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Commentary

The Malignant Adnexa - Trichoblastic Carcinoma

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Preface

Cutaneous adnexal neoplasia are engendered by morphological differentiation and maturation of primary adnexal structures arising within hair follicles, sebaceous glands, apocrine glands and eccrine glands. Amidst cutaneous adnexal tumours, trichoblastic carcinoma is an exceptional follicular neoplasm arising on account of malignant metamorphoses of a trichoblastoma. Trichoblastic carcinoma was initially scripted by Headington and French in 1962 and was designated as a primary neoplasm arising from the hair matrix [1].

Disease characteristics

Trichoblastoma appears as a gradually evolving mass from various sites. Trichoblastic carcinoma is an exceptional neoplasm engendered from a malignant conversion of trichoblastoma, which primarily arises from cutaneous adnexal structures. Similarly, an untreated trichoblastoma can undergo malignant transformation into a trichoblastic carcinoma. Incipient trichoblastoma can depict frequent reoccurrences although remains devoid of distant metastasis [2].

Although the neoplasm can appear as a condition of obscure aetiology, a trichoblastic carcinoma usually emerges in younger subjects, in contrast to lesions of basal cell carcinoma. In comparison to adjunctive cutaneous carcinomas, trichoblastic carcinoma usually arise upon the non-exposed cutaneous surfaces [2].

Trichoblastoma is generally represented in adults within 40 years to 90 years, demonstrates an equivalent gender predisposition and preponderantly arises upon the face, scalp or various sites such as forearm, inferior trunk and thigh. Locations such as the nuchal region can be implicated at birth. Occasionally, the tumefaction can delineate itching or haemorrhage. Although exceptionally cogitated, trichoblastic carcinoma can exemplify distant metastasis with consequent demise of incriminated individual [2,3].

Regular monitoring is required in subjects enunciating a trichoblastoma on account of possible malignant transformation.

Clinical elucidation

Primary lesion of trichoblastoma can exemplify as a painless, gradually evolving nodule with transformation into an enlarged, inflamed, painful mass consequent to the occurrence of malignant metamorphoses. Trichoblastic carcinoma commonly appears as a solitary, enlarged, inadequately circumscribed, asymmetrical dermal or subcutaneous nodule [3,4].

Trichoblastic carcinoma can display localized tissue infiltration with concurrent or subsequent, widespread tumour metastasis within the lymphatic and vascular systems [3,4].

Histological elucidation

Morphological examination reveals a cutaneous adnexal neoplasm originating from and demonstrating hair follicular differentiation. Specific lesions can demonstrate minimal malignant potential and infiltration of base of the lesion. Trichoblastic carcinoma as an infrequently delineated hair follicle tumour is contemplated to arise from follicular germinative cells. The malignant neoplasm subsequently invades the dermal tissue or subcutaneous adipose tissue [3,4].

Histological findings demonstrate aggregates and dispersion of atypical basaloid keratinocytes with accompanying, crowded hyperchromatic nuclei and enhanced mitotic activity. A significantly hyper-cellular stroma assists the demarcation of trichoblastic carcinoma from basal cell carcinoma [4].

Differential diagnosis

Morphology of trichoblastic carcinoma aids the differentiation of the neoplasm from adjunctive cutaneous malignancies with identical clinical presentations. Essentially, conditions such as the benign counterpart trichoblastoma, trichilemmal carcinoma, pilomatrix carcinoma and basal cell carcinoma require a segregation from trichoblastic carcinoma [4,5].

Histological features of trichoblastic carcinoma simulate the morphology of basal cell carcinoma. An appropriate diagnosis is crucial as the metastatic potential of a basal cell carcinoma is exceptional whereas trichoblastic carcinoma is aggressive and can engender mortality of incriminated individuals [5].

Investigative assay

Ultrasound guided fine needle aspiration can be performed. Lymph nodes draining the tumefaction zone can be palpable. Preoperative magnetic resonance imaging (MRI) of the neck or implicated site can reveal a lobulated, soft tissue lesion confined within the superficial fascia while infiltrating circumscribing skeletal muscles.

Positron emission computerized tomography (PET CT) can depict hyper-metabolic nodules of a magnitude of few centimetres generally situated within the subcutaneous layer of specific, incriminated sites and usually an absence of distant metastasis [5,6].

