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GCC Cancer Awareness Week adopted by AMAAC as Arab Cancer Awareness Week

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Case Report

Is cutaneous leishmaniasis a risk factor for basal cell carcinoma?

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Abstract

Background

Basal cell carcinoma (BCC) is the most common epithelial neoplasm of skin. Risk factors for the development of BCC include intermittent intense sun exposure, radiation therapy, family history of BCC, immune suppression and fair complexion, especially red hair. It can originate in scars like small pox, vaccination, chicken pox or surgical scars.

Objective and Conclusion

We present a case of basal cell carcinoma arising in a leishmania scar on the nose, sixty years after the primary lesion. Although rare, BCC’s have arisen in leishmania scars. Thus the possibility of basal cell carcinoma should be considered while dealing with such patients. Even though a causal relationship, if any, cannot be ascertained at present.

Keywords

basal cell carcinoma, cutaneous leishmaniasis, scar

Introduction

Basal cell carcinoma (BCC) is the most common epithelial neoplasm of skin. Risk factors for the development of BCC include intermittent intense sun exposure, radiation therapy, family history of BCC, immune suppression and fair complexion, especially red hair. Chronic exposure to arsenic and chronic ulcers predispose patients to the development of BCC. It may arise from small pox vaccination, chicken pox scars, previous surgical scars, burn scars or chronic ulcers. The pathogenesis of malignancy in chronic ulcers is poorly understood. It has been postulated that the decreased vascularity and elasticity, decreased resistance to infection and the atrophy of adnexal structures in areas of scarring may render the affected tissues more sensitive to the effects of ultraviolet irradiation and other exogenous carcinogens. Pathologically, the tumor is composed of islands of basaloid tumor cells budding from the epidermis or within the dermis with variable atypia.

Case Report

A 71-year-old retired male known to have diabetes mellitus, hypertension, atrial fibrillation and bilateral dilated cardiomyopathy presented to the dermatology clinic with an asymptomatic lesion over the nasal dorsum for 5 years arising in a leishmaniasis scar that healed spontaneously around 60 years ago.

Figure 1: Pigmented, scalloped, atrophic and indurated plaque of 2x1.5 cm, arising within an old scar.

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Skin examination revealed a pigmented, scalloped, atrophic and indurated plaque of 2x1.5 cm, arising in the middle of an old scar. The surrounding tissue was scarred with hypo and hyper pigmentation and telangiectasia (Fig 1). Skin biopsy confirmed the diagnosis of pigmented BCC of micro nodular type (Fig. 2 a, b). The patient was offered surgical excision but he declined and was treated with radiotherapy. He came 11 months later with recurrence, for which he underwent excision with full thickness skin graft (from supra-clavicular area). Unfortunately he died 5 months later with congestive heart failure.

Discussion

The development of malignant neoplasm at sites of previous dermal scars is an uncommon but well-recognized phenomenon. The concurrent exposure to sunlight in areas of atrophic skin may act as the triggering event in the induction of the malignant transformation. A recent review by Kopterides P et al supported the concept of increased chances of malignancies in scars of leishmaniasis. They have postulated a scenario of compromised cancer immuno-surveillance in the leishmaniasis scars which is based on the findings that leishmaniasis adversely affects the activation and function of macrophages and dendritic cells. It has also been postulated that an underlying infection or chronic inflammatory disease generates an inflammatory microenvironment, rich in cytokines and chemokines, enhancing the growth and survival of genetically transformed cancer cells that arise within this environment.

The hypothesis that leishmaniasis may be associated with neoplastic changes is supported by a small number of illustrative cases. For example, Morsy et al reported the case of a 13-year-old boy who was diagnosed with cutaneous leishmaniasis by microscopic examination and culture of his skin lesions; moderate to marked dysplasia was also present in the cutaneous leishmaniasis lesions. Yavuzer et al reported the presence of a large number of atypical mitotic features and diffuse lymphoid infiltrate of predominantly B-lymphocytes, surrounded by a population of CD3+, CD4+ T-lymphocytes, in the excision biopsy material from a patient with a cutaneous leishmaniasis lesion. Mangoud et al reported that dysplasia was detected in the basal skin layer surrounding the leishmanial ulcer in 5 of 35 cutaneous leishmaniasis cases studied, whilst in these specimens the incidence of cells in the S-phase fraction of the cell cycle was higher and expression of p53 protein was found to be positive.

Reviewing the English literature revealed only six cases of the occurrence of BCC and leishmaniasis at the same site are reported either concurrently or subsequently with a time range of 3 to 40 years after the leishmaniasis infection as shown in Table 1. Besides BCC, other types of malignancies are also reported to occur at the sites of leishmaniasis.

<table>
<thead>
<tr>
<th>Studies</th>
<th>Date reported</th>
<th>Site</th>
<th>Age</th>
<th>Gender</th>
<th>Period between cutaneous leishmaniasis and appearance of BCC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suter and Ronnen</td>
<td>1988</td>
<td>Nose</td>
<td>53</td>
<td>Male</td>
<td>3 years</td>
</tr>
<tr>
<td>Mercy, Manghoud and Abeghayer</td>
<td>1992</td>
<td>Cheek</td>
<td>17</td>
<td>Male</td>
<td>Appeared at the same time</td>
</tr>
<tr>
<td>Rayatt et al.</td>
<td>2010</td>
<td>Nose</td>
<td>61</td>
<td>Female</td>
<td>NP</td>
</tr>
<tr>
<td>Mercy TA, Ena TM, Ramadan NF</td>
<td>2012</td>
<td>Cheek</td>
<td>50</td>
<td>Female</td>
<td>NP</td>
</tr>
<tr>
<td>Gurel, Isil, Ulaceli, Dwingu</td>
<td>2015</td>
<td>Cheek</td>
<td>50</td>
<td>Male</td>
<td>46 years</td>
</tr>
<tr>
<td>Ursu, Albus and Saman</td>
<td>2017</td>
<td>Nose</td>
<td>60</td>
<td>Female</td>
<td>35 years</td>
</tr>
</tbody>
</table>

Table 1: Pertinent facts of the cases collected from the literature review
previous leishmaniasis scars including SCC, epidermoid carcinoma, and leukemia cutis.

**Conclusion**

The scarcity of the reported cases of BCC’s arising in leishmaniasis scars suggest that these are either under reported, unrecognized or the association is merely coincidental keeping in view the high incidence of both of these diseases. Although rare, BCC’s have arisen in leishmania scars and deserve a careful thought to look for any causal relationship, besides considering this possibility while dealing with such patients.

**References**