

A Case of Scapular Hidradenoma Treated as a Keloid

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Summary: Hidradenomas are relatively rare benign tumors in the dermis that differentiate into eccrine or apocrine sweat glands. They often present as round or oval nodules and vary in color. Generally, they occur in the head and neck region. Keloid scars are often red, elevated lesions that are caused by chronic inflammation in the reticular dermis. These scars demonstrate a preference for high skin-tension sites, including the scapular region. Herein, we describe a case of a dark red hidradenoma on the scapular region with a high incidence of acne surrounding the lesion area that was initially diagnosed as an acne-initiated keloid. However, local steroid injection did not cure the lesion. After excision, histopathology revealed typical findings for hidradenoma, namely mucinous, polygonal, and clear cell composition. In some cases, as presented it may be challenging for clinicians to differentiate between hidradenoma and keloid due to the similar clinical features. Thus, hidradenoma should be taken in consideration as a differential diagnosis when encountering steroid-refractory keloid-like lesions. Moreover, early biopsy or surgical resection should be considered. (*Plast Reconstr Surg Glob Open* 2021;9:e3772; doi: [10.1097/GOX.0000000000003772](https://doi.org/10.1097/GOX.0000000000003772); Published online 19 August 2021.)

Hidradenomas are relatively rare tumors of the sweat glands.¹ They are usually solitary, elastic, round or oval in shape, and elevated tumors with texture varying from soft to hard, appearing as a dark red mass. They are mainly found on the head, upper limbs, and trunk, and particularly in middle-aged women.²

A keloid is a chronic inflammatory fibroproliferative disorder of the reticular dermis that can occur in any age group but is most likely to develop between the ages of 11 and 30 years.³ These firm scars can be pink to red and grow both vertically and horizontally. They are often triggered by acne and are common to arise in the scapular region. Topical or injected steroids can resolve small keloids.⁴

Herein, we experienced a case of hidradenoma on the acne-prone scapular region that presented with acne surrounding the tumor and was thus initially diagnosed as a keloid. After unsuccessful treatment with local steroid injection, the lesion was excised and found to be a hidradenoma. Thus, elevated skin tumors in the scapular region that associate with acne may be misdiagnosed as keloids. Because our literature analysis of hidradenoma as a keloid-like disease has not been revealed in

previous reports, we report this case with discussion of the literature.

Case Report

A 19-year-old man was admitted to our hospital with chief complaint of a skin tumor on the right scapular region. He became aware of the tumor when he was 16 years of age. The lesion was diagnosed as verruca vulgaris in another hospital and was subjected several times to liquid nitrogen cryotherapy. However, because the lesion tended to increase in size, the patient consulted with another doctor, who diagnosed the lesion as a keloid and treated it with triamcinolone acetonide injection. However, the condition still failed to show improvement and the patient finally came to our hospital.

The physical examination revealed a 25-mm-diameter dark red and purple, hard, elastic, and nontender protuberant tumor on the right scapular region (Fig. 1A). The patient had acne on the back and shoulder region. Aside from the tissue damage that might have been caused by repeated liquid nitrogen therapy, there was no significant past medical history or history of previous major trauma to the affected area.

Under local anesthesia, the lesion was excised to the deep fascia with a 5-mm horizontal margin considering the possibility of diseases other than keloids. (See Video [online], which details the summary of the case; preoperative, intraoperative findings, and postoperative images