Magnetic resonance imaging (MRI) and positron emission computerized tomography (PET-CT) performed following competent therapy can demonstrate an absence of a palpable, remnant mass and the neoplasm is devoid of localized reoccurrence and distant metastasis.

A cogent, cutaneous tissue sample is a recommended, distinctive methodology for arriving at a diagnosis of trichoblastic carcinoma. Ideally, the tumefaction in its entirety is necessitated for a definitive histological examination [5,6].

Therapeutic options

Surgical eradication of the neoplasm is the preferred treatment modality. Reoccurrences of the mass appearing upon similar locations can be managed by successive surgical exterminations. Following a surgical resection of trichoblastic carcinoma, tumour reoccurrence situated upon the original site with an enhanced metastatic potential can be subsequently enunciated. A comprehensive surgical eradication of the lesion along with resection a broad perimeter of normal, uninvolved tissue is a recommended therapeutic modality. Moh's micrographic surgery can be employed to ensure superior clearance of the tumour margin. Currently, optimal magnitude of excisable border of normal tissue encompassing the neoplasm lacks consensus [7,8].

Following extensive surgical excision, a cogent histological examination is mandatory. Trichoblastic carcinoma requires a distinctly defined surgical resection margin for alleviation of the condition.

Although a standardized treatment option remains to be established, majority of instances are amenable to a comprehensive surgical excision, akin to recommended management of adjunctive cutaneous malignancies [7,8].

Localized or systemic metastasis can be alleviated with the adoption of chemotherapy or radiotherapy, the details of which are yet to be denominated. Additionally, radiotherapy and/or chemotherapy is beneficial for managing distant metastasis and aggressive tumours with localized infiltration [7,8].

Reconstruction of the surgical site with an adequately placed tissue flap can be employed. Reconstructive surgery with concurrent necrosis of a partial flap can be managed with debridement and positioning of a split thickness skin graft.

Prognostic outcomes in subjects afflicted with trichoblastic carcinoma can be inferior, especially with instances of malignant conversion of long-standing, pre-emptive, benign trichoblastoma and with immune compromised subjects [7,8].

Trichoblastic carcinoma as an exceptional skin adenocarcinoma is described as a challenge of achieving a definitive diagnosis and employing competent therapeutic protocols [8].

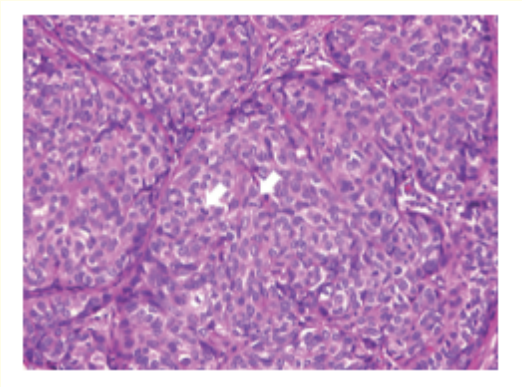

Figure 1: *Trichoblastic carcinoma demonstrating accumulation of atypical keratinocytes with crowded hyperchromatic nuclei and mitotic figures [9].*

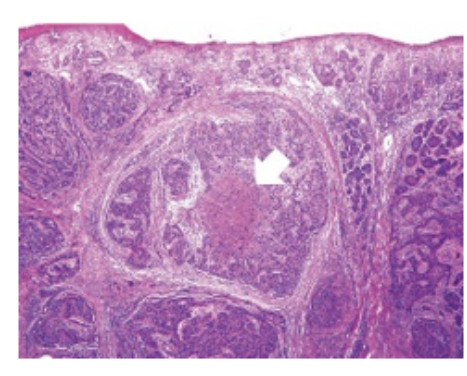

Figure 2: *Trichoblastic carcinoma with cellular aggregates of atypical keratinocytes with hyperchromatic nuclei and divisions into lobules by fibrous tissue septa [10].*

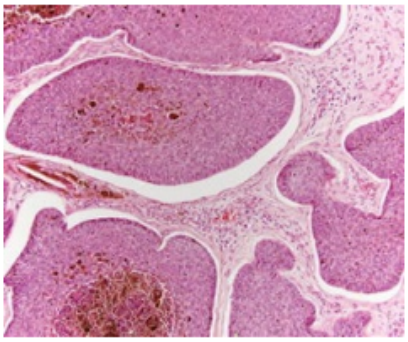

Figure 3: *Trichoblastic carcinoma with nests and aggregates of atypical keratinocytes with frequent mitosis and surrounding fibrous tissue stroma [11].*

