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Chronic Expanding Hematoma in the Thigh: A Late Complication 32 Years After Treatment of Synovial Sarcoma: A Case Report

Authors' Contribution: Study Design A Data Collection B Statistical Analysis C Data Interpretation D Manuscript Preparation E Literature Search F Funds Collection G

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Patient: Female, 49 Final Diagnosis: Chronic expanding hematoma Symptoms: Thigh swelling Medication: — Clinical Procedure: — Specialty: Orthopedics and Traumatology

Objective: Rare disease Background: Chronic expanding hematoma is characterized by a continuous growing hematoma lesion. Case Report: The present case is of a patient who had undergone resection of synovial sarcoma in the posterior thigh and subsequent intraoperative radiation to the region at the age of 18 years. The patient observed swelling at the surgical site 31 years later at the age of 49 years. Magnetic resonance imaging revealed a growing hematoma with a cystic appearance. Partial resection of the wall and electrocoagulation of bleeding from the remaining wall were performed at the age of 50 years.

Conclusions: Chronic expanding hematoma occurred as a late complication of tumor treatment.

MeSH Keywords: Hematoma • Magnetic Resonance Imaging • Radiation • Sarcoma, Synovial

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Background

Hematomas slowly increase in size and are then referred to as chronic expanding hematomas, which are characterized by a mixture of old and new blood, accompanied by necrotic degradation, liquefaction, and development of a fibrous pseudo-capsule [1,2]. Chronic expanding hematoma occurs in various locations on the extremities and trunk [1,2].

Chronic expanding hematoma of the limb that is associated with adhesion to surrounding tissue is clinically problematic [3]. An association between chronic expanding hematoma and trauma or surgery has been reported, with chronic expanding hematoma often being a late complication [4,5]. Here we report a case of chronic expanding hematoma that occurred more than 30 years after treatment of synovial sarcoma in the thigh.

Case Report

In the present case, the patient had undergone wide resection of synovial sarcoma and surrounding normal tissue in the right bicep femoris at the age of 18 years (Figure 1). Because the tumor involved the sciatic nerve, it was resected along with the bicep femoris. After resection, intraoperative radiation (84 Gy) was administered. Postoperative chemotherapy consisting of doxorubicin (cumulative dose, 190 mg) and cisplatin (cumulative dose, 200 mg) was administered. At the age of 32 years, 14 years after surgery, magnetic resonance imaging (MRI) showed no evidence of recurrence. However, a subtle amount of fluid was observed at the resection site.

At the age of 49 years, 31 years after surgery, the patient noticed swelling in the thigh. There was no history of physical trauma or injury at the surgical site during the follow-up period. On physical examination, a soft mass containing liquid was palpable. Neither heat nor redness were observed on the skin over the lesion. MRI showed a cystic lesion in the posterior thigh. The interior of the lesion had slightly high signal intensity on T1- and T2-weighted images. A various amount of coagulation lined the cyst, resulting in heterogeneous low to high signal intensity on T1- and T2-weighted images. The cyst wall appeared as low intensity on T1- and T2-weighted images. The lesion had increased to 20 cm in longitudinal diameter in 1 year (Figure 2). Computed tomography (CT) with contrast medium showed narrowing of the femoral artery along the cyst. A neoplastic lesion was excluded by needle biopsy. Laboratory values prior to surgery included hemoglobin, 13.5 g/dL (range, 10.1–14.7 g/dL); hematocrit, 41.9% (range, 29.9–43.6%); and normal coagulation.

During surgery, the cyst wall was removed on the dorsal side, but the portion of the wall adjacent to deep muscle and the femoral artery was not removed, because adhesion leading to difficulty in dissection was expected. A hemorrhagic clot at the interior of the cyst wall was removed, and bleeding from the wall was subsequently electrocoagulated. Histologically, the resected lesion was confirmed to be a hematoma, and a diagnosis of chronic expanding hematoma was made. No recurrence was observed 18 months after surgery, although serous fluid remained (Figure 3).

