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Case Report

Sclerotherapy using polidocanol foam for a giant splenic cyst☆,☆☆

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ABSTRACT

Nonparasitic splenic cysts often cause nonspecific symptoms such as pain or early satiety. As it is relatively rarer than hepatic cysts, no established treatment exists for splenic cysts. A 24-year-old woman with a complaint of abdominal discomfort was referred to our hospital. Computed tomography revealed an 11-cm diameter splenic cyst, thought to be the cause of her symptom. Sclerotherapy was performed using polidocanol foam, administered at a volume of 40 mL through a catheter, under local anesthesia. After 2 sessions, the cyst measured 5 cm in diameter, 3 months after the first treatment. Sclerotherapy using polidocanol foam can treat large splenic cysts. It can be performed using local anesthesia and a single puncture, reducing sclerosant use.

Introduction

Visceral cysts are usually asymptomatic; however, various symptoms can develop when cysts are large, present in multiples, or are infected [1]. Because splenic cysts are relatively rare compared to cysts in the liver or kidneys [2], there is no established treatment strategy. Splenectomy and sclerotherapy have been proposed as the2 main treatment options [3–5]. However, because both have advantages and disadvantages, it is unclear which is the better option because of the limited number of reports [4–6]. In particular, case reports of splenic cysts treated by sclerotherapy using polidocanol foam are scarce. We report a case of a splenic cyst that was successfully treated by sclerotherapy using polidocanol foam and review the literature of previous reports.

Case reports

A 24-year-old woman presented at a local clinic with a complaint of vague abdominal discomfort. Computed tomography (CT) revealed a large cystic lesion in her spleen. She was

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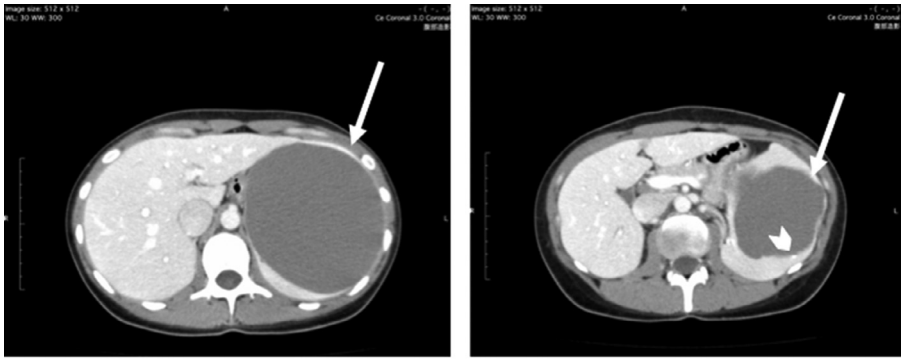

Fig. 1 – Computed tomography scan showing a large cyst in the upper lobe of the spleen (arrow) (a, b) with partial wall calcification (arrowhead) (b).

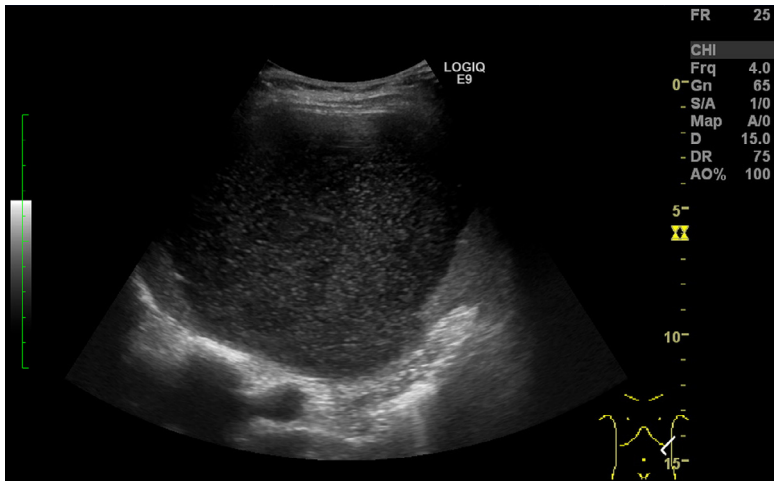

Fig. 2 – Ultrasound showing a unilocular cyst with multiple mobile internal echoes and liquid contents with posterior acoustic enhancement.