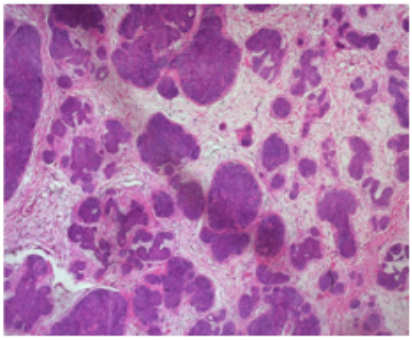

Figure 4: *Trichoblastic carcinoma with disseminated and loose clusters of atypical keratinocytes with hyperchromatic nuclei and prominent anisocytosis [12].*

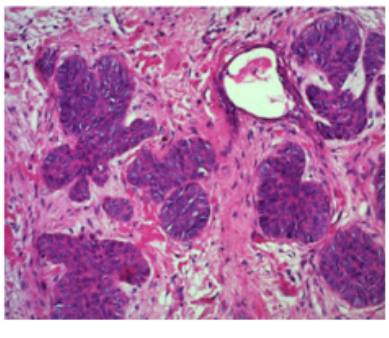

Figure 5: *Trichoblastic carcinoma with aggregates and nests of atypical keratinocytes with prominent mitosis, hyperchromasia and an enveloping fibrous tissue stroma [12].*

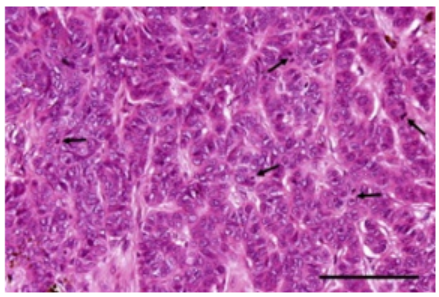

Figure 6: *Trichoblastic carcinoma with cords and dissemination of atypical keratinocytes and significant mitotic figures along with foci of hyperchromatic cells [13].*

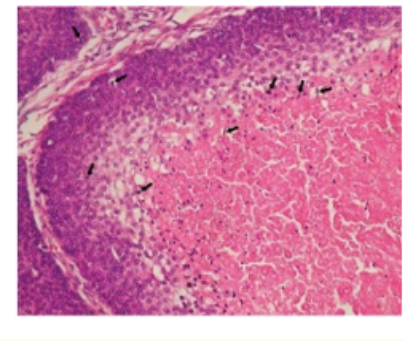

Figure 7: *Trichoblastic carcinoma with foci of atypical keratinocytes, mitosis and necrotic tissue surrounded by fibrous tissue stroma [14].*

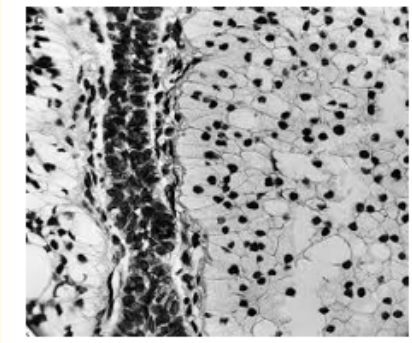

Figure 8: *Trichoblastic carcinoma aggregates and nests of atypical keratinocytes, nuclear hyperchromasia and encompassing fibrous tissue stroma [15].*

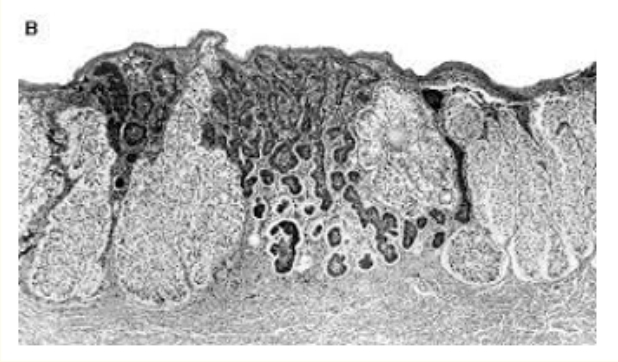

Figure 9: *Trichoblastic carcinoma with aggregates of locally invasive, malignant keratinocytes surrounded by a fibrous tissue stroma [15].*

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14. Image 7 Courtesy: *Archives of Craniofacial Surgery*.

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