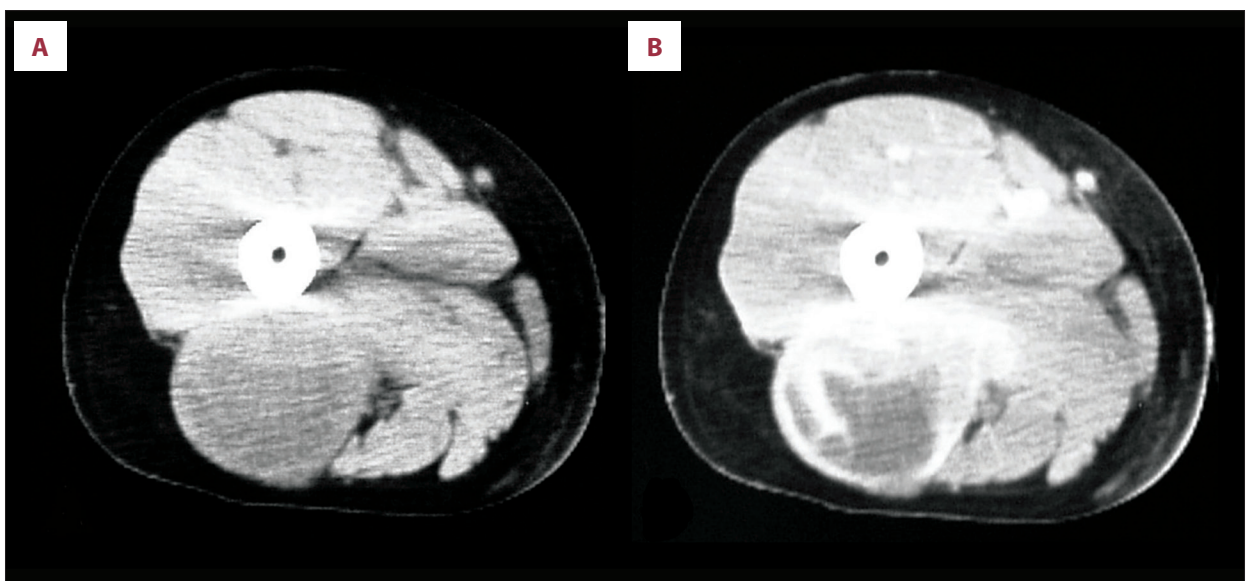


Figure 1. Synovial sarcoma in the thigh at age 18 years. Plain (A) and contrast-enhanced (B) computed tomography images show a tumor with cystic formation, characteristic of synovial sarcoma.

