

Basal Cell Carcinoma Developing Within A Smallpox Vaccination Scar

ÇİÇEK AŞISI SKARI İÇİNDE GELİŞEN BAZAL HÜCRELİ KARSİNOMA

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SUMMARY

Malignant skin tumors including basal cell carcinomas developing in vaccination scars are relatively rare. A 70-year-old white woman with basal cell carcinoma occurring in a smallpox vaccination scar is presented with a review of the relevant literature. The necessity of thorough evaluation of any change in vaccination scars is emphasized.

Key Words: Basal cell carcinoma, Vaccination scar

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ÖZET

Bazal hücreli karsinomalar da dahil olmak üzere malign deri tümörlerinin aşı skarlarında gelişimi oldukça nadirdir. Çiçek aşısı skarında bazal hücreli karsinoma oluşan 70 yaşındaki kadın hasta sunulmakta ve ilgili literatür gözden geçirilmektedir. Aşı skarlarındaki her türlü değişimin ayrıntılı bir biçimde incelenmesinin gerekliliği vurgulanmaktadır.

Anahtar Kelimeler: Bazal hücreli karsinoma, Aşı skarı

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Basal cell carcinoma (BCC) accounts for more than 85% of nonmelanoma skin cancers with the majority of tumors occurring on the sun-exposed skin of the head and neck (1). The development of BCC's at sites of previous dermal scars including burn scars (2), a leishmania scar (3), chicken pox scars (4), BCG (5,6) and smallpox vaccination scars (7-15), is an uncommon but well-recognized phenomenon.

To our knowledge less than thirty five reports of BCC's arising in smallpox vaccination scars have been reported in the literature (7-15).

CASE REPORT

A 70-year-old white woman presented with a 1cm erythematous, scaly plaque on the left upper arm which completely replaced a previous smallpox vaccination scar (Figure 1). She had been vaccinated against smallpox at the age of 6. The scar from the vaccination had been asymptomatic until a year ago,

when she first noticed a pink, scaly pruritic area on the scar. She was in good health without history of radiation, contact with chemical carcinogens, arsenic ingestion or family history of skin cancer. Four months prior to admission, a skin cancer was excised from her right lateral canthus. She was light-skinned and has been living in Texas which is near the equator. She had experienced several severe sunburns on the trunk as a child.

Histopathologic examination of the lesion revealed superficial basal cell carcinoma. There were multifocal buds and irregular proliferation of basaloid tumor islands attached to the basal layer, with peripheral palisading and, in some areas, stromal retraction. Subadjacent dermal fibrosis consistent with a remote scar was present (Figure 2).

The tumor was excised and closed in a layered fashion. At the same time, another biopsy proven BCC on her chest was also removed.

DISCUSSION

Malignant tumors arising in smallpox vaccination sites are relatively rare (13). Among these, BCC's predominate in incidence. Squamous cell carcinomas (SCC's), melanomas (9,10) and one malignant fibrous histiocytoma (16) have also been reported.

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Fig. 1. Basal cell carcinoma replacing vaccination scar. 1 cm, erythematous scaly plaque on the upper left arm.



Fig. 2. Superficial basal cell carcinoma with subadjacent scar (Hematoxylin & Eosin 10x).

Review of the literature of BCC's arising in vaccination scars shows a male predominance in elderly patients (7,9-12). Sun exposure history, clinical evidence of excessive sun exposure, and skin cancers in areas other than the scar site have been mentioned in only some cases (7,9-11). Although the period of time between vaccination and the development of BCC is highly variable, there is a long latent period in the majority of patients (8-10,14). Our case has similar clinical features with those already reported in the literature.

Malignant changes in smallpox vaccination scars have tempted some authors to speculate about the etiologic role of vaccinia virus (6). On rare occasions,

vaccinia virus may be harbored for many years at the vaccination site in immunosuppressed patients (17). However, neither the presence of this virus nor its relation to the development of BCC's has been proven in the reported cases. Thus, the possible role of vaccinia virus acting as a carcinogen or co-carcinogen in malignant transformation remains speculative (9,14).

Scar tissue in general is known to predispose to malignant degeneration. It has been postulated that the decreased vascularity and atrophy of adnexal structures in scars may render the tissues more sensitive to the effects of ultraviolet (UV) radiation and other exogenous carcinogens (2,3). Obviously it is not possible to know with certainty the amount of solar exposure at a vaccination scar site; but clinical evidence and/or history of excessive sun exposure in previous reports, (7,9,10,12) and in our case, may support the role of UV in this process. Thus, we may postulate that the process of vaccination itself somehow renders the inoculated site susceptible to malignant change (12) and subsequent solar exposure of the vaccination scar tissue may further contribute to the development of malignant skin tumors.

In this report, we reconfirm the occurrence of BCC in a vaccination scar. It is apparent that additional reports are needed to conclude whether this relationship is actual or coincidental. However, any change within a vaccination scar should be carefully investigated and whenever the diagnosis is doubtful, biopsy is recommended.

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