A Case of Axillary Adenoid Basal Cell Carcinoma

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Basal cell carcinoma (BCC) is the most common skin cancer with a steadily increasing incidence. Ultraviolet radiation is considered the single most important risk factor for BCC, because the tumor occurs most frequently in sun-exposed areas of the body, with approximately four of five BCCs occurring on the face. BCC occurs infrequently in non-sun-exposed skin. The axilla is one of the most sun-protected areas of the body, and BCC arising at this site is very rare. We herein report a case of adenoid BCC which arose from the axilla in a 33-year-old woman. (*Ann Dermatol* (Seoul) 20(1) 22~25, 2008)

Key Words: Adenoid basal cell carcinoma, Axilla, Young adult

INTRODUCTION

Basal cell carcinoma (BCC) is the most common skin cancer, occurring more frequently than malignancies of any other tissue or organ with a steadily increasing incidence^{1,2}. Ultraviolet radiation is considered the single most important risk factor for BCC. Additional risk factors include exposure to arsenic, coal tar derivatives, irradiation, scars, burn sites, chronic inflammation, ulcers, and immune deficiency¹.

BCC arises commonly on sun-exposed sites such as the head and neck and occurs infrequently on non-sun-exposed sites such as the axilla, buttock, groin, penis, scrotum, vulva, breast, and nipple^{3,4}. Among these, the occurrence of BCC in the axilla is extremely rare⁴, and to date, only 5 cases have been reported in Koreans⁵⁻⁷ (Table 1). BCC can be classified histologically into nodulocystic (nodular), mixed, infiltrative, superficial, micronodular, adenoid, metatypical, morpheaform and fibroepithelioma type². The occurrence of adenoid BCC is

relatively low compared to the nodulocystic BCC, which is the most common type of BCC². We herein report a rare case of adenoid basal cell carcinoma in the axilla in a 33-year-old woman.

CASE REPORT

A 33-year-old woman presented with a 7-month history of a solitary, well-demarcated, erythematous nodule with brown to black colored crust in the left axilla. The size increased after the patient gave stimulus to the lesion by squeezing it with her hands. There was no previous personal history of skin cancer and no other significant cutaneous or medical history was elicited. Notably she had no history of trauma, chronic axillary inflammation, immune deficiency, or exposure to artificial ionizing radiation or arsenic. There was no family history of skin cancer or other skin disease. On examination, the left axillary vault revealed a solitary, asymptomatic, erythematous nodule with brown to black colored crust measuring 1.0 × 0.8 × 1.5 cm (Fig. 1). No lymphadenopathy was appreciated. Laboratory studies including a complete blood cell count, blood chemistry, VDRL, urinalysis, chest X-ray and electrocardiogram were within normal limits or negative. Histopathologic examination showed proliferation of basaloid cells that extended into the dermis with a cyst-like enlarged structure (Fig. 2A). Peripheral

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Table 1. Summary of clinical features of basal cell carcinoma of the axilla in Koreans

Author (Yr)	Age/Sex	Duration	Skin lesion	Histopathologic type	Treatment
Choi et al ⁵ (2006)	85/M	—	Brownish nodule with ulcer	Nodular	Excision
	62/M	1 year	Erythematous nodule with ulcer	Nodular	Excision
	35/M	5 years	Purplish papule with ulcer	Nodular	Excision
Woo et al ⁶ (2006)	65/F	5 years	Brownish-black plaque	Nodular	Excision
Lee et al ⁷ (2007)	67/M	1 year	Pigmented plaque	—	Excision
Present case (2007)	33/F	7 months	Brownish-black nodule	Adenoid	Excision

Fig. 1. (A) Localized, tender, 1.0 × 0.8 × 0.5 cm-sized, brownish-black nodule in the axilla. (B) Close-up view of the skin lesion.

Fig. 2. (A) Atypical cell mass shows infiltration dermis with cyst-like enlarged structure (H&E, × 100). (B) In the center of the cyst-like enlarged structure, there are many basaloid cells with dark-staining nuclei and little cytoplasm (H&E, × 200).

palisading was prominent in many of the cellular aggregates. In the center of the cyst-like enlarged structure, the basaloid cells showed slightly enlarged, hyperchromatic nuclei and scanty amphophilic cytoplasm (Fig. 2B), and atypical cells stained negative for PAS. On immunohistochemical analysis, atypical cells stained negative for CEA, EMA and vimentin.

Based on the results of laboratory and histopathological findings, this case was diagnosed as an adenoid basal cell carcinoma. A surgical excision was performed that removed the entire lesion and no recurrence was noted.