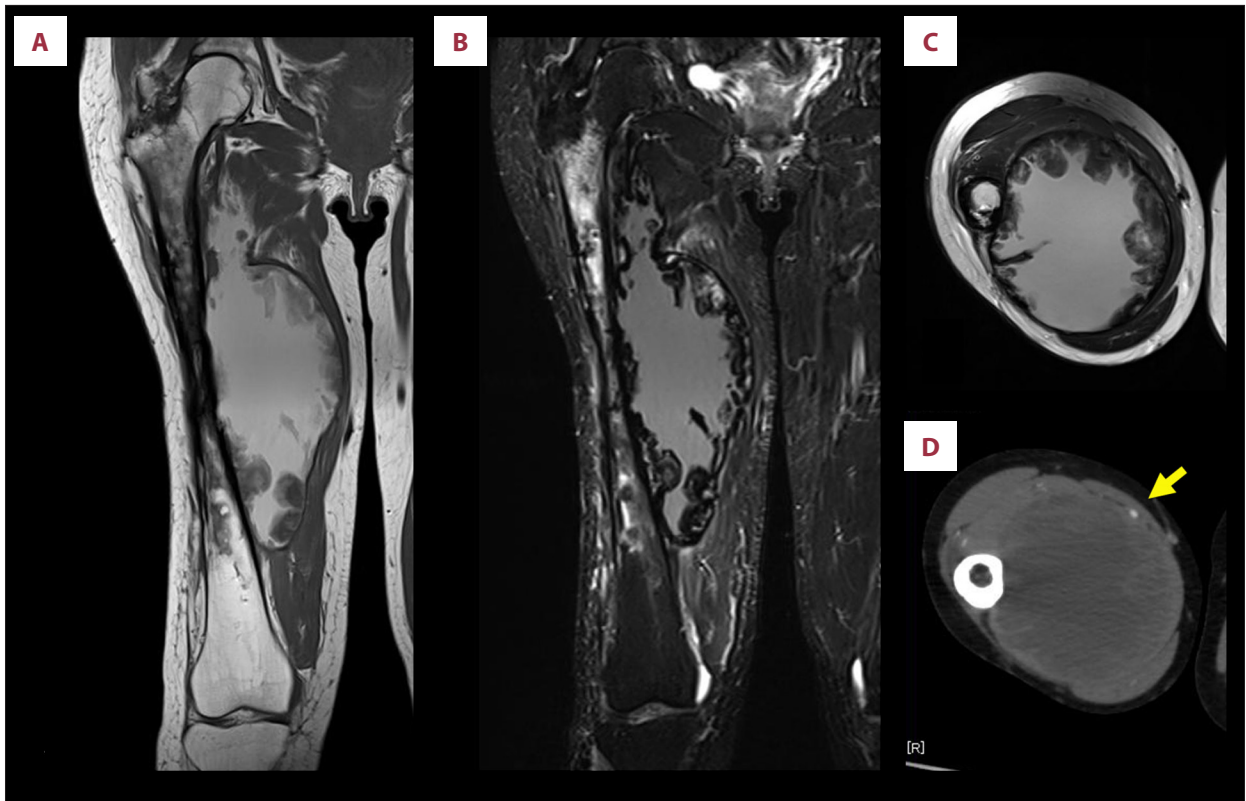


Figure 2. Chronic expanding hematoma in the thigh at age 50 years. Magnetic resonance imaging shows a cystic lesion with homogeneous intermediate intensity on T1-weighted image (A) and T2-weight images (B, C). Blood coagulation with heterogeneous low to high signal intensity on T1- and T2-weighted images is observed inside the cyst wall. Computed tomography (CT) with contrast medium shows a narrowed femoral artery (a yellow arrow) at the surface of the cyst wall (D). (A, T1-weighted image; B, T2-weighted image with fat suppression; C, T2-weighted image; D, CT).

Discussion

Although the MRI diagnosis of chronic expanding hematoma is relatively easy, the findings are similar to those of hemorrhagic soft-tissue sarcomas [2,6]. Chronic expanding hematoma consists of a mixture of old and new blood, with time-related changes present. Histological features have been reported to include a mixture of blood breakdown products, granulation tissue with capillary ingrowth, and inflammatory tissue [7]. Corresponding to the various histological findings, MRI shows heterogeneous low to intermediate signal intensity. A pseudocapsule with low signal intensity on T1- and T2-weighted imaging is characteristic of chronic expanding hematoma. Histologically, the pseudocapsule is composed of fibrous tissue with hemosiderin deposits and iron-laden macrophages [1,8]. Careful examination of each MRI section is required for detection of nonhemorrhagic portions of possible neoplasms. A previous report noted that angiosarcoma can arise from chronic expanding hematomas at the periphery of the pseudocapsule. A thick pseudocapsule wall could indicate either malignant transformation or sudden or uncontrolled hematoma enlargement [9].

Ideal treatment for chronic expanding hematoma is complete resection, including resection of the pseudocapsule [10]. However, complete removal is reportedly difficult in patients with thoracic lesions due to abundant neovascularization beneath the pseudocapsule and the presence of fibrous adhesions to the chest wall [11]. Resection of deep lesions in the extremities is problematic due to adhesion to surrounding tissue [3]. Partial resection of the cyst wall of chronic expanding hematoma, with the portion of the cyst that adheres to surrounding tissue left behind, may be adequate as treatment [5,12].

