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CASE REPORT

Cutaneous Schwannoma Presented as a Pedunculated Protruding Mass

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Schwannoma is a benign neoplasm of the nerve sheath origin. It arises from the nerve sheath of large peripheral or cranial nerves and occurs at the level of the subcutaneous fat layer or deeper layer. Cutaneous schwannoma occurs more superficially and usually presents as a solitary dermal or subcutaneous nodule. We describe a case of cutaneous schwannoma that presented as an erythematous pedunculated protruding mass on the left flank of a 19-year-old female. It was clinically diagnosed as a granuloma pyogenicum. Shaving biopsy was conducted and histological examination revealed an encapsulated tumor mass containing dense, spindle-shaped cells whose nuclei are arranged back to back representing Verocay body, and a diagnosis of schwannoma was made. This is an unusual case of cutaneous schwannoma that presented as a pedunculated protruding mass. **(Ann Dermatol 23(S2) S264∼S266, 2011)**

-Keywords-
Cutaneous, Protruding, Schwannoma

INTRODUCTION

Schwannoma is a benign, expansile neoplasm that originates from nerve sheaths composed of Schwann cells, which insulate normal nerve fibers and enhance propagation of nerve impulses. Schwannomas are known by a variety of terms, such as neurilemmomas and anaxonal, intraneural Schwann cell tumors. Schwannomas can occur anywhere in the body along the course of a nerve such as cranial nerves, spinal nerves or peripheral nerves[1]. Most schwannomas present as intracranial, intraspinal or deep soft-tissue lesions[1,2]. Cutaneous schwannoma presents as a deep seated nodule in the deep dermis or subcutaneous tissue but rarely occurs in the upper dermis. Herein, we report a case of superficially located schwannoma presenting as a pedunculated protruding mass with a thin neck.

CASE REPORT

An otherwise healthy 19-year-old woman presented with a

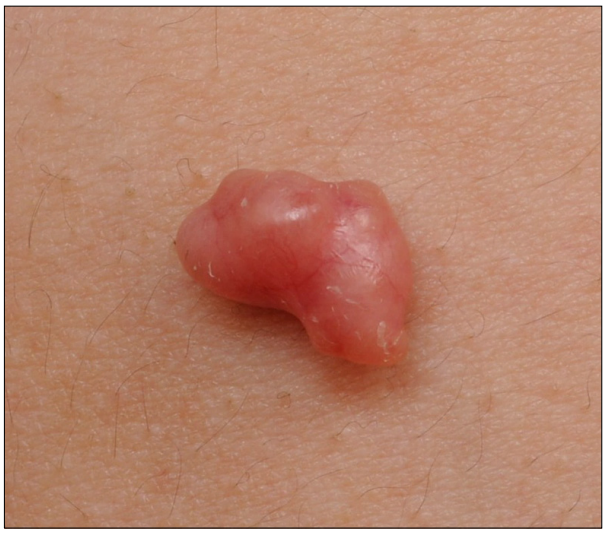

Fig. 1. Tumor presented as a pink protruding mass with a slender stalk on the patient's left flank.

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protruding mass on the left flank. The mass had been present since the age of 3. The lesion has been slowly growing in recent years. The patient reported no associated symptoms. On physical examination, an 11×9 mm-sized pedunculated pink mass with a smooth surface was observed on the upper left flank (Fig. 1). There was no tenderness on palpation. A shaving biopsy was performed for removal of the tumor and histological analysis.

Histological examination revealed a well-encapsulated tumor located in the upper dermis with evidence of complete removal of the mass via shaving biopsy. There was no residual pathology beneath the excised lesion (Fig. 2A). The tumor was composed of two patterns, mostly dense cellular areas with hypocellular myxoid zones (Fig. 2B). On high-power examination, the tumor was composed of spindle-shaped cells with their nuclei arranged back to back in a parallel pattern. The cytoplasmic processes of these cells were fused and exhibited eosinophilic materials between the lines of nuclei (Fig. 3A). A part of the mass showed glial-like cells located in clear or myxoid matrixes (Fig. 3B). Immunohistochemically, the tumor cells stained strongly for S-100 protein (Fig. 3C) but did not stain for neurofilament (Fig. 3D). Based on histological examination, a diagnosis of schwannoma was made.

DISCUSSION

Cutaneous schwannomas are usually asymptomatic, but pain, tenderness or paresthesia may accompany up to one third of the cutaneous manifestation. Males and females are equally affected, with peak incidence in the fourth and fifth decades of life. Cutaneous schwannomas usually present as a solitary nodule located in the deep dermis or in the subcutaneous tissue. Schwannomas in the upper

