Two Cases of Giant Congenital Cutaneous Hamartoma: Nevus Sebaceus of Jadassohn and Congenital Melanocytic Nevus

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Abstract

During the normal development of skin, pluripotential cells give rise to keratinocytes, sebaceous glands, hair follicles, apocrine glands and eccrine glands. A hamartoma, or an abnormal mixture of a tissue’s normal components, results from an error in development, among which some show malignant potential. We report two Chinese cases of giant congenital cutaneous hamartoma, a nevus sebaceus of Jadassohn in a male and a congenital melanocytic nevus in a girl, which appear to be more extensive than any previously reported case.

INTRODUCTION

Congenital lesions of the skin and soft tissue represent a group of birthmarks that include congenital melanocytic nevi, sebaceous nevi, and various other skin lesions. A cutaneous hamartoma is a developmental abnormality of the skin, commonly seen at birth or in childhood, in which there is an excess of one or more mature, or nearly mature, tissue structures normally found on that site. Most hamartomas are isolated, sporadic malformations, and rare cases have familial history pointing to a genetic basis. Some arise from a postzygotic mutation in the embryo that leads to somatic mosaicism. Others are manifestations of well-defined genetic disorders such as tuberous sclerosis. Most cases were reported in Western populations. This report described two Chinese patients with giant congenital cutaneous hamartomas.

CASE PRESENTATION

Case 1

A 12-year old Chinese girl presented to the outpatient clinic with her father, stating increasing pain on her buttock covered by a giant blackish plaque (Figure 1). Initially, the lesion was flat since birth and gradually it became thicker, itchy and sunlight sensitive. Gradually, thick, black, long hairs developed in the lesion. At the age of 7 years, she developed multiple nodules in the lesion, which gradually increased in size and numbers over the last six years to attain the present condition. Her general physical examination and systemic examination including musculoskeletal and neurological examination was within normal limits. No mutations in \textit{BRAF} and \textit{NRAS} were found (data not shown). Cutaneous examination found a large, blackish, thick plaque, covering over two-third of the trunk spreading to the bilateral upper arms, thighs and left shank, indicating Bathing Trunk nevus. The plaque was covered with thick, 5-8 cm in length hairs with a varying intensity of pigmentation, more markedly over the thighs. A number of multiple, blackish papules and plaques measuring from 3 mm to 4 cm in diameter, distributed over the forearms, face, upper chest and legs on the rest of the body. Multiple firm and dark brown nodules measuring 0.3 to 0.6 cm in diameter were present over the thigh and back.

Figure 1 Giant congenital melanocytic nevion the lower abdomen, whole back, buttocks and bilateral thighs and upper arms noted at birth. Black hairs grow on the pigmented lesions, particularly on thighs. Satellite lesions are seen.
Varying degree of ulceration was present on the buttock and back, with complication of pain and discomfort. The growth of nevi onto the expose place, especially on face, was the patient big esthetic concern.

**Case 2**

A 32-year-old Chinese male was referred to the dermatology clinic for large tumors of the scalp which had developed in pre-existing small birthmarks at birth but recently grown rather rapidly (Figure 2). The patient had no history of developmental problem or seizures, and a complete review of systems yielded negative results. No family history and mutations in *FGFR3* and *PIK3CA* were found. At birth, slightly verrucous, yellowish, hairless papules were noted on the scalp. In early childhood, these tumors became well-circumscribed, flat, waxy yellow-tan or yellow-orange. During puberty, the patient developed another rapidly enlarging brown skin lesion on the right side of face, which was surgically removed before presentation. Three years ago, the original scalp dermatosis enlarged, and became elevated, verrucous, and nodular. The growing lesions were increasingly pruritic and caused the patient considerable emotional distress.

