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Case report

CASE REPORT

Two cases of small bowel obstruction due to a shiitake mushroom

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Abstract

The shiitake mushroom (*Lentinula edodes*), known as Xiang-gu in China, has been an important component of Asian cuisine for hundreds of years. Although not easily digestible, there are few reports of them causing bowel obstruction. We present two cases of small bowel obstruction due to a shiitake mushroom requiring surgical intervention. Two patients who did not have any teeth and did not use dentures presented with intestinal bowel obstruction and were referred to the Emergency Department of our hospital after eating a meal including shiitake mushrooms without cutting. The first patient underwent an emergency laparotomy and a semental small bowel resection and the other underwent laparoscopic small bowel incision for removal of a foreign body. The causes of the small bowel obstruction for the two patients were uncut shiitake mushrooms in the small bowel. The two patients recovered uneventfully post-operatively.

Key words: Shiitake mushroom; small bowel obstruction

Introduction

The shiitake mushroom has been part of Asian cuisine for many years [1]. Although not easily digestible, there are few reports of them causing bowel obstruction [2]. We present two cases of small bowel obstruction due to shiitake mushrooms requiring surgical intervention.

Case reports

Case 1

A 62-year-old man without any significant medical or surgical history presented with 3 days of worsening abdominal distention and pain. He reported absence of flatus or stool for 3 days. Plain film revealed small bowel distention with air fluid levels and CT of the abdomen suggested intussuseption due to small bowel tumor (Figure 1). He was taken urgently to the operating room and, although the intussuseption resolved spontaneously, a small bowel mass 120 cm proximal to the ileocecal valve was identified and segmental small bowel resection was performed. The patient recovered from surgery without complications and was discharged home on post-operative day 7. Pathology revealed that the tissue of the resected small bowel was obviously edematous and had obvious inflammatory cell infiltration.

The patient later reported that he did not have any teeth and did not use dentures during eating and thus had whole shiitake mushrooms prior to presentation, without cutting them.

Case 2

A 61-year-old woman without significant medical or surgical history presented with 7 days of worsening abdominal pain,

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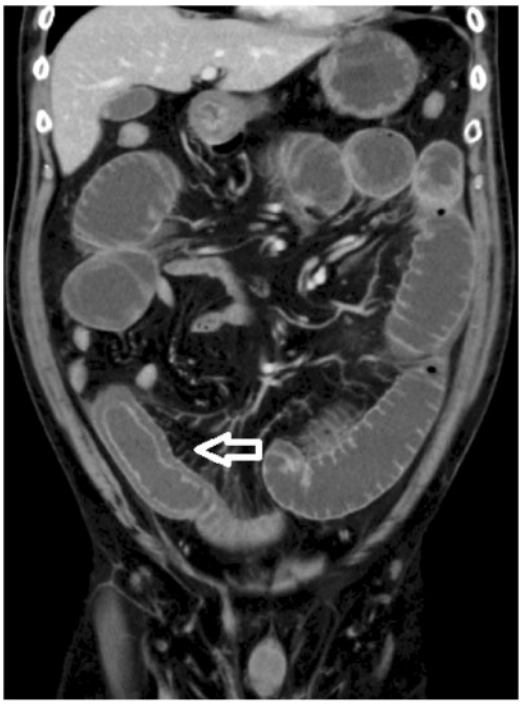

Figure 1. Coronary view of abdominal CT scan. White arrow shows the small bowel intestinal intussuseption.

