Cutaneous schwannoma presenting as a lower back mass

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1. Introduction

Schwannomas are benign neoplasms composed of Schwann cells. These cells produce the myelin sheath around neuronal axons. The tumors usually arise from the nerve sheaths of cranial, spinal, or peripheral nerves. Therefore, schwannomas can arise anywhere in the body, although the most common location is the eight cranial nerve. Cutaneous schwannomas arise from major peripheral nerves and can be located superficially, but most commonly occur at the subcutaneous layer or deeper. In this case report, we present a cutaneous schwannoma presenting as an enlarging left lower back solitary mass at our academic institution.

2. Presentation of case

The patient is a 20-year-old male who developed a left lower back mass that he initially noticed four years prior to presentation. The mass had grown slowly over the last two years but had since stabilized at the current size. It would cause him mild discomfort especially while lying down, but no significant pain. In addition, he had no paresthesias or weakness. On exam, it appeared to be firm, well-circumscribed, and contained under the skin with no signs of skin retraction, openings, or purulent drainage. However, there were superficial skin changes overlapping the mass (Fig. 1). It was non-tender on palpation. An ultrasound performed prior to surgery showed a well-circumscribed and heterogeneous solid mass that measured 5.1 × 2.5 × 5.3 cm. There was also evidence of blood flow within vessels in the mass.

The patient elected to undergo surgical excision of the mass. However, upon incision it was noted that the mass appeared to be a tumor with unusual features. Thus, a decision was made to only perform an incisional biopsy and then await final pathology results in order to determine further management.

Histological examination from the incisional biopsy showed a well-delineated and circumscribed cellular lesion (Fig. 2) comprised of bland spindled cells with a neural appearance (Fig. 3). The lesion had variable cellularity, including Antoni A and B areas (Fig. 4). There was minimal nuclear pleomorphism and no increase in mitosis (Fig. 5). All of this was consistent with a benign schwannoma.

An MRI of the lumbar spine with and without contrast was then performed to further assess the characteristics of the mass and possible attachment to surrounding structures. Imaging showed a heterogeneously enhancing mass located in the posterior subcutaneous soft tissue superficial to the paraspinal musculature at the level of the L3 and L4 vertebral bodies to the left of midline (Figs. 6 and 7). However, there was no extension towards the spinal canal. The margins were mostly well-circumscribed with some ill-defined borders along the superior and lateral aspects. The mass measured 5.5 cm craniocaudal by 6 cm transverse by 3 cm in the antero-posterior direction.

The patient then underwent wide local excision of the cutaneous schwannoma with radical resection down to the thoracolumbar fascia under general anesthesia (Fig. 8). Once removed, the tumor measured 8 × 6.5 × 2.5 cm (Figs. 9 and 10) and was again consistent with the original diagnosis on final pathology.

3. Discussion

Schwannomas grow slowly and are usually benign, although there are some rare malignant variants. In general, cutaneous schwannomas are asymptomatic and are often an issue of cosmesis. However, as they grow larger, they can compress the nerve of origin or other nearby nerves, resulting in pain, paresthesias, and tenderness. In rare instances, they can cause vascular compression...
and insufficiency. Males and females are equally affected with the peak incidence occurring in the fourth and fifth decades of life [1].

Histologically, there are two classical patterns for schwannomas. Antoni A regions are tightly organized with a high cellular content and nuclei arranged in stacked alignments known as palisades. The tight organization is mainly due to laminin in the basement membranes of the Antoni A regions. Collagen type IV is

Fig. 1. Firm and well-circumscribed left lower back cutaneous schwannoma with superficial skin changes (black arrow).

Fig. 2. H&E low power field showing a well-delineated and circumscribed cellular lesion.

Fig. 3. H&E medium power field showing interdigitating fascicles of small spindled cells.

Fig. 4. H&E medium power field showing highly cellular palisaded Antoni A regions (black arrow) and loosely-arranged Antoni B regions (red arrow).

Fig. 5. H&E high power field showing bland spindled cells with no increased mitosis or cellular atypia.
also prominent in these basement membranes. Furthermore, cells within these laminin-rich regions express S-100, a protein found in many neural crest tumors. In contrast, Antoni B regions are less cellular and contain more loosely arranged cells, separated from one another by spaces filled with mucin. Antoni B regions also contain lipid-laden histiocytes, lymphocytes, and small vessels with hyalinized walls. Most schwannomas display both patterns, and although intermingled, both region types usually appear fairly demarcated from one another [2].

Treatment for cutaneous schwannomas is surgical excision. Indications for excision are a concern for cosmesis and/or symptoms of pain, paresthesias, and tenderness. Some surgeons may advocate resecting even small asymptomatic schwannomas as they can later grow. Local recurrence is rare as the tumor is usually well encapsulated and thus easily resectable.

4. Conclusion

In the literature, there are very few cases of cutaneous schwannomas reported. As previously stated, they can occur anywhere on the body, including the scalp [3,4], trunk [5], and feet [6]. By reporting this case, we hope to further expand the literature on this pathology.
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Ethical approval

Approval was obtained from the patient regarding submission of this case report.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal upon request.

Author contributions

Primary Author: Hunaiz A. Patel, MD, MBA – drafted manuscript, provided radiology images. Secondary Author: Sumeet Makhijani, MD – edited manuscript, provided patient images. Contributor: Timothy Chapman, MD – provided pathology images.

Guarantor

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Conflicts of interest

The authors declare that there were no personal, financial, or any other conflicts of interest in the writing of this case report.

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