**CASE REPORT**

**Panniculitis Ossificans Traumatica of the Neck Region: Report of a Rare Case in an Unusual Location**

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**ABSTRACT**

Panniculitis ossificans is a rare, self-limiting form of heterotopic ossification that might involve the subcutis as a reaction to trauma. To the best of the author’s knowledge, there is no published report in the English literature describing such a case in the neck region. Herein is a report of a 47-year-old male who presented with a well-circumscribed firm mass in the supraclavicular area, a location that led to clinical suspicion of lymphoma. Definite pathological diagnosis was made after excision and no further interventions were needed. Awareness of this pseudomalignant condition is crucial for the clinician, radiologist and pathologist to avoid a diagnosis of malignancy.

**Key words:** Heterotopic ossification, neck, panniculitis ossificans, supraclavicular, trauma

**INTRODUCTION**

Panniculitis ossificans is an unusual, self-limited reaction to trauma that can be misdiagnosed as malignancy at the clinical, radiological and histopathological levels with critical consequences on patients and the health care system. Its commonest location is the hands and fingers of women.\(^1\) To the best of the author’s knowledge, there is no published report in the English literature describing such a case in the neck region. Herein is a report of a case in the supraclavicular region, suspected clinically to be enlarged lymph nodes and excised to rule out lymphoma.

**CASE REPORT**

A 47-year-old male presented to the surgical clinic complaining of progressive swelling in the right side of the neck, noted 10 days prior to presentation and few days after exposure to blunt trauma to the head and neck region. There was no history of any medical illness, drug intake or alcohol consumption. On examination, there was a firm, well-circumscribed, non-tender mass measuring 4 cm × 3 cm in the right supraclavicular region. The skin was freely mobile over the surface of the mass, which appeared to be fixed to deep structures. There were no palpable lymph nodes in the left side of the neck or elsewhere in the body. Chest X-ray showed no abnormality and routine preoperative blood workup revealed normal cell counts. An excision biopsy under general anesthesia was performed.

**Pathological findings**

The excised mass was firm, greyish white and measuring 4 cm × 3 cm × 3.5 cm. Serial sectioning showed a yellowish cut surface with areas of brownish discoloration.
Microscopic examination showed fat necrosis and benign spindle cell proliferation, intermingled with mononuclear inflammatory cells and few multinucleated giant cells. At the periphery, a mixture of fibroblasts and osteoid bordered by mitotically active osteoblasts devoid of atypia was seen [Figure 1].

Based on these histological findings, a diagnosis of panniculitis ossificans was made. No further intervention was needed. The patient passed through uneventful recovery and was seen 10 days postoperation in a good condition.

**DISCUSSION**

Heterotopic ossification is defined as the abnormal formation of true bone within the extraskeletal soft tissue, including muscles, tendons, nerves and in the case of panniculitis ossificans, the subcutaneous fat.[2]

Ectopic bone can range in size from few millimeters to several centimeters. A history of trauma can be obtained in most of the cases, as in the case reported in this article. Other causes of panniculitis ossificans include ischemia and pancreatic diseases.[3] Irrespective of the cause, all cases are identical morphologically. However, a history of trauma might suggest the correct diagnosis.

The clinical presentation of a palpable firm or hard soft tissue mass, whether tender or not is worrisome, and soft tissue sarcomas should be excluded. In this particular case, the unique location in the anterior neck, an anatomic site well known for lymph nodes, made the causes of lymphadenopathy the main clinical differential diagnoses and lymphoma was particularly suspected.

The radiological findings of panniculitis ossificans are variable depending on the age and maturation of the lesion. In early stages like in our case, plain radiography is negative due to lack of sufficient amount of calcification. However, Cvitanic and Sedlak found that magnetic resonance imaging with gadolinium contrast can diagnose and differentiate early cases of heterotopic ossification from sarcomas, as the pattern of enhancement is rim in the periphery, while it is diffuse and homogenous in cases of malignancy.[4]

Following excision, the histological findings might also confuse the inexperienced pathologist who may consider a diagnosis of malignancy, especially osteosarcoma. In fact, the earlier the lesion the more it resembles cancer. The typical microscopic findings begin in the 1st week post trauma with spindle cell proliferation. Primitive osteoid starts to appear in the periphery of the lesion within 7-10 days. Cartilage with endochondral ossification along with woven bone can be seen within the 2nd week, while trabecular bone will be formed at 2-6 weeks. When the lesion is fully mature (almost 6 weeks old or more), a distinct zonal phenomenon characterized by immature mildly pleomorphic, mitotically active fibroblastic tissue in the central portion, rimmed by an intermediate zone in which fibroblasts are admixed with osteoblasts forming osteoid and at the periphery a third zone in which the osteoid evolves into mature lamellar bone. This zonation, as well as the lack of marked pleomorphism and atypical forms of mitosis in the osteoblasts, and the formation of peripheral trabecular bone instead of lace-like osteoid, all aid to differentiate this reactive, self-limiting process from extraskeletal osteosarcoma, a malignant tumor in which the history of preceding trauma is as frequent as 23%.[5] In our case, all the exclusion criteria are satisfied apart from well-formed zonation, justified by the age of the lesion.

Apart from osteosarcoma, the most confusing clinical and histological differential diagnosis is nodular fasciitis centered in the subcutis particularly with positive trauma history and rapid growth. However, the large size of the lesion, the presence of calcification and ossification, as well as the opposite zonation with central cellularity is all in contradiction of nodular fasciitis.

Treatment of localized heterotopic ossification, as in the present case, is surgical excision with a small margin of normal tissue. There is no agreement about the definition of safety margin.[6]
While resection of a fully mature lesion is considered safe, some authors consider surgery in the acute phase to be contraindicated, as it might cause re-injury.[7] Moreover, up to 35% of heterotopic ossification cases will regress overtime. That is why it is recommended to limit surgical intervention for cases that did not regress or those which caused limitation of movement.[8] Otherwise, follow-up with serial radiological images can be enough to confirm this pseudomalignant condition if anticipated clinically.[4,9]

CONCLUSION

Panniculitis ossificans deserves notice as a possible diagnosis of the anterior neck mass especially with a history of preceding trauma. Biopsy is not always necessary if serial radiologic images confirmed the diagnosis. Both the clinician and the pathologist should be aware of this pseudomalignant entity to avoid a diagnosis of malignancy with unnecessary aggressive intervention.

REFERENCES


Source of Support: Nil. Conflict of Interest: None declared.