Clinical examination showed three large multilobulated, verrucous plaques, covered by numerous small nodules or cysts, respectively 3 -9 cm in diameter, on the scalp. Lesions formed extensive, elevated, and circumscribed nodules with soft, yellowish, velvety surface. The front lobe spread onto the forehead and right upper eyelid. Eight small nodules, 1-4 mm in diameter, aggregated at the edge of excised lesion on the right side of face. No hairs grew on the area of dermatosis. This finding was consistent with nevus sebaceous. The patient was recommended of face. No hairs grew on the area of dermatosis. This finding was consistent with nevus sebaceous. The patient was recommended to a multistage prophylactic excision.

**DISCUSSION**

During the normal development of skin, multipotential cells give rise to keratinocytes, sebaceous glands, hair follicles, apocrine glands, and eccrine glands. Melanocytes, no matter originally from epidermis or neural crest, interact with and transport melanin to basal keratinocytes, forming pigmentation of skin. Under pathologic condition, stimuli within the local environment and/or abnormal germine genetic changes can induce pluripotential cells in epidermis or melanoblasts excessively growing, resulting in skin physiological dysfunction or tumorgenesis.

Giant Congenital Melanocytic Nevi (GCMN) measuring more than 20 cm in diameter in adult (6 cm on infant body) are present in 1 out of 20 000 newborns. GCMN occurs on the truck, followed by the extremities and the head. GCMN are 200 times less frequent than smaller nevi but show significantly greater risk of developing malignant melanomas (6.3%) and neurological disorders, particularly those in a posterior axial location and when they are associated with satellite melanocytic nevi [1]. Nodules that occur in GCMN are of serious concern and malignancy has to be considered. Broad BCL-2 expression in GCMN suggests that suppression of apoptosis may play an important role in the maintenance of naevocytes despite the low proliferative activity [2]. GCMN generally occurs in isolation but rare familial occurrence points to a genetic background. Polygenic paradigmatic inheritance best explains the clinically observed transmission patterns [3]. Although *BRAF* mutations were commonly identified in melanoma, no *BRAF* mutations were detected in GCMN lesions, suggesting different genetic alterations involved in GCMN-derived melanoma [4]. Recent gene expression profile suggested between tyrosinase related proteins (*TRP1* and *TRP2*) associate with GCMN development [5]. Curettage, dermabrasion, cryotherapy with liquid nitrogen in combination with laser therapy, the use of tissue expanders and skin grafts or local flaps have been reported for the management [6].

The Nevus Sebaceus of Jadassohn (NSJ) is an infrequent congenitally-occurring, hamartomatous disorder of the skin and its adnexa with a predominantly sebaceous component. These nevi are commonly found in the scalp, followed by the face, chest, and in oral mucosa. It often presents at birth (first stage), grows during puberty (second stage), and develops with secondary tumor at advanced age (third stage) [7]. Immunohistochemical study of cytokeratin expression in nevus sebaceous suggested that NSJ is not hyperproliferative but involves hamartomatous differentiation with undifferentiated keratins [8]. Androgen receptors were significantly increased in sebocytes and other epithelial components within lesional skin of NSJ in patients of all ages, suggesting constitutively hypersensitive to the effects of circulating androgens [9]. Although most patients spontaneously occurred, a familial occurrence of NSJ was also reported of a predominant inheritance, reflecting genetic mosaicism [10]. It is well known that secondary adnexal tumors can occur within a nevus sebaceous. Notably, a number of malignant neoplasms have also been reported to develop within nevus sebaceous, including basal cell carcinomas, squamous cell carcinoma, and apocrine carcinomas [11]. The incidence of malignant degeneration can range from 0.8%-50% [12]. Prophylactic surgery is classically recommended because of the development of various carcinomas in NSJ, but reconstruction of postsurgical defects is often challenging and not well addressed issue. A rotation flap based on the superficial temporal artery appears to be an excellent reconstructive solution for NSJ located in the temporal scalp region [13]. However, a retrospective analysis demonstrated that malignant neoplasms in children aged less than 16 years with NSJ are extremely rare, and so questioned the need of surgery excise of tumors in children [14].

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REFERENCES


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