



## Case report

## Accessory spleen presenting with an episode of acute appendicitis; a case report of a very rare case



Shahram Sayyadi<sup>a</sup>, Mojtaba Ahmadinejad<sup>b</sup>, Parham Mardi<sup>c</sup>, Mohammad Moein Rezae<sup>c</sup>,  
Kyana Jafarabady<sup>c</sup>, Mohammad Hadi Bahri<sup>b</sup>, Javad Zebarjadi Bagherpour<sup>d,\*</sup>

<sup>a</sup> Anesthesia Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran

<sup>b</sup> Department of Surgery Shahid Madani Hospital, Alborz University of Medical Sciences Alborz, Iran

<sup>c</sup> Alborz University of Medical Sciences Alborz, Iran

<sup>d</sup> Department of Surgery, Alborz University of Medical Sciences, Alborz, Iran

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## ABSTRACT

**Introduction:** The accessory spleen (AS) is a condition that results from improper placement of spleen cells. About 95 % of ASs are located in the splenic hilum proximal to the tail of the pancreas. Here we present a 23-year-old male diagnosed with AS in the appendix, following an episode of acute appendicitis.

**Case presentation:** A 23-year-old male patient who presented with typical symptoms of appendicitis and the examination and paraclinical findings were in favor of appendicitis. Intraoperative findings showed an inflamed appendix and a 2 cm solid mass in the mesoappendix. The pathology report showed acute appendicitis and normal spleen tissue.

**Conclusion:** The current study indicated an abnormal location of AS placed in the mesoappendix, which was presented with an episode of acute appendicitis.

## 1. Introduction

There are several conditions presented with abdominal pain. One of the most clinically significant diagnoses is appendicitis, as it may require urgent surgical intervention [1,2]. The lifetime incidence of appendicitis is 1 in 15 persons, which is estimated to escalate within the next years, especially in developing countries [3–5]. Appendicitis is more prevalent in males aged between 10 and 30 years. Merely around 5–10 % of cases are diagnosed in older patients [6]. Further evaluations in order to roll out other conditions, especially malignancies are indicated in this age group [7]. Histological evaluations of the excised appendix are a reliable method to identify appendiceal cancer. Pathological histology reports mainly consist of primary epithelial neoplasms [8].

The accessory spleen (AS) is a condition that results from improper placement of spleen cells, due to failure of fusion of multiple buds of splenic tissue in the dorsal mesogastrium in the fifth week of embryonic life [9], in abnormal positions in the abdominal cavity [10]. Although previous studies revealed that an accessory spleen can be found in about 10–15 % of the normal population, they remain asymptomatic in most cases. Nevertheless, they may require surgical intervention in case of AS

torsion [11].

About 95 % of ASs are located in the splenic hilum proximal to the tail of the pancreas. The remaining 5 % are formed in the gastrosplenic ligament, wall of the stomach, wall of the intestine, and the mesentery or pelvic cavity. The diameter of the accessory spleen ranges from 1 cm in most cases to approximately a few centimeters in others [12]. It should be noted that the function of AS is similar to the normal spleen, especially in terms of eliminating old or abnormal red blood cells (RBCs), which leads to splenic function (removal of RBCs) in patients who undergo total splenectomy surgery [11].

Not merely the presence of AS can interfere with the consequences of splenectomy, which makes excision of AS crucial, but also it can be misinterpreted as lymph nodes, neoplastic growth, or splenosis in computed tomography (CT) scan [13]. Scintigraphy with 99mTc-nano-colloid is the imaging choice for the diagnosis of AS [14]. Based on the Surgical Case Report, 2020 (SCARE) guidelines, we report a 23-year-old male diagnosed with AS in the appendix, following an episode of acute appendicitis [15].

\* Corresponding author.