The present patient was asymptomatic for more than 30 years after surgery. There was no history of physical trauma or injury that was a potential cause of the hematoma. The exact time of onset of chronic expanding hematoma is not known, although no hematoma was observed for at least 14 years after surgery. The patient did not receive any medication or experience any trauma that would trigger hematoma formation. Although the cause of chronic expanding hematoma remains unknown, one possibility is vascular branch injury at a non-physiologic site associated with poor mobility after surgery [5]. In the present case, following tumor resection, the small vessel

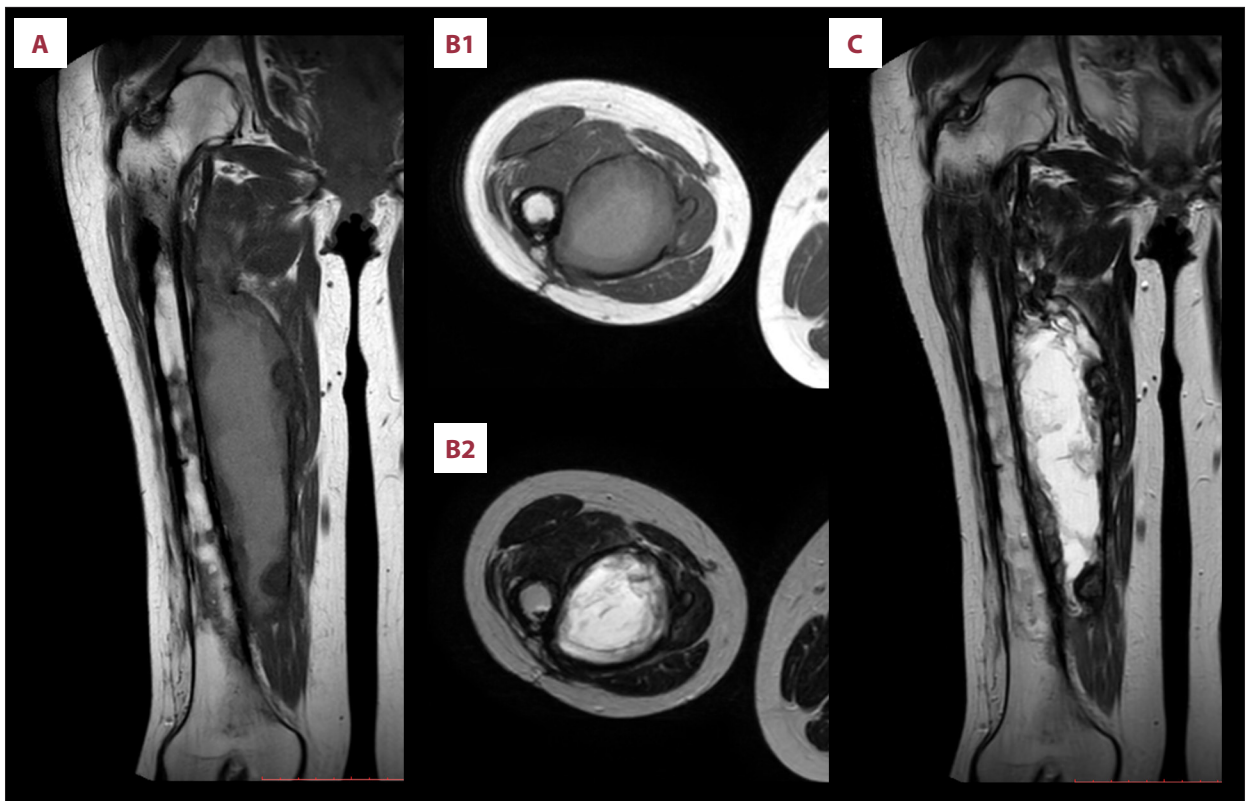


Figure 3. Eighteen months after surgery for the hematoma. Fluid with low signal intensity on T1-weighted images (**A, B1**) and high signal intensity on T2-weighted images (**B2, C**) is observed. The signal intensity suggests serous fluid rather than blood, as observed before surgery (**A, B1**, T1-weighted image; **B2, C**, T2-weighted image).

branches at the radiated tissue may have had reduced flexibility and therefore been susceptible to damage.

Conclusions

In summary, we have reported a case of chronic dilatation hematoma treatment 32 years after resection of a synovial sarcoma in the thigh. Association with resection of the tumor as well as with radiation therapy was suggested. Adhesion to the surrounding tissue following radiation was predicted, and partial resection of the hematoma wall was performed, leading to a favorable result.

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Conflicts of interest

None.

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