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TITLE: A case of uretal sparganosis detected by ultrasonography

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ABSTRACT

A 42-year-old man with a history of the ingestion of frogs one year ago, presented to our hospital with an upper right abdominal cystic mass detected incidentally by ultrasonography in a medical examination. The abdominal computed tomography (CT) scan showed a right retroperitoneal cyst mass, and he had been misdiagnosed with lymphocele. Consequently, we performed surgical excision and confirmed uretal sparganosis mansoni by both histological and immunoserological examinations. After two oral courses of praziquantel were administered and the wound was healing very well, he was able to leave the hospital. Sparganosis mansoni is typically diagnosed by surgical removal of the worm due to the difficulty of preoperative diagnosis. In retrospective analysis, we found this uretal sparganosis mansoni was detected by ultrasonography.

Keywords: Uretal; Sparganosis mansoni; Diagnosis; Ultrasonography
INTRODUCTION

Sparganosis mansoni is a parasitic disease caused by the larva of spirometra mansoni, occurs mainly by ingesting the raw or inadequately cooked frogs, snakes, and the meat of other animals, or drink unboiled water [1]. The cases of eye sparganosis and subcutaneous sparganosis have been reported previously, but very few cases of uretal sparganosis mansoni have been reported thus far [2]. Here, we presented a case of uretal sparganosis mansoni. The patient had been misdiagnosed due to a lack of suspicion by the primary physician, and which was confirmed by both histological and immunoserological examinations. We report it herein.

CASE REPORT

A 42-year-old man, who had a steady job as a primary school teacher and never travelled overseas, was admitted to the Affiliated Haikou Hospital of Central South University Xiangya School of Medicine in May 2016 with an upper right abdominal cystic mass detected incidentally by ultrasonography in a medical examination three months ago. He has none symptoms, such as fever, abdominal pain, and a physical examination of him was normal. An abdominal CT scan demonstrated a right retroperitoneal cyst mass with low signal intensity, it's size is probably 9.4 cm × 7.6 cm × 9.2 cm, and it's boundary was clear and the enhanced CT detected no abnormality. And it is very close to the lower of right kidney and part of the ascending colon is shifted to the left (Figure 1A). The initial laboratory data were within the normal range. Our primary radiologic impression was a lymphocele. Even though we told him the necessity to further examination and treatment, he denied our suggestion and went home. However, he visited our hospital again in August 2016, wanted to do a surgery to remove the mass. He has none symptoms, such as fever, bdominal pain, and a physical examination of him was normal, too. On admission, the reexamination of ultrasonography revealed an upper right abdominal cystic mass, with a ribbon-like hyperechoic lesion with indistinct margins within a surrounding hypoechoic area in the inner part of the mass. And the CDFI showed no visible blood flow letter was found in the inner part (Figure 1B and 1C). However, due to a lack of suspicion by the primary physician who did not find the difference, and told the same result as the CT scan. The laboratory data were within the normal range, too. Finally, we decided to remove the
mass under laparoscopic surgery under general anesthesia. In the operation, we found that a cystic mass can be seen adherent to the vein and mesenteric vascular root that closely adherent to the renal fat sac, and its size is approximately 10 cm x 8 cm x 10 cm. Then, we successfully removed the mass. To everyone’s surprise, we found the root of the cyst mass is linked to a tube that is looked very much like a ureter. So we explored the urinary system, and found that the right upper ureter was divided in two parts during surgery. After the discussion, we decided to perform the end to end right upper ureteral anastomosis, and a double-J tube was placed in the right upper ureter.

Uretal sparganosis mansoni confirmed by both histological and immunoserological examinations. Postoperative pathology reported sparganosis mansoni, and part of the cyst wall is ureteral tissue, and the immunohistochemical results showed SMA(+), S-100(-), Vim(+), HMB45(-), CD68(-) (Figure 1D). The postoperative laboratory examination included the following: white blood cell count of 16.16×10^9/L, with an increased neutrophil ratio (14.8%), C-reactive protein of 23.2 mg/dl. Other laboratory data were within the normal range. After two oral courses of praziquantel were administered, and all of the laboratory data were within the normal range, he was able to leave the hospital with the wound was healing very well. After 1 month, he did not complain of any discomfort, and general physical examination items, blood, urine, liver, kidney function tests were normal, we pulled the double-J tube through the cystoscope. The serum antibody titer against sparganum was negative, and no abnormality was found in pelvic and abdominal ultrasound. He reviewed every three months, and there was none abnormality detected after the followed up nearly one year.