DISCUSSION

Basal cell carcinoma (BCC) is the most common skin cancer derived from basaloid epithelia located in the follicular bulges, in the anagen hair bulbs and the follicular matrix cells, and in specific basaloid cells of the interfollicular epidermis¹. Recently, the occurrence of BCC has increased. This is because the elderly population has increased due to the extension of the average life span, improved standard of living and changes in environment and lifestyle have increased exposure to sunlight, industrialization has contributed to the destruction of the ozone layer, exposure to harmful substances has increased, and improved awareness of patients have lead to more frequent visits to the hospital².

BCC most commonly occurs in sun-exposed sites such as the face and neck, where 80-90% of BCCs occur. Ten to fifteen percent of BCCs occur in non-sun-exposed sites and usually occur in the axilla, buttock, groin, penis, scrotum, vulva, breast and nipple^{3,6,8}. Among these, the occurrence of BCC in the axilla is extremely rare⁴, and to date, only 5 cases have been reported in Korean patients⁵⁻⁷ (Table 1). BCC can be classified histologically into nodulocystic (35.4%), mixed (30.1%), infiltrative (9.3%), superficial (6.7%), micronodular (6.2%), adenoid (5.9%), metatypical (4.0%), morpheaform (2.1%), and fibroepithelioma types (0.3%)². The occurrence of adenoid BCC is rare, and relatively low compared to the nodulocystic BCC, which is the most common type of BCC². Among the 5 cases of BCC in the axilla reported in Korean patients⁵⁻⁷, there were no other such cases of adenoid BCC.

Ultraviolet radiation is considered the single most important risk factor for BCC, and arsenic, coal tar derivatives, irradiation, scars, burn sites, chronic inflammation, ulcer and immune deficiency are also associated with the occurrence of BCC¹. The genodermatoses that enhance the risk of BCC include xeroderma pigmentosa, Rasmussen syndrome, Rombo syndrome, Bazex-Christol-Dupré syndrome, albinism and Darier's disease. These syndromes variably either decrease epidermal pigmentation and thus increase the risk of UV light-induced oncogenic transformation or promote genotypic instability in the dermis^{1,3}. In this case, none of these risk factors or genodermatoses were found.

Although ultraviolet radiation is thought to be the primary risk factor in development of BCC, the precise relationship is not as clear as with squamous cell carcinoma (SCC). For example SCC occurs most commonly in highly sun-exposed areas on the dorsal hands and forearms, forehead, superficial pinna, and lower lip. SCC also correlates with chronic, cumulative ultraviolet radiation exposure. In contrast, BCC is less likely to arise on the dorsal hands and it occurs more commonly in sun-protected areas than SCC⁴.

Several theories explaining why BCC occurs at sun-protected sites have been proposed. Gibson and Ahmed⁹ reported 51 cases of perianal and genital BCC. They reported no association with human papillomavirus and suggested that local trauma and advancing age may contribute to the development of BCC at these sites. In this case, given the fact that the size of the lesion increased after the patient gave stimulus to it, it is thought that the development of BCC can be associated with trauma. Heckmann et al¹⁰ proposed that areas with high facial BCC frequency despite low UV exposure, such as the medial quadrant of the orbit, are characterized by a concave shape, a reduced skin tension, and the presence of marked skin folds. They suggest that the disturbed cell matrix interactions found at these sites may be a cofactor for developing BCCs. LeSueur et al.⁴ proposed that non-sun-exposed sites, including the axilla, might share these same characteristics.

Location, size, histologic tumor type and treatment strategies are important factors in the recurrence of BCC. Lesions that developed a long time ago, that occur in the center of the face or the ear, that exceed 2 cm in size, that have a history

of therapeutic management and that are histologically infiltrative, micronodular and morpheaform have a high risk of recurrence². As a therapeutic method, Mohs micrographic surgery is known to be most effective^{1,2,5,11}. However surgical excision is preferred because of the good prognosis of the disease and the fact that Mohs micrographic surgery is complicated and time-consuming. In this case, the lesion was removed by surgical excision, and no evidence of recurrence has been found during the follow-up visits until now.

Because the axilla is a site that is less likely to be monitored by the patient, there is the potential for delay in diagnosis and treatment, increasing the possibility of more extensive surgery and recurrence. This report highlights the importance of performing a complete cutaneous examination including sun-protected sites. This is especially important for patients with a history of skin cancer or those with other potential risk factors^{4,5}.

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