

# A case of ureteral sparganosis detected by ultrasonography

Zhi Li, Hong-Fen Wu, Jian-Quan Zhang

## ABSTRACT

A 42-year-old male 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 ureteral sparganosis 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 is typically diagnosed by surgical removal of the worm due to the difficulty of preoperative diagnosis. In retrospective analysis, this ureteral sparganosis was detected by ultrasonography.

**Keywords:** Diagnosis, Sparganosis, Ultrasonography, Ureteral

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Received: 18 September 2017

Accepted: 09 October 2017

Published: 01 February 2018

## How to cite this article

Li Z, Wu HF, Zhang JQ. A case of ureteral sparganosis detected by ultrasonography. Int J Case Rep Images 2018;9:100881Z01ZL2018.

Article ID: 100881Z01ZL2018

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doi: 10.5348/100881Z01ZL2018CR

## INTRODUCTION

Sparganosis 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 drinking water without boiling [1]. The cases of eye sparganosis and subcutaneous sparganosis have been reported previously, but a few cases of ureteral sparganosis have been reported thus far [2]. Herein, we presented a case of ureteral sparganosis. 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.

## CASE REPORT

A 42-year-old male, who had a steady job as a primary school teacher and never traveled 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 no symptoms, such as fever, abdominal pain, and is physical examination was also normal. An abdominal computed tomography scan demonstrated a right retroperitoneal cyst mass with low

signal intensity, its size is probably 9.4×7.6×9.2 cm, and its 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.

The patient visited our hospital again in August 2016, wanted to do a surgery to remove the mass. He has none symptoms, such as fever, abdominal pain, and is physical examination was also normal. 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–C). However, due to a lack of suspicion by the primary physician who did not find the difference, and told the same result as the computed tomography (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 10x8x10 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.

Ureteral sparganosis confirmed by both histological and immunoserological examinations. Postoperative pathology reported sparganosis, 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  $16.16 \times 10^9/L$ , 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 one 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.

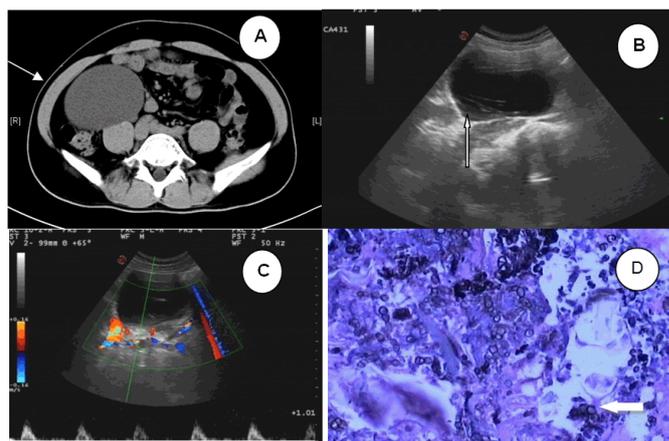


Figure 1: (A) Initial abdominal computed tomography scan demonstrating a right retroperitoneal cyst mass (arrow). (B) A ribbon-like hyperechoic lesion with indistinct margins within a surrounding hypoechoic area in the inner part of the cystic mass, which were detected by ultrasonography (arrow). (C)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

## DISCUSSION

Sparganosis caused by the larva of *Sparganum mansoni*, is a widespread parasitic zoonosis that results serious health problem to both humans and animals, mainly induced by eating raw or undercooked frogs, snakes, and the meat of other animals, or drinking water without boiling, 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 ureteral sparganosis have been reported thus far [2, 3].

Sparganosis is an uncommon disease without specific clinical symptoms and signs, and it is easy to be confused with some diseases, such as lipoma, sebaceous adenoma, 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 non-enhancing 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 physicians who neglect the abnormalities, and there was no manifestations as well.

The treatment of sparganosis 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. Xie et al. reported that a long-term administration of high dose of praziquantel can also get a good treatment prognosis without the classical surgical therapy for sparganosis [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, 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 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 is an food borne parasitic zoonosis, the key to preventing human sparganosis is to cease the eating of raw or undercooked meat of frogs and snakes, or other animals, the drinking water without boiling, 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 ureteral sparganosis 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 ureteral sparganosis 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.

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## Acknowledgments

We thank all of the study participants for their cooperation, technical help, and sample collection. This study was supported by Hainan Science and Technology Fund Project of China (ZDXM2015082).

## Author Contributions

Zhi Li – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Hong-Fen Wu – Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Jian-Quan Zhang – Substantial contributions to conception and design, Revising it critically for important intellectual content, Final approval of the version to be published

## Guarantor of Submission

The corresponding author is the guarantor of submission.

## Source of Support

None

## Consent Statement

Written informed consent was obtained from the patient for publication of this case report.

## Conflict of Interest

Authors declare no conflict of interest.

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