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A case of sclerosing angiomatoid nodular transformation of the spleen with increased accumulation of fluorodeoxyglucose after 5-year follow-up

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ABSTRACT

INTRODUCTION: Sclerosing angiomatoid nodular transformation (SANT) of spleen is a new entity defined as a benign pathologic lesion. Fluorodeoxyglucose (FDG) positron emission tomography/computed tomography (PET/CT) shows weak accumulation, thereby ruling out the malignancy in preoperative diagnosis is difficult. Herein, we reported a case of shrinking SANT with increased FDG accumulation during a 5-year follow-up period, which was treated by laparoscopic splenectomy.
PRESENTATION OF CASE: A 64-year-old female had been referred to our hospital for the evaluation of a splenic tumor. Initial contrast-enhanced computed tomography (CT) showed a well-defined, and ovoid hypoattenuating lesion, measuring 52 mm in diameter in the spleen. Initial PET/CT revealed accumulation of FDG in the tumor (maximum standardized uptake value [SUVmax]: 2.8). The mass was diagnosed as SANT, and the patient was followed-up every 6–12 months for 5 years. Follow-up PET/CT revealed increased accumulation of FDG (SUVmax: 3.5). As it was suspicious considering the differential diagnosis, including malignant lymphoma and inflammatory pseudotumor, she underwent laparoscopic splenectomy. The pathological results showed three types of vessels including capillaries, ectatic small veins, and sinusoids-like vessels, consistent with the features of SANT.
DISCUSSION: A SANT may have features that resemble those of malignancy, including the growing mass and the increase of FDG accumulation.
CONCLUSION: Although the preoperative diagnosis of SANT is difficult, it is necessary to make a diagnosis of SANT comprehensively, even when accumulation of FDG increased slightly during the follow-up period and suggested the possibility of malignant diseases.

1. Introduction

Solid tumors of the spleen are rare, with an incidence of 0.007% of all operation and autopsy specimens [1]. Sclerosing angiomatoid nodular transformation (SANT) of the spleen is sometimes found incidentally via abdominal ultrasonography or computed tomography (CT). Ruling out malignancy in preoperative imaging studies is hard. Fluorodeoxyglucose (FDG) positron emission tomography/computed tomography (PET/CT) shows weak accumulation, leading to a difficult preoperative diagnosis to be difficult. Tissue sampled by fine-needle aspiration (FNA) is not easily obtained because of the risk for bleeding [2]. Therefore, splenectomy would be necessary for a precise diagnosis and treatment of splenic tumors. Herein, we report a case of splenic SANT, diagnosed and followed-up with for 5 years, treated by laparoscopic splenectomy, performed due to the increased accumulation of FDG. This work has been reported in line with the SCARE criteria [3].

2. Presentation of case

A 64-year-old female had been first referred to our hospital for the evaluation of a splenic tumor, which had been incidentally found on Ultrasonography during a medical checkup. He had no history of previous abdominal surgery or trauma. Initial contrast-

Abbreviations: SANT, sclerosing angiomatoid nodular transformation; CT, computed tomography; FDG, fluorodeoxyglucose; PET/CT, positron emission tomography/computed tomography; FNA, fine-needle aspiration; MRI, magnetic resonance imaging; SUVmax, maximum standardized uptake value.

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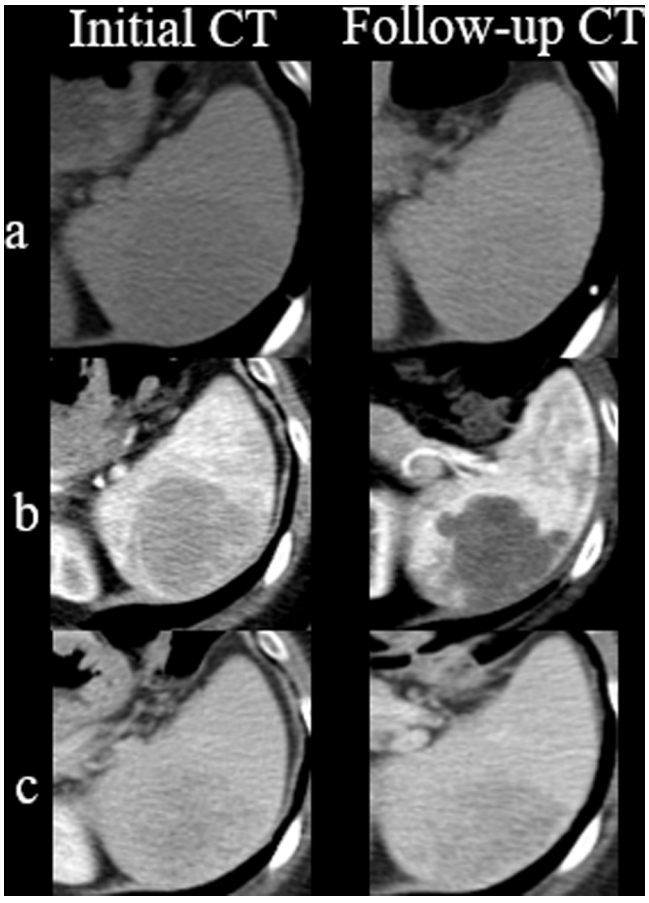

Fig. 1. Computed tomography (CT) scans of sclerosing angimatoid nodular transformation. a Plain CT. A slightly low-density mass on both initial and follow-up CT. b Dynamic CT on arterial phase. The density of the mass was lower than the surrounding normal spleen. On initial CT, the mass was 48 mm in diameter. On follow-up CT, the mass was reduced to 43 mm in diameter and its border had changed irregularly. c Dynamic CT on portal phase. The mass was heterogeneously enhanced from its margin on both initial and follow-up CT.

enhanced CT showed a well-defined and ovoid-hypoattenuating lesion measuring 52 mm in diameter in the spleen on the portal phase, and "filling-in" of contrast and increasing homogeneity of the splenic parenchyma on the delayed phase (Fig. 1a–c). Initial magnetic resonance imaging (MRI) revealed a low-intensity mass on T1-/T2-weighted images with heterogenous contrast effect (Fig. 2a–d). Initial PET/CT revealed an accumulation of FDG in the tumor (SUVmax: 2.8) (Fig. 3a). The mass was diagnosed as SANT, and follow-up was completed every 6–12 months for 5 years.

