, or infarction. A metastatic workup was performed as well, CT scan of the soft tissue of the neck, chest and abdomen detected no distant metastases.

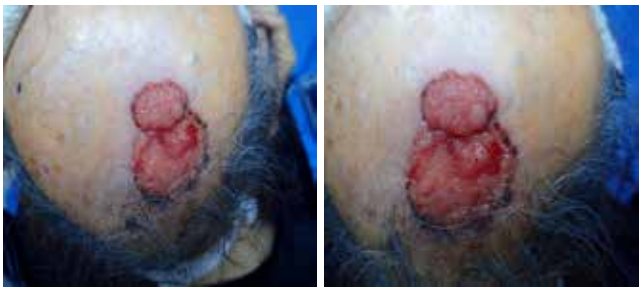

Fig. 1, 2 Fungatinig & ulcerative indurated lesions on scalp

What is the clinical diagnosis?

Squamous Cell Carcinoma
Basosquamous carcinoma
Bowen disease

An incisional skin biopsy revealed infiltrating, none keratinized non differentiated, ulcerated squamous cell carcinoma (SCC). The tumor cells were described as large with irregular, atypical, hyperchromatic nuclei with prominent nucleoli. There was dense lymphohistiocytic infiltrate within the dermis, and it extended till ulcerated epidermis (Fig. 3, 4).

FINAL DIAGNOSIS

Squamous Cell Carcinoma

DISCUSSION

Squamous cell carcinoma (SCC) constitutes more than 90% of all head and neck cancers. SCC is the second most common cutaneous malignancy after

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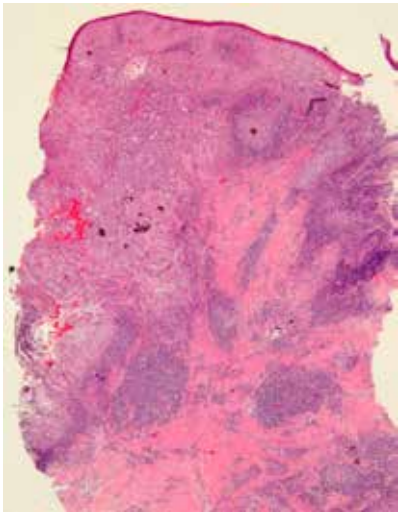

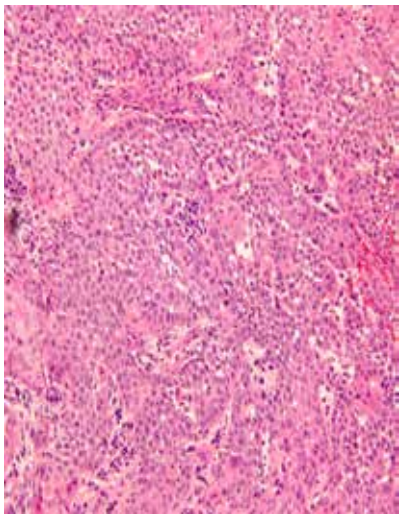

Fig. 3, 4 Atypical hyperchromatic and acantholytic keratinocytes extending from epidermis to dermis. There is associated foci of stromal invasion. Stroma showed exuberant mixed infilammatory cellular reaction that extended to overlying epithelium.

basal cell carcinoma, with an increasing incidence worldwide.[1] Although, many factors can increase the risk for SCC, long-term ultraviolet (UV) and ionizing radiation exposure, are of greatest importance.[2] In addition, immunosuppressed patients are susceptible to sun-induced malignancy and metastasis. The presentation of face and scalp SCC is often a chronic, nonhealing wound due to a tendency towards ulceration and necrosis.[3]

Invasive SCC is often ulcerated and can be patchy, papulonodular, papillomatous, or exophytic. The depth of invasion is an important prognostic factor. In one retrospective investigation, dural involvement decreased 3-year survival from 83% to 22%. Eisen et al,[4] observed that survival rates did not improve after surgical management of patients' dural extension. When the dura or brain parenchyma is affected, advanced scalp cancer is frequently considered inoperable. A neurosurgeon's involvement is required to evaluate safe and appropriate resection margins without creating unacceptable damage.[5]

In the case of giant scalp tumors (diameter >5 cm), CT or magnetic resonance imaging (MRI) may be required to accurately assess the extent of the tumor and the possible presence of lymphatic spread.[6]

Our patient was in her seventh decade, diabetic, hypertensive with a long history of goiter. She had a solitary protruding ulcerated, mostly necrotic, firm exophytic tumor, measuring about 5×6 cm in size that had developed over vertex area of the scalp, attached to the underlying structures in the last 1 year. She had a past medical history of a total thyroidectomy due to thyroid carcinoma and now she was receiving regular sessions of radiotherapy which may have been a strong factor for her cutaneous malignancy. Our clinical differential diagnoses mainly included SCC, basosquamous carcinoma and In-situ SCC (Bowen disease).