E-mail addresses: [sh.sayyadi@sbmu.ac.ir](mailto:sh.sayyadi@sbmu.ac.ir) (S. Sayyadi), [m.bahri@abzums.ac.ir](mailto:m.bahri@abzums.ac.ir) (M.H. Bahri), [javad.zebarjadi@yahoo.com](mailto:javad.zebarjadi@yahoo.com) (J.Z. Bagherpour).

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## 2. Case presentation

A 23-year-old male presented to Shahid Madani hospital, Karaj with a chief complaint of abdominal pain in the epigastric region which was migrated to the right lower quadrant (RLQ) after 5 h of onset. Moreover, since the onset of pain, its severity had been increased by 5 visual analog scale (VAS) scores. The patient claimed that the quality of pain was constant and it was concomitant with a lack of appetite, nausea, and five episodes of non-bilious, non-bloody emesis. Our patient did not note any episode of prior hospital admission or surgical procedures. Also, the patient's past medical history was negative. The general condition of the patient was fair on admission and the patient was conscious prior to surgery. Apart from an increased temperature ( $T = 38.1$ ), other components of vital signs were stable (pulse rate = 88 beats per minute, systolic blood pressure = 110 mmHg, diastolic blood pressure = 70 mmHg, and respiratory rate = 12 breaths per minute). The patient's physical examination revealed tenderness and rebound tenderness in RLQ which was in favor of appendicitis. Besides, laboratory studies revealed a white blood cell (WBC) count of  $15.3 \times 10^9 /L$  without evidence of shift to the left of WBCs. Moreover C-Reactive protein level of the patient was 21 mg/L. Other routine laboratory findings were reported within the normal range. An urgent appendectomy was conducted, due to high suspicion of appendicitis. In the operating room, the abdomen was opened with a McBurney incision and the intraoperative finding was an inflamed appendix with a solid lesion suspected of AS in the mesoappendix (Fig. 1). The patient was transferred to the surgery department, and the day after the operation, the oral diet was started, and he was discharged two days after the surgery. Two weeks after the surgery, there was no problem in the follow-up. In the pathology report, the findings were in favor of acute appendicitis (Fig. 2), and the solid mass findings were indicative of normal spleen tissue (Fig. 3).

## 3. Discussion

This study demonstrates a very rare location of AS, which not merely emphasizes the importance of histological evaluations following an



Fig. 1. Intraoperative findings show a solid lesion in mesoappendix.

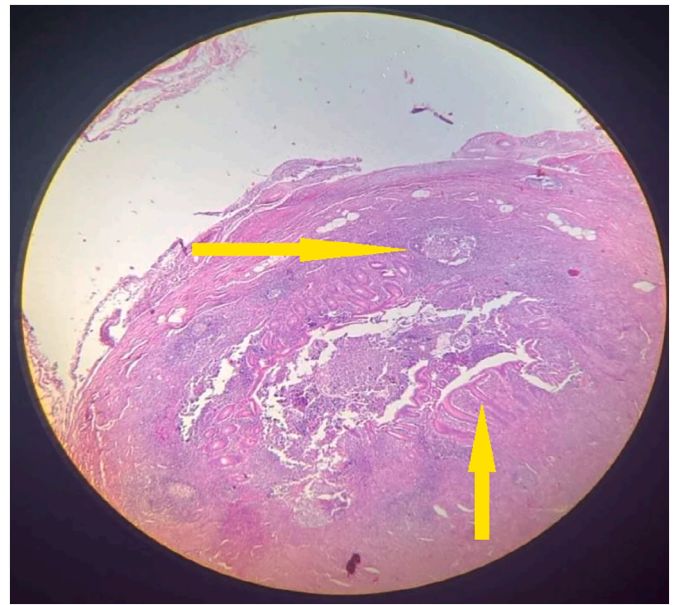


Fig. 2. Findings is infavore of acute appendicitis.