referred to the gastrointestinal department in our hospital and then was subsequently referred to the department of interventional radiology for intervention. At her first visit, her symptoms had resolved but her only complaint was of a cosmetic concern, stating that her "left upper quadrant is popping out." On examination, her vital signs were stable, and her abdomen was slightly distended without tenderness or guarding. She had no past medical history and was not taking any medication. The characteristics of the cyst wall and contents were evaluated using contrast-enhanced CT (Fig. 1) and ultrasound (US) (Fig. 2). CT revealed a large cyst mainly in the upper pole of the spleen with a diameter of about 12 cm. The attenuation of the cyst contents was 35 HU. Based on US and CT findings, the diagnosis of an epidermoid cyst was established. Because she was asymptomatic at the time of evaluation and because of the benign appearance of the cyst on imaging, only follow-up management without intervention was pursued. After 1 year of follow-up in the outpatient clinic, the patient presented with left flank pain and early satiety, for which she sought treatment. Following a multidisciplinary discussion, surgery was deemed to carry a significant risk of total splenectomy and a decision was, therefore, made to offer the patient sclerotherapy. Under local anesthesia, percutaneous cyst puncture through the normal splenic parenchyma was performed using a 20-gauge 20-cm needle under US guidance with the patient in a prone position. Cystic fluid aspiration and digital subtraction cystography with iodized contrast medium confirmed successful insertion of the needle. The cyst was aspirated following the insertion of an 8-Fr pigtail catheter (UreSil Origin Drainage Catheter, Sheen Man Co., Ltd., Osaka, Japan) over a 0.035-inch guidewire. A total volume of 1200 mL was aspirated, and the samples were sent for examination, which showed bacteriologically and cytologically negative (Fig. 3). Polidocanol foam was prepared by mixing 2 mL of 3% polidocanol (Polidocasklerol, Zeria Pharmaceutical, Tokyo, Japan) with 8 mL of ambient air and administered at a 40 mL volume (ie, 3% of the aspirated volume) through the catheter. The catheter was removed after the injection, and the patient was instructed to rotate 90° every 10 minutes to ensure contact between the cyst wall and sclerosant. One month after the first treatment session, she presented with recurrence of her symptoms and repeat imaging showed cyst recurrence to the

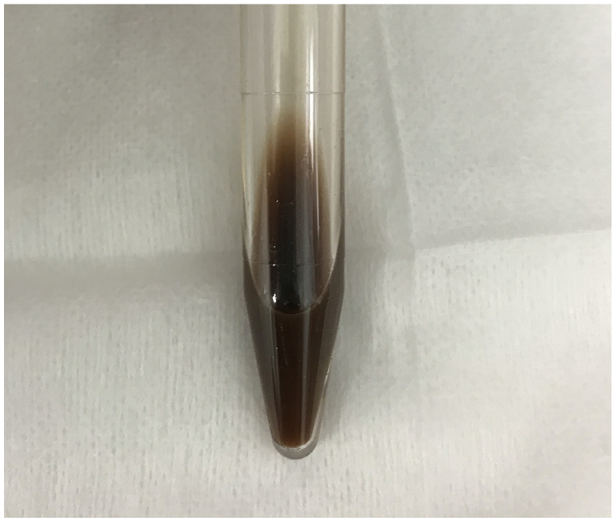

Fig. 3 – This picture shows the fluid that was aspirated from the splenic cyst.

same size before the intervention. The same treatment was repeated; however, during this second session, the catheter was maintained in place after the injection. After clamping for 2 hours following injection, the catheter was left unclamped for open drainage and to promote further cyst collapse. The CT scan performed 1 day after procedure showed that the cyst was completely collapsed (Fig. 4). The same amount of sclerosant was injected 1 week later, and the catheter was removed 1 week after the last injection. Three months after the second session, the cyst was noted to be 5 cm in diameter, and the patient's symptoms had resolved (Fig. 5). During the follow-up (6 months), the cyst remained in shrunk size (Fig. 6). Informed consent for reporting was obtained from the patient.