Although histopathology remains the gold standard for the diagnosis of SCC, some non invasive optical technologies such as dermoscopy and RCM have recently been applied in an attempt to enhance the accuracy of clinical diagnosis and to obtain an in vivo characterization of the tumor.[7]

There are Multiple subtypes of SCC. These subtypes differ histologically as well as prognostically. Cutaneous SCC originates from keratinocytes in the spinous layer of the epidermis. The most common form, or conventional type, has atypical keratinocytes invading the dermis.

In addition, mitotic figures, hyperchromism, and pleomorphic nuclei are seen. Keratin pearl formation and intercellular bridging is common. This group of tumors can also be separated into well, moderately, and poorly differentiated forms.[8] The spindle cell variant is uncommon and occurs in UV damaged areas.[9] These tumors appear as ulcerated nodules or exophytic lesions and have a tendency toward perineural spread. Furthermore, the spindle cell variant has a lack of differentiation and can behave aggressively, while those not associated with radiation can be more indolent.[9] Immunohistochemistry shows vimentin, cytokeratin, and epithelial membrane antigen positivity.[10] The verrucous variant of SCC is a rare, low-grade disease presenting as a slowly enlarging, fungating lesion. The pushing nature of the lower epithelium as broad projections into the dermis distinguishes this well-differentiated lesion.[9]

Desmoplastic SCC is an aggressive variant characterized by an invasive clinical course and poor prognosis. These patients have 10 times the risk of local recurrence and 6 times the risk of metastasis compared to other tumors.[11] The tumor has a pronounced stromal component with frequent perineural invasion and keratin pearls.[9] Most cases are found on the ears, nose, and forehead.[11]

Surgery is the treatment of choice and the most effective means of achieving cure of any invasive SCC, as it allows confirmation of the tumor type, stage, and examination of the tumor-free status of the resection margin. Complete surgical excision provides very high rates of local control with cure rates of 95%.[6] A multidisciplinary approach including a neurosurgeon and a plastic surgeon is often times necessary to ensure safe tumor extirpation and adequate reconstruction.

Conventional excision must ensure complete removal and therefore include a margin of clinically normal-appearing skin around the tumor and surrounding erythema. Clinical margins can be assessed prior to surgery by imaging techniques which decrease the rates of incomplete excision and affected margins. NCCN guidelines recommend 4-6-mm clinical margins for standard excision of low-risk SCC.[6,12] Whereas, Moh's surgery is recommended in high-risk SCC, SCC in immunocompromised patients, or "special-site SCC" such as head and neck, where tissue conservation is important.[13]

Non surgical local treatments may be explored if surgical therapy is neither possible nor desired.[2] Photodynamic therapy (a 2-step method consisting of topical application of a photosensitizer, either 5-aminolevulinic acid or methyl aminolevulinate, followed by 1 to several hours of incubation by light irradiation) or topical therapy with imiquimod or 5-fluorouracil can be used for in situ or low-risk SCC. These treatments not only treat the tumor, but they also have an impact on the cancerization field if used in a greater region.

Non surgical ablative techniques are also tolerated in some circumstances where surgery is either not feasible or is contraindicated such as, laser ablation (CO_2, erbium), electrocoagulation, and cryosurgery. However, because these techniques lack histological margin control, the recurrence risk of SCC is greater.[14] Primary local radiation can also be employed in cases when other treatments are either contraindicated or impractical.

In our case, we decided to remove the tumor with a 1 cm margin, and the affected skull was burred. A big occipital rotation flap was used to cover the resulting scalp deformity. A split skin graft obtained from the back was used to cover the donor location. The patient was advised to follow up with the oncology department to receive chemotherapy.

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