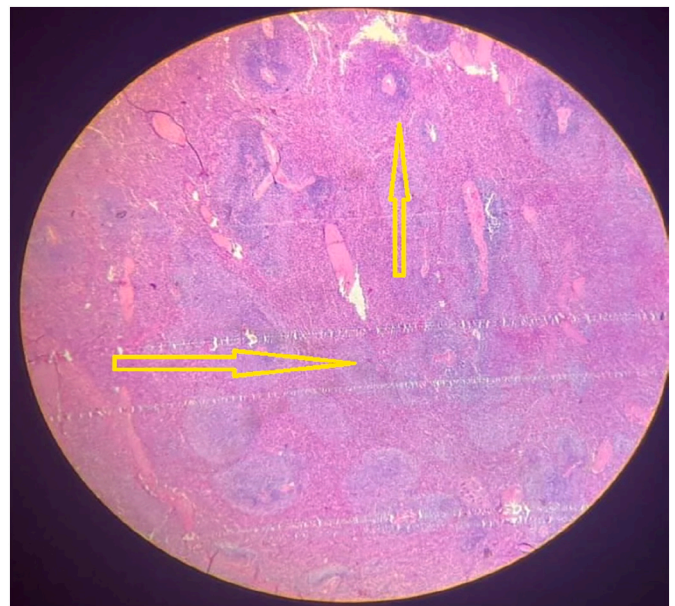


Fig. 3. Findings is infavore of normal spleen tissue.

appendectomy, but also introduces a location to be investigated in patients who undergo splenectomy but still have splenic functions. As previously mentioned the most common location of the AS are the splenic hilum and pancreatic tail and its presence in other parts of the abdominal cavity is uncommon. The presence of AS in mesoappendix has been reported only a few times in previous studies to the best of our knowledge [16–18] and this is the first study, to the best of our knowledge, that a patient was presented with acute appendicitis picture rather than a presentation of AS torsion. In our study, the AS was found accidentally during appendectomy, and torsion of the AS was not the cause of acute appendicitis (Table 1).

This study adds new data to the open discussion regarding the indications of routine pathological examination following splenectomy [19,20].

On one hand, the appendiceal neoplasm is reported in merely less than 2 % of appendectomies and is typically associated with

**Table 1**  
Summarizing previous reports.

Reference	Gender	Cause of appendicitis
[16]	Male	Torsion of an accessory spleen
[17]	Male	Torsion of an accessory spleen

characteristic visual presentations during the surgery. Moreover, in several cases, pathological analyses could be omitted for certain routine samples. It should be noted that these examinations are expensive and need time to be performed and they impose psychological stress on patients [21].

On the other hand, early diagnosis of an appendiceal malignancy can certainly increase patients' outcomes. To sum up, although it is uncommon to diagnose malignancy in routine pathology examinations, early neoplastic diagnosis may increase patients' life expectancy [20]. The current case report reveals that even benign pathological results such as AS could notably affect patients' prognoses.

It should be noted that apart from rare cases of AS torsion, patients with AS are asymptomatic and it is mainly found accidentally during imaging for other purposes. Moreover, in patients who have undergone splenectomy, the presence of AS may develop typical findings on the blood smear to lessen or disappear. That is to say, splenectomy may be less effective therapeutically in case of AS presence leading to recurrence of the underlying condition for which splenectomy was performed.

#### 4. Conclusion

The current study indicated an abnormal location of AS placed in the mesoappendix, which was presented with an episode of acute appendicitis. These findings emphasize the importance of histological evaluations following an appendectomy.

#### Consent

Informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

#### Provenance and peer review

Not commissioned, externally peer-reviewed.

#### Ethical approval

This is a case report paper.

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#### Guarantor

The corresponding author is Dr. Javad Zebarjadi Bagherpour who accepts full responsibility for the work and/or the conduct of the study, had access to the data, and controlled the decision to publish.

#### Research registration number

None.

#### Registration of research studies

1. Name of the registry:

2. Unique identifying number or registration ID:
3. Hyperlink to your specific registration (must be publicly accessible and will be checked):

#### CRediT authorship contribution statement

All authors had same contribution on this work.

#### Declaration of competing interest

All authors confirm that there is no conflict of interest.

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