Chronic expanding hematoma in the retroperitoneal space

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Abstract

Background

Chronic expanding hematoma is a rare condition that occurs after surgery, trauma, or injury. It can occur anywhere in the body with the absence of trauma. Clinical findings, various modalities will help in the differential diagnosis. Hematomas are usually absorbed naturally and rarely cause serious problems. However, hematomas developing slowly without a history of trauma, surgery and bleeding disorders could be difficult to differentiate from soft tissue neoplasm. Our case showed the biggest chronic expanding hematoma in retroperitoneal space which resulted hydronephrosis due to the pressure of left ureter without any trauma.

Case presentation

A 69-year-old male patient presented at a hospital with a swollen lesion in
the left flank. A mass 19 cm in diameter was detected in the retroperitoneal space on computed tomography. Chronic expanding hematoma, soft tissue tumor, or left renal artery aneurysm were suspected. Postoperative histopathological examination revealed the tumor to be a nonmalignant chronic expanding hematoma. No recurrence was observed within the 2-year follow-up period.

Conclusion

In patients who present with slowly growing masses but without trauma history, in addition to cysts and soft tissue tumor, chronic expanding hematoma should be considered in the differential diagnosis. If these masses are haemorrhagic, it is difficult to differentiate benign and malignant lesions. Use of magnetic resonance imaging and computed tomography is essential to differentiate chronic expanding hematoma from soft tissue tumors and hemangiomas.
Keywords

hematoma, retroperitoneal, hydronephrosis

Background

Hematomas occur at many locations in the body as a result of trauma, surgery, and bleeding disorders. Diagnosis is based on medical history, physical findings, and the results of examinations using various imaging modalities. Some hematomas persist for long periods, even months or years, as slowly expanding, space-occupying masses; these are called chronic expanding hematomas (CEH) [1]. Hematomas are usually absorbed naturally and rarely cause serious problems. However, those that develop slowly with no history of trauma or surgery and no associated bleeding disorder can be difficult to differentiate from soft tissue neoplasms [2]. We
describe a case of CEH associated with hydronephrosis in the retroperitoneal space.

Case presentation

A 69-year-old man with no prior history of medication or anticoagulant therapy first noticed a painless swelling in the left flank in 2005. This swelling gradually increased over 6 years, resulting in a mass in the left flank region. In June 2011, when mild pain developed, the patient presented at a local hospital for examination. No definite history of trauma accounted for the left abdominal/back lesion. Computed tomography (CT) revealed a left retroperitoneal mass with left hydronephrosis due to external compression by the mass and right atrophic kidney. A double J-stent was positioned in the left ureter.

On physical examination at Gunma University Hospital, a firm area of swelling, about 20 cm × 15 cm in size, was detected. Blood tests indicated mild anemia and a hemoglobin level of 10.7 g/dl. Coagulation profile and
platelet counts were normal. CT revealed a huge mass (20 cm × 15 cm × 13 cm) compressing the left kidney upward in the retroperitoneal space. Enhanced CT revealed that the mass was not uniform but included scattered calcification and a partly enhanced rim. Magnetic resonance imaging (MRI) was performed. On both T1- and T2-weighted images, high signal intensity and many partition walls were observed in a major part of the mass. No bone metastasis was revealed on bone scintigraphy.

Based on these results and the patient’s clinical history, CEH, in addition to soft tissue malignancy and hemangiomas, was suspected. Surgery was then performed. The mass presented in the retroperitoneal space, partly adhering to the psoas muscle. It was completely encapsulated, and no evidence of invasion to the neighboring tissue was found. However, we could reveal that no vascular malformation in the surrounding tissue was observed on investigation. Rupture of the specimen occurred at the time of resection. Dark brown material including blood cells, necrotic tissue, and fibrin was present. Histopathological examination revealed the lesion to be encased in a dense
fibrous connective and fatty tissue capsule containing numerous old clots. No evidence of neoplasia was found. The final diagnosis was CEH in the retroperitoneal space. No sign of recurrence was noted 2 years after surgery.

Discussion

CEH is a hematoma that is most commonly caused by trauma or other etiologies. Hematomas are often reabsorbed, gradually decreasing in size. However, in rare cases, they increase slowly. CEH may persist and increase in size for more than a month after the initial hemorrhagic event [1]. Hematomas in the skeletal muscles or surrounding tissue may develop as a result of a direct shearing force that splits the subcutaneous fat from the underlying fascia, potentially creating a large space, which may then fill with blood. Labadie et al. [3] reported that the blood and breakdown products of erythrocytes, hemoglobin, leukocytes, platelets, and fibrin exert an irritant effect on the surrounding tissue. These factors are believed to induce a mild inflammatory response, which increases vascular wall permeability and bleeding from dilated capillaries in the granulation tissue.
beneath the capsular wall, thus resulting in the subsequent growth of the hematoma. However, no trigger such as trauma or anticoagulant therapy was identified in our case.