Discussion

Treatment indications for splenic cysts include a large size (usually >4 cm), symptoms (eg, pain, early satiety, or hydronephrosis) [7], and pregnancy due to the risk of rupture [8]. Besides, an adequate diagnosis is also important [9]. Epidemiology and diagnostic imaging play key roles in making an accurate diagnosis [10]. The most common true cysts are parasitic cysts. As inappropriate procedures may lead to anaphylactic shock or intraperitoneal dissemination of the infection, parasitic cysts must be excluded before invasive procedures are performed. Based on epidemiology, hydatid disease is uncommon in Japan, making it less likely in this case. In this case, ultrasound imaging revealed a unilocular cyst containing liquid with posterior acoustic enhancement and showing associated multiple mobile internal echoes [11]. CT showed nonspecific peripheral calcifications [10]. Imaging findings were consistent with those of splenic epidermoid cysts, the most common primary splenic cysts. Epidermoid cysts are mostly observed in children and young adults, with a predilection in women [2,10].

Because splenic cysts are relatively rare compared to hepatic or renal cysts, there is no established treatment strategy. Splenectomy and sclerotherapy have been proposed as the 2 main treatment options [3–5]. Splenectomy has a low

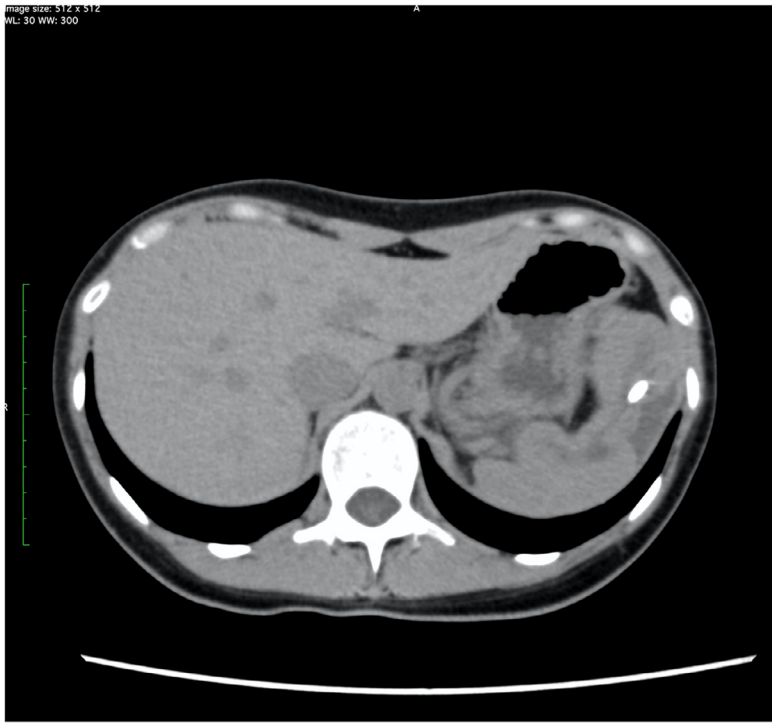

Fig. 4 – Computed tomography performed 1 day after second session shows that the cyst is completely collapsed.