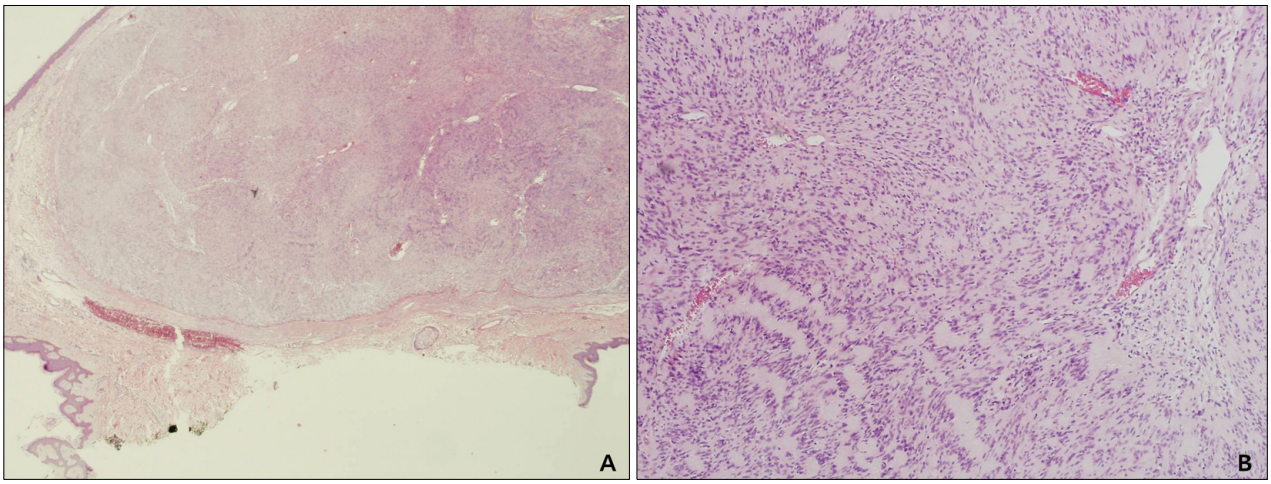

Fig. 2. (A) Discrete encapsulated dermal tumor in the upper dermis was completely removed through the shaving biopsy (H&E, original magnification, ×40). (B) Tumor was composed of mostly *Antoni* A patterns with some *Antoni* B patterns and dilated vessels (H&E, ×100).

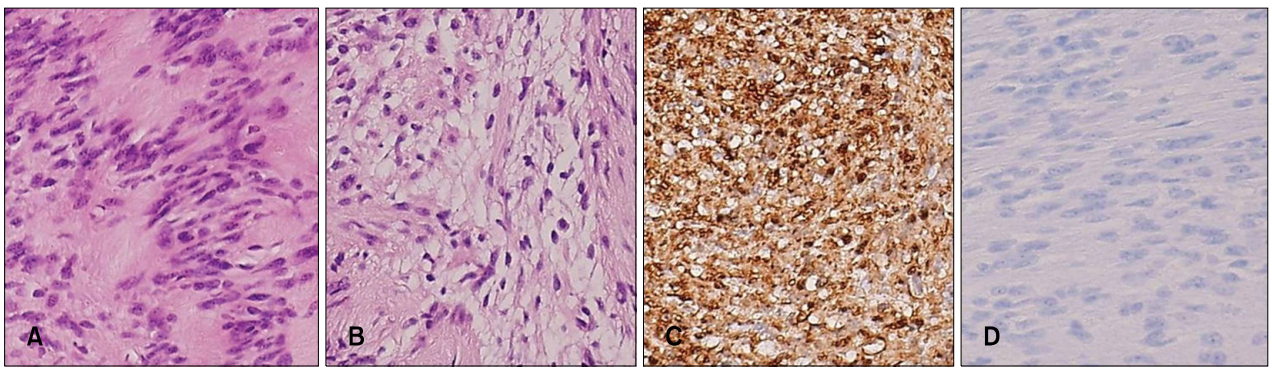

Fig. 3. (A) Tumor cells were arranged in an orderly fashion, forming palisades and Verocay bodies. (B) Part of the tumor mass consisted of scattered spindle cells in loose and myxoid stroma (H&E, ×400). Tumor cells showed positivity for S100 (C) and negativity for neurofilaments (D) (×400).

dermis are very rare. Cutaneous schwannomas presenting as dome-shaped nodules on the abdomen and on the face have been reported[2,3]. It was suggested that the increase in tumor size results in vascular insufficiency, which leads to the development of cystic degeneration and protrusion of the mass. Interestingly, to our best knowledge, there has not been any report of cutaneous schwannomas that presented as a pedunculated protruding mass with a thin stalk and without cystic degeneration. Due to the unusual clinical manifestation of our case, the mass was completely removed via shaving biopsy without leaving residual tumor tissue. The superficial location of the tumor suggests that it may have been derived from a terminal cutaneous nerve.

Histologically, schwannomas are encapsulated by perineurium, and are classically characterized by two different patterns - densely cellular areas (*Antoni* A) and loosely myxoid oedematous areas (*Antoni* B). In *Antoni* A areas, uniform spindle cells are clustered in stacks and arranged back to back. Nuclei are ordered in parallel or in palisades, between which the cytoplasm is fused into eosinophilic materials forming Verocay bodies. In *Antoni* B areas, individual Schwann cells are located in clear or myxoid matrixes.

The immunohistochemical profiles of schwannomas are typically positive for S100 protein and collagen type IV, while the capsule is positive for epithelial membrane antigen[4]. As most of schwannomas are devoid of axons, they are characteristically negative for neurofilaments within the mass. Rarely, peripherally displaced axial bundles can contain nerves of origin. In our case, the tumor cells were positive for S100, and there were no positive findings within the tumor mass for neurofilaments.

The histological differential diagnosis includes palisaded and encapsulated neuroma (PEN) and neurofibroma[5]. It is especially important to differentiate superficially located schwannoma from PEN, because PEN is encapsulated, located in the upper dermis, and the patterns of interlacing fascicles can be similar to *Antoni* A of a schwannoma. Although axon-rich PEN demonstrates axons within the fascicles of tumor cells and does not show typical patterns of *Antoni* A and B of schwannomas, differentiation between schwannoma and PEN with low or absent axon densities can be challenging. Neurofibroma, which is circumscribed but not encapsulated, is composed of loosely spaced spindle cells and wavy collagenous strands. As intraneural neurofibromas are normally associated with centrally contained axial bundles, sacrifice of the nerve cannot be avoided, in contrast to schwannomas.

In this case, cutaneous schwannoma presented as a pedunculated protruding mass with a thin stalk, which is a very unusual clinical presentation. The lesion was completely removed via shaving biopsy without residual pathology beneath the excised lesion. In reporting this case, we hope to expand the spectrum of clinical manifestation of cutaneous schwannomas.

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