Clear cell variant of squamous cell carcinoma of skin: A report of a case

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ABSTRACT
Clear cell squamous cell carcinoma (SCC) is a rare variant of SCC of skin in which ultraviolet radiation has been suggested as possible etiology. This case is that of a 62-year-old male concrete block maker/bricklayer who presented with a 6 months history of a non-healing ulcer on the left side of his face. Histology showed features of malignant epithelial neoplasm composed of islands of large oval to polyhedral malignant squamous cells with eosinophilic to amphophilic cytoplasm and vesicular nuclei and there were areas showing clear cell differentiation and isolated areas of keratin pearl formation. The lesion was also negative for periodic acid schiff, mucicarmine, and alcian blue stains but was strongly positive for AE1/AE3 (immuno-stain). This case showed an aggressive and bizarre clinical presentation but more report of cases are needed to have a better characterization of the clinical presentation and prognosis of this variant of SCC.

Key words: Clear cell, skin, squamous cell carcinoma

INTRODUCTION
Squamous cell carcinoma (SCC) is the second most frequent form of skin cancer superseded in occurrence only by basal cell carcinoma and it is commonly seen in elderly white men. Like basal cell carcinoma, SCC is predisposed for by excessive ultraviolet light exposure, hence, its association with advancing age and cumulative sun exposure, exposed anatomic sites and the highest incidence in sunny geographic localities. Several histological subtypes of SCC have been described including, keratoacanthoma, acantholytic, spindle cell, verrucous, clear cell, papillary, signet ring, pigmented, and desmoplastic SCC.

Clear cell SCC is a rare entity and only a total of six cases were previously reported as at 2006. We present a case of clear cell SCC of skin with an exophytic mass on the face in order to add to the scarce literature of this rare variant of SCC.

CASE REPORT
A case of a 62-year-old male, a concrete block maker/bricklayer who presented at the Dental Centre, University College Hospital, Ibadan on account of a non-healing ulcer on the left side of his face of 6 months duration. The lesion was said to have started as a small firm painless swelling in the left infra-orbital region, which gradually increased in size until 3 months later when it became ulcerated with associated pain and purulent discharge. Physical examination revealed a cachectic and pale elderly man with an obvious facial asymmetry due to a fleshy exophytic mass on the left side of the face. The patient was not a known diabetic or hypertensive and had no other known systemic disease. There was no history of tobacco or alcohol use and he was not being treated for any chronic condition. The mass measured about 16 cm in its widest diameter and extends from the left supra-orbital region to the left maxillary area and also to the left temporal area about 1 cm anterior to the left auricle. The mass caused a deviation of the lateral wall of the left nostril to the right, though clinically the nasal wall did not appear infiltrated by the tumor. It also extended superiorly such that the left eye globe could not be visualized [Figure 1].

The exophytic mass had a necrotic central area which was covered with slough tissue. There was impaired mouth opening; the left buccal sulcus was fully obliterated by the tumor mass but the palate appeared clinically normal.

Fine needle aspiration cytology suggested a malignant epithelial neoplasm possibly a salivary gland malignancy or a skin adnexia malignant tumor. Following incisional biopsy, sections showed a malignant epithelial neoplasm composed of islands of large oval to polyhedral malignant squamous cells with eosinophilic to amphophilic cytoplasm and vesicular nuclei
with some of the nuclei peripherally placed. There were areas showing clear cell differentiation of the malignant squamous cells with some cells arranged in a pseudo-glandular pattern and isolated areas showing keratin pearl formation [Figure 2]. Overall features were suggestive of a clear cell variant of SCC of the skin. Figure 3 shows lesion to be negative for periodic acid schiff (PAS), mucicarmine and alcian blue stains but was strongly positive for AE1/AE3 (immunostain).

DISCUSSION

Clear cell carcinoma also referred to as hydropic SCC was first described by Kuo[4] in 1980 as a variant of SCC with extensive hydropic changes. The hydropic degeneration of neoplastic cells and the accumulation of intracellular fluid and not the accumulation of glycogen, lipid, or mucin, results in its clear cell appearance.[4] All cases reported so far have been in the head and neck region with the mandible being the most common site and all including the present case occurred in men who work out doors.

The clear cell variant of SCC is histologically similar to sebaceous neoplasms but distinguishing features include evidence of squamous differentiation in clear cell SCC which was seen in this case.[1] Other differential diagnosis include clear cell acanthoma, clear cell hidradenoma, clear cell hidradenocarcinoma, tricholemmoma, pilar tumor, balloon cell nevus, balloon cell melanoma, and metastatic renal cell carcinoma. The clear cells of clear cell acanthoma, clear cell hidradenoma, clear cell hidradenocarcinoma, tricholemmoma, pilar tumor all have a high content of cytoplasmic glycogen,[4] which was absent in this case as demonstrated by negative staining with PAS, mucicarmine, and alcian blue.

Clear cell acanthoma is confined to the epidermis. Clear cell hidradenoma is an adnexal tumor which in addition to clear cells also has granular cells that surround sweat duct-like structures and a hyalinized stroma. Clear cell hidradenocarcinoma is histologically similar to clear cell hidradenoma with malignant features. Tricholemmoma is a superficial, lobular tumor growing around hair follicles with central clear cells and palisading peripheral cells.[4]

Pilar tumors may show focal or extensive clear-cell change and usually show glassy keratinization. Balloon cell nevus and balloon cell melanoma show nests of melanocytes at the dermo-epidermal junction. Metastatic renal cell carcinoma has rich vasculature and will show clinical evidence of a renal tumor.[4]

Although, the etiology of clear cell SCC is not completely understood, immune-suppression, arsenic exposure, radiation, chronic ulceration, have been suggested as possible etiologic factors.[1] All the previously reported cases occurred in white elderly men that work out doors suggesting a role for ultra violet radiation.[4] This is supported by this case which also occurred in elderly man who works out doors (Bricklayer), though as far as we know this is the first reported case in a dark-
skinned adult. Cohen et al.,[5] had previously reported two cases of clear cell carcinoma in-situ in a married couple in which human papilloma virus (type 5 in the husband and type 21 in the wife) was positive in both spouses which suggested that contact transmission may be responsible, however, the validity of this factor in the present case cannot be commented on.

The clinical presentation of this case appears to be quite aggressive as the lesion which started as an ulcer became a large exophytic mass after 6 months. It was reported that four of six previously reported cases had rapid growth. This patient deferred from further treatment, so the prognosis could not be ascertained. More report of cases is required to characterize the clinical behavior and prognosis of this rare variant of SCC.

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