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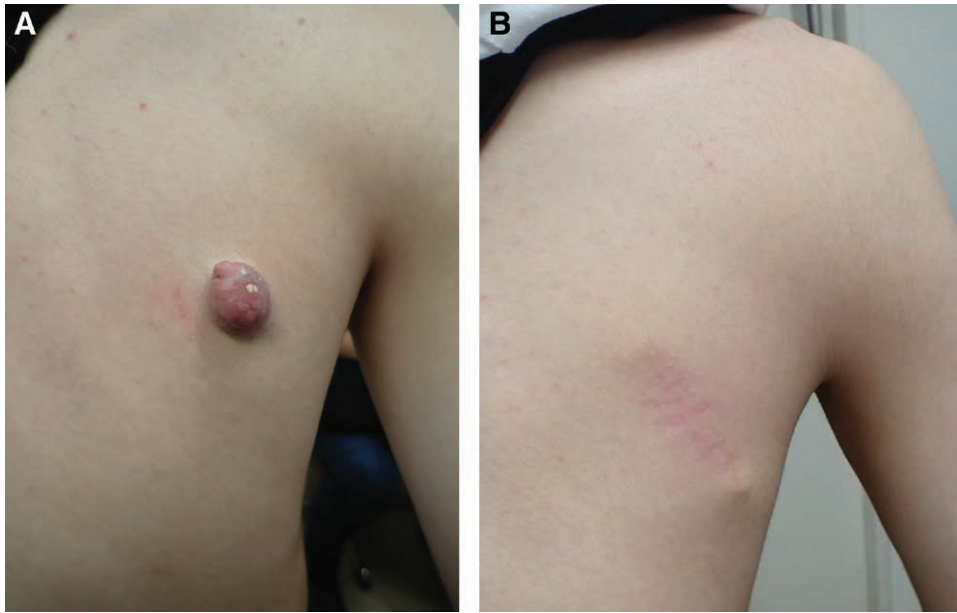


Fig. 1. Clinical finding. A, Preoperative findings in the right scapula of a 19-year-old man. B, Appearance 5 months after surgery. There was no sign of recurrence.

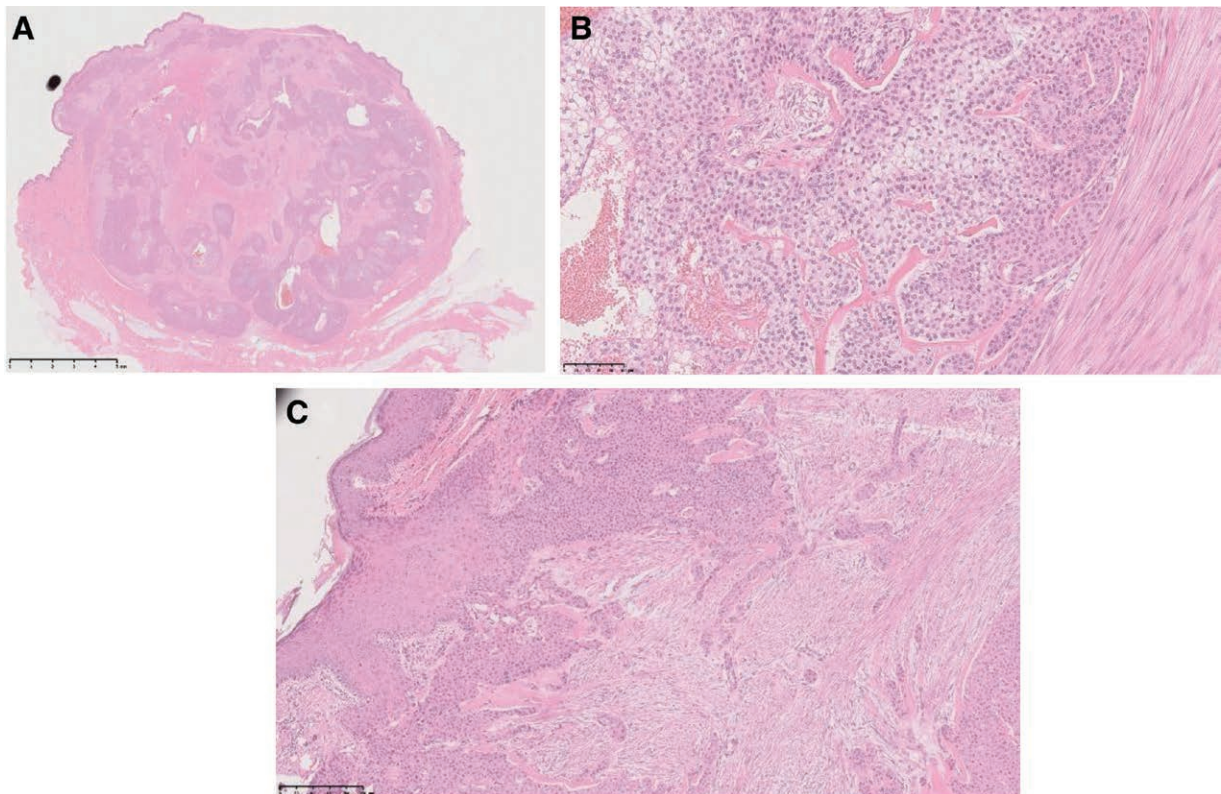


Fig. 2. Histopathologic view (H&E). The tumor was a relatively well-defined nodular lesion. (A). The lesion consisted of scattered and fused foci composed of eosinophilic multinucleated cells and clear cells with clear cytoplasm (B). The areas between the foci contained fibrotic granulation tissue formation (C).