Five years later, a follow-up CT revealed an enhanced mass that was similar to that observed in the initial CT, although it demonstrated a mild-interval-size decrease, measuring 44 mm in diameter (Fig. 1a–c). A follow-up MRI revealed a central low-signal, non-enhancing focus on T1-/T2-weighted images (Fig. 2a–d). However, follow-up PET/CT revealed more accumulation of FDG (SUVmax: 3.5) (Fig. 3b). It was suspicious considering the differential diagnosis including malignant lymphoma. Therefore, she underwent laparoscopic splenectomy. The postoperative course was uneventful, and the patient was discharged on postoperative day seven.

2.1. Pathological findings

The cut surface of the spleen showed a well-demarcated and solitary mass, measuring 45 mm in diameter. The mass was dark brown with a central large stellate fibrotic scar (Fig. 4a). Microscopically, the mass was unencapsulated but well-demarcated, composed of multiple irregular fibrotic nodules. The center of the nodules showed many small-sized vessels and extravasated red blood cells, or so-called angiomatoid nodules. The stroma consist of the variably myxoid to dense fibrous tissue with scattered pulump myofibroblasts, haemosiderin-laden macrophages, plasma cells, and lymphocytes (Fig. 4b).

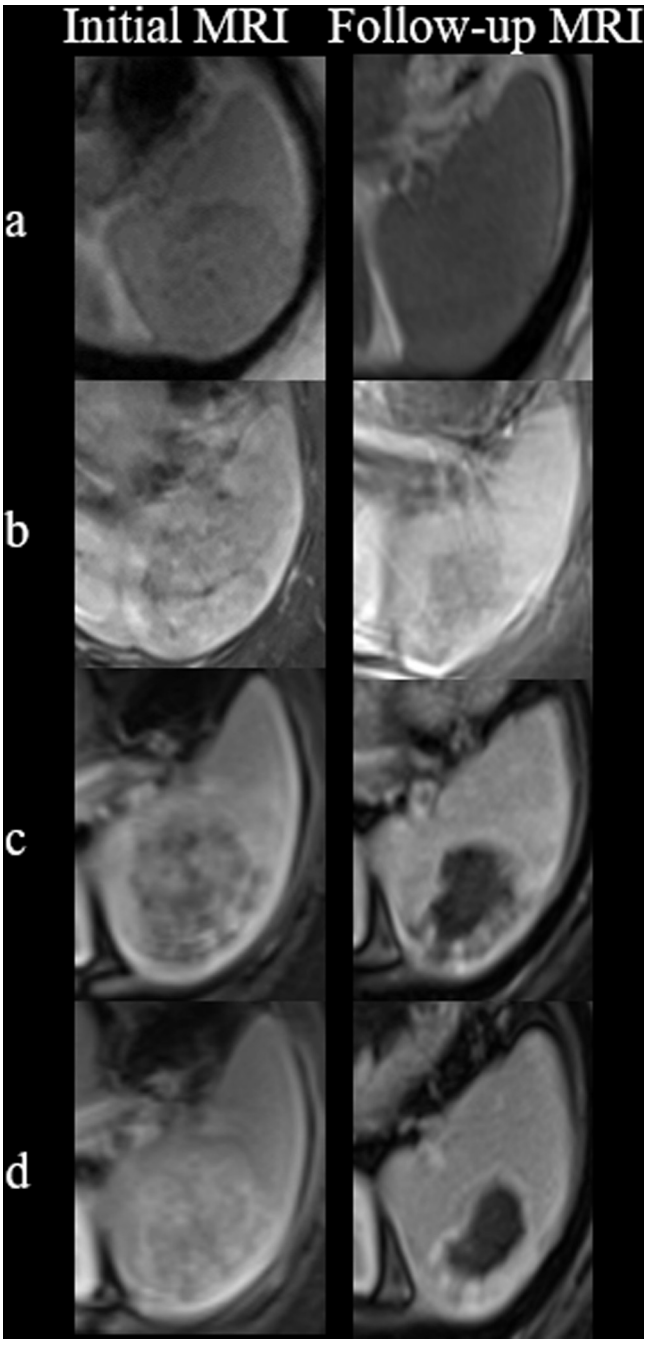

Fig. 2. Magnetic resonance imaging (MRI) of sclerosing angimatoid nodular transformation. a MRI on T1-weighted images. The mass showed the ill-defined splenic mass that was hypointense compared with the splenic parenchyma both the initial and follow-up MRI. b MRI on T2-weighted images. In the mass, heterogeneously isointense and hypointense area can be recognized. On follow-up MRI, the border of the mass had changed, becoming irregular. c Dynamic MRI on the arterial phase. The mass had a slightly heterogeneous enhancement. On follow-up MRI, the dynamic study revealed central hypointensity and the mass was heterogeneously enhanced in its margin. d Dynamic MRI on the equilibrium phase. The mass was heterogeneously enhanced from its margin on initial MRI. The central hypointensity displayed poor contrast effect.