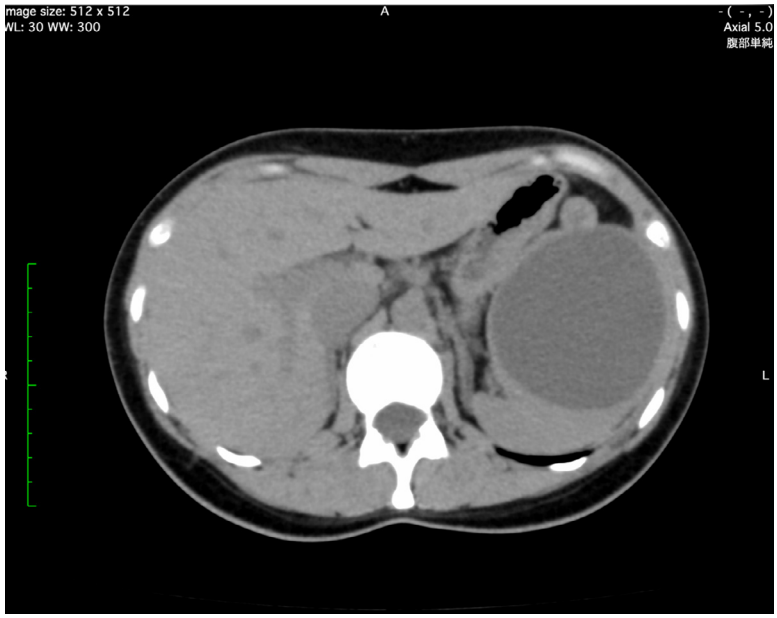

Fig. 5 – Computed tomography performed 3 months after sclerotherapy shows a significant reduction in the size of the cyst.

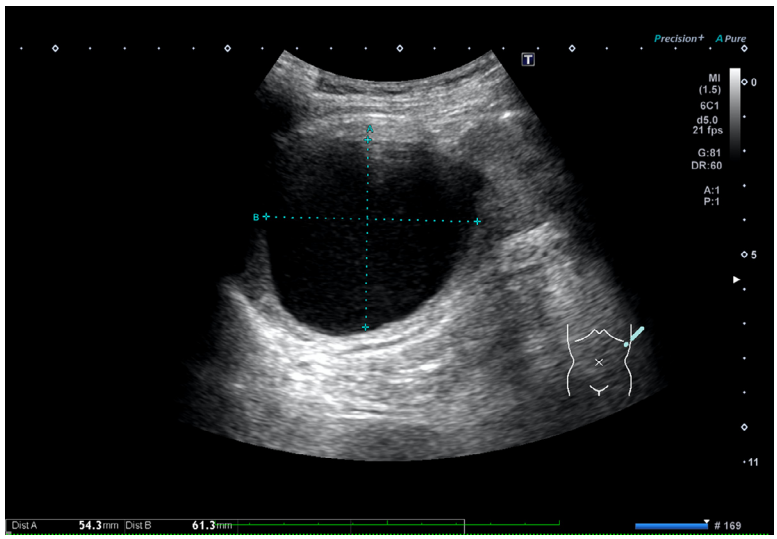

Fig. 6 – Ultrasound shows that the cyst remained in shrunk size at 6 months after second session.

recurrence rate. However, it is highly invasive because it requires general anesthesia, and postsplenectomy infections are potentially life-threatening, although very rare [1]. Moreover, preoperative vaccination is needed. Recently, less invasive laparoscopic partial splenectomy or fenestration, leading to smaller scars and faster recovery times, has been reported [12–14]. Sclerotherapy is less invasive because it can be performed under local anesthesia and with a single puncture [5]; however, the ideal agent for sclerotherapy is unknown. Ethanol has potential risks of intoxication and pain during injection [4]. Polidocanol requires large amounts and multiple sessions for the treatment of large cysts [5,15]. Sclerotherapy using polidocanol foam has been reported for the treatment of hepatic cysts [16]. Foam sclerotherapy leads to a reduction in the dose of sclerosant used, subsequently reducing complications due to sclerosant overdose. In this case, sclerotherapy using polidocanol foam was initiated because of the large-sized cyst that would have required total splenectomy, or sclerotherapy using large amounts of ethanol, increasing intoxication risk. Although 2 sessions were needed, successful shrinking of the cyst and resolution of the patient's symptoms were achieved.

In summary, sclerotherapy using polidocanol foam is a treatment option for large splenic cysts. This treatment can be performed under local anesthesia and a single puncture, reducing the amount of sclerosant required.

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