in the right scapula are shown.) The subcutaneous tissue and deep fascia had no visible tumor tissue. After confirming hemostasis, the surgery was concluded with simple interrupted sutures. Histopathology revealed a relatively well-defined nodular lesion that extended from the dermis to the subcutaneous adipose tissue (Fig. 2A). The nodules contained tumor cell foci that were associated with increased numbers of collagen fibers. The foci were mainly composed of eosinophilic polyhedral cells and clear cells (Fig. 2B). The interior of the tumor foci contained vitrified collagen fibers. The areas between the foci exhibited increased numbers of blood vessels and fibroblasts, infiltration with various inflammatory cells, and fibrotic granulation tissue (Fig. 2C). Hidradenoma was diagnosed.

The postoperative course was satisfactory and the stitches were removed 11 days after surgery. In the succeeding 5 months, no signs of recurrence were observed (Fig. 1B).

DISCUSSION

Hidradenomas are often solitary, elastic, smooth intradermal tumors that can be round or oval, vary in color, and range from 5 to 30 mm in diameter. They can display some skin atrophy and ulceration.² Although they occur in all age groups, they are most common in the head and neck region of middle-aged women with mean age at presentation is 37.2 years.²

The most common differential diagnosis for hidradenoma are dermatofibroma, epidermal cyst, and basal cell carcinoma.⁵ To the best of our knowledge, keloids have not been reported previously as a differential disease for hidradenomas despite some overlapping clinical features, specifically, keloids' appearance as raised lesions on the skin surface and the variance in color from normal skin color to bright red and brown.^{4,6} They can occur at any age but appear most often between 11 and 30 years of age.³ They commonly develop on the anterior chest, scapula, and pubic region.^{4,6} The preference to these sites reflects two features specifically related to them. First, they are areas constantly subjected to strong cyclic tension due to daily postural changes by body and limb movements. This tension exerts proinflammatory effects on the fibroblasts, resulting in characteristically persistent keloidal scar growth.^{3,4} Second, these sites are also prone to inflammation of the hair follicles such as folliculitis and acne, which are known as keloid triggers.⁴

Thus, hidradenomas can be misdiagnosed as keloidal masses based on their color, shape, location, and colocalization with acne. It should be noted, however, that our case had relatively prominent fibrotic granulation tissue (Fig. 2C). Such tissue appears during repair of tissue damage⁴ and has been noted in hidradenomas after traumatic tissue injury or disruption of the cystic structure.⁷ Thus, it is possible that the patient's hidradenoma might have been subjected to repeated minor trauma in addition to the liquid nitrogen cryotherapy. This is supported by the exposed location of the lesion on a very mobile body part and the fact that the patient was an active young person.^{6,8} Because fibrotic tissue is the hallmark histopathological feature of keloids,^{6,8} we speculate that the trauma and

liquid nitrogen cryotherapy experienced by the patient's hidradenoma may explain why it closely resembled a keloid clinically. Thus, if an elevated keloid-like skin tumor occurs in a tension-prone area in active young people, and the lesion is refractory to steroids, the clinician should suspect that repeated minor trauma or previous treatment may have caused the lesion to acquire keloid-like features and therefore, take other diseases in consideration.

In terms of hidradenoma treatment, the only known curative treatment is surgical resection. Although the frequency of malignant hidradenoma transformation is unknown, cases have been reported.² Complete surgical resection is recommended as recurrence is likely to occur in incompletely resected cases^{2,9} and a malignant portion may be present in a single foci.¹⁰ Histopathologically, we performed a complete resection and 5 months later, no signs of recurrence were observed (Fig. 1B).

CONCLUSIONS

Hidradenomas on the scapular region may resemble keloids clinically in some cases and are also associated with two keloid-promoting factors, namely acne and high skin tension areas. Thus, this presented case should alert clinicians that hidradenoma and early biopsy or surgical excision should be considered when a keloid-like skin tumor is refractory to steroid treatment.

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