**DISCUSSION**

Sparganosis mansoni caused by the larva of sparganum mansoni, is a widespread parasitic zoonosis that results serious healthy problem to both human and animals, mainly induced by eating raw or undercooked frogs, snakes, and the meat of other animals, or drink unboiled water, that infected with spargana[1-3]. Sparganosis has been reported sporadically around the world, and a higher prevalence of the disease occurs in several Asian countries, including South Korea, Japan, Thailand, and China. The cases of eye sparganosis and cerebral sparganosis have been reported previously, but very few cases of uretal sparganosis mansoni have been reported thus far[2-3].
Sparganosis mansoni is an uncommon disease without specific clinical symptoms and signs, and it is easy to be confused with some diseases, such as lipoma, sebumadenoma, paragonimiasis and so on, and as a result, many patients are misdiagnosed or never diagnosed[3]. This case presents radiologic findings of a presumptive case of sparganosis manifesting as a right retroperitoneal cyst mass, which showed nonenhancing homogeneous low signal intensity, and its boundary was clear on CT scan, and a cystic mass with ribbon-like structures that hyperechoic lesion with indistinct margins within a surrounding hypoechoic area in the inner part on ultrasonography. Most of the patients were diagnosed by operation or biopsy, however, the lesion is not easy to be found when it is parasitic on deep organs as in this case, its diagnosis and treatment are more difficult[3]. This case is misdiagnosed, mainly because we had never seen the same case before and a lack of suspicion by the primary physician who neglect the abnormalities, and there was no manifestations as well.

The treatment principle of sparganosis mansoni is surgical removal of the lesion, no medication has been proven to be an effective measure against sparganum mansoni[4-5]. Even though surgical removal is the definitive treatment, it cannot be applied in some conditions[4]. Some reports have advised that praziquantel is effective in sparganosis mansoni. Xie HQ, et al. reported that a longterm administration of high dose praziquantel can also get a good treatment prognosis without the classical surgical therapy for sparganosis mansoni[3]. The surgical method was a treatment option in this case because the patient had a right retroperitoneal cyst mass. However, there have some deficiencies of the management to the patient found in retrospective analysis. Firstly, although ultrasound is not enough to diagnose sparganosis mansoni, but in this case it had been detected by ultrasound, and neglected by the primary physician. Next, a computed tomography urography (CTU) and other checks should be done preoperatively to clear about the cysts mass relations which organizes with periphery, such as intestinal tract and the right ureter, that denied by the patient. Moreover, it was found that the cyst mass was very closely related to the right ureter, which should be dissociated to prevent injury. Fortunately, it was found during operation that sparganosis mansoni infringe the upper part of the right ureter, ureteral anastomosis was performed so timely that there was no serious complications, such as urinary leakage.
Sparganosis monsoni is a foodborne parasitic zoonosis, the key to preventing human sparganosis monsoni is to cease the eating of raw or undercooked meat of frogs and snakes, or other animals, the drinking of unboiled water, and the application of raw frog flesh or skin to open wounds, which were infected with spargana[3,5].

CONCLUSION
In conclusion, our case involve the very rare condition of uretal sparganosis monsoni manifesting as a right retroperitoneal cyst mass with none symptoms and abnormality of physical examination and detected by ultrasonography. The understanding of this case will encourage radiologists and physicians to consider the possibility of uretal sparganosis monsoni when they encounter retroperitoneal cyst masses with bizarrely ultrasound findings like this case, and the prevention of ureteral injury should be noted during the operation.

CONFLICT OF INTEREST
None declared

AUTHOR’S CONTRIBUTIONS
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REFERENCES
3. Xie Huiqun, Long Yong, Xu Yun, et al. Clinical features, radiological, characteristics, and pathological changes in 42 patients with cerebral


FIGURE LEGEND

Figure 1: (A) - Initial abdominal CT demonstrated a right retroperitoneal cyst mass (arrow). (B) - A ribbon-like hyperechoic lesion with indistinct margins within a surrounding hypoechoic area in the inner part of the cystic mass, which were detected by ultrasonography (arrow). (C) - CDFI showed no visible blood flow letter was found. 1D: Postoperative pathological revealed calcareous corpuscles and worms tissue (arrow).
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