Careful examination of the 1970–2012 PubMed database using the key words “chronic expanding hematoma” yielded 204 cases of CEH, which included 79 cases in the brain and spine, 59 in the thorax, 56 in subcutaneous tissues and muscles of the arms and legs, and 10 in the abdomen, of which 8 were reported in the retroperitoneal space. No hydronephrosis was reported in these cases. In the case reported here, the unusual size of the retroperitoneal lesion may have resulted in pressure on the left ureter and left kidney.

CEH may be difficult to differentiate from soft tissue tumor (hemangiopericytoma, cavernous hemangiomas), sarcomas, actinomycosis, and inflammatory pseudotumors [4]. Weiss et al. [5] reported that hematomas are associated with about 5% of malignant fibrous histiocytomas.
Various imaging modalities have been used for diagnosis of CEH. Although MRI is inferior to CT in identifying calcification or spatial resolution, MRI is more sensitive than CT in diagnosis of hematoma. The signal within the lesion on MRI can vary with passage of time, indicating time-related changes in hemoglobin levels. High-intensity enhanced signals on T1-weighted images are attributable to methemoglobin within the hematoma. A few soft tissue tumors such as lipomas, liposarcomas, and hemangiomas yield high-intensity enhanced signals on T1-weighted images. However, differentiation of hematomas from malignant soft tissue tumors based on clinical and radiological findings can be difficult because of time-related changes in MRI signals [6]. Liu et al. reported that CEH should be considered for soft tissue masses in which features of internal hemorrhage and fibrous pseudocapsule have been found on contrast-unenhanced T1- and T2-weighted MRI. If contrast enhancement is patchy within the lesion, hemorrhagic sarcomas should be considered [7]. In the case reported here, high intensity was predominantly observed on both T2- and T1-weighted
images, except for an area of low signal intensity representing a wall of collagenous fibrous tissue on the peripheral rim. These atypical MRI findings indicated CEH.

The optimal treatment option for CEH is complete excision of the hematoma with the fibrous capsule. Aspiration of the liquid or drainage could result in serious bleeding or recurrence [8,9]. However, hematomas are often difficult to remove because of adhesion to the surrounding tissue and abundant new vascularization beneath the capsule. Particularly in CT, the presence of new capillaries and the granulation tissue can be shown if contrast material is used [9].

In the case reported here, the left kidney was hydronephrotic. Therefore, a double J-stent was positioned in the left ureter to aid in identifying and preventing injury to the left ureter. The double J-stent was removed 2 months postoperatively, and left hydronephrosis had disappeared. A hematoma of the size reported here with left hydronephrosis has never been reported. The etiology of CEH was unclear and could not be determined
during surgery. While no recurrence was evident at the 2-year follow-up, careful observation is necessary in future.

Conclusion

A chronic expanding hematoma could occur spontaneously or may be caused by a minor or not appreciable trauma. It is possible that huge CEH in retroperitoneal space results in hydronephrosis. In patients who present with slowly growing masses, in addition to cysts and soft tissue tumor, chronic expanding hematoma should be considered in the differential diagnosis. If these masses are haemorrhagic, it is difficult to differentiate benign and malignant lesions. MRI may be useful for differentiating between chronic expanding hematomas and malignant soft tissue tumors. A careful preoperative plan and complete removal of the hematoma are recommended. Incomplete treatment would result in recurrence or continuous bleeding in surgical lesion.
Consent

Written informed consent was obtained from the patient for publication of this Case report and any accompanying images.

Competing interests

The authors declare that they have no competing interests.

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References


Figure legends

Figure 1a. Abdominal CT (axial view). The retroperitoneal mass is 20 cm × 15 cm × 13 cm in size and well-circumscribed.

Figure 1b. Abdominal CT (sagittal view). The left kidney is compressed upward, and hydronephrosis is evident.

Figure 2. Abdominal MRI. High signal intensity and includes many partition
walls on T1-weighted images.

Figure 3. Abdominal MRI. On T2-weighted images, high signal intensity is observed in a major portion of the mass. Heterogeneous signal intensity with hyperintense and hypointense areas is also observed.

Figure 4. Gross lesion with hard connective tissue capsule

Figure 5. Old clot and friable material contained within the hematoma

Figure 6. On microscopic examination, fibroblastic granulation tissue and degenerative erythrocytes were observed on the inner side of the hematoma, surrounded by thick collagenous fibrous tissue.