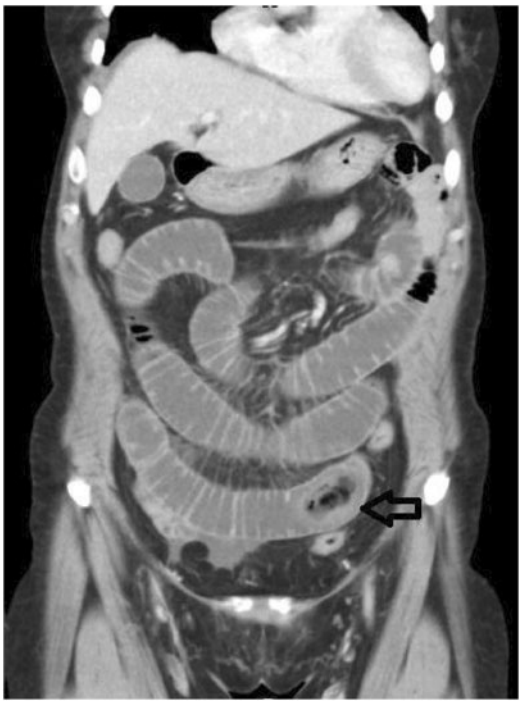

Figure 2. Coronary view of abdominal CT scan. Black arrow shows the foreign body in the small bowel cavity.

distention, nausea and vomiting, without flatus or stool. Plain film revealed air fluid levels and CT of the abdomen showed small bowel obstruction 200 cm proximal to the ileocececal valve due to a non-uniform foreign body (Figure 2). He was taken urgently to the operating room, enterotomy was performed and a whole mushroom was removed (Figure 3). The patient recovered uneventfully and was discharged home on post-operative day 5 and also reported eating whole mushrooms without teeth or dentures.

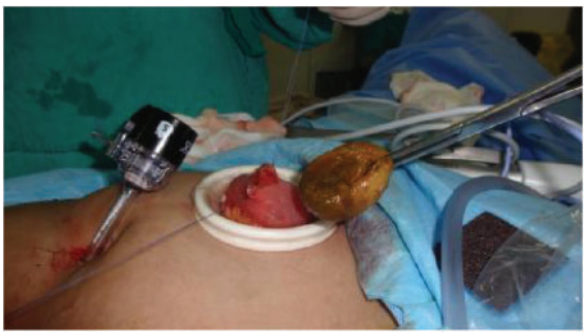

Figure 3. A complete shiitake mushroom was removed from the small bowel cavity.

Discussion

The shiitake mushroom (*Lentinula edodes* (Berk.) Pegler), known in China as Xiang-gu, has been part of Asian cuisine for many years [1]. Especially in south of China, uncut shiitake mushrooms are a key ingredient in many dishes. The shiitake mushroom is full of dietary fiber. In dried shiitake mushrooms, 49.1% is dietary fiber, 82.9% of which is insoluble fiber [3]. It is uneasy to ingest an uncut shiitake mushroom, and it can be the cause of bowel obstruction if it is big enough. The common characteristics of the two patients in this report were that they did not have any teeth and did not use dentures during eating. The shiitake mushroom is very slippery and easy to escape to swallowing without cutting for these patients.

Detection of the cause of dietetic bowel obstruction due to shiitake mushrooms is difficult [2]. First, bowel obstruction due to shiitake mushrooms is rare. Second, due to the delayed onset of symptoms of intestinal bowel obstruction, it is not easy to connect the causes of intestinal bowel obstruction with patients' dietetic history. Third, the shiitake mushroom is radiotransparent. Although it is difficult to detect to the cause of the dietetic bowel obstruction, it is not so important and what is important is to treat the bowel obstruction urgently.

An urgent operation is preferred for these patients. Laparoscopic exploration is preferred for tolerable patients, just as for Case 2 in this report. During the operation, it is important to examine the lump thoroughly, including its site, size, shape, edge, surface and smoothness, mobility, color of bowel wall overlying it and so on. By doing so, the differential diagnosis of a foreign body in the bowel cavity or a tumor can be made intraoperatively. For a foreign body, opening the bowel wall and it taking out is appropriate. For Case 1 in this report, if the surgeon had examined the lump more thoroughly, bowel resection would have been avoided. Kouichi Nonaka reported a patient with jejunum obstruction due to a shiitake mushroom, which was found under abdominal CT scan [2]. The shiitake mushroom was successfully crushed and cut away using a snare under double-balloon enteroscopy and then the fragmented shiitake mushroom migrated to the descending colon. But the endoscopic procedure was not easy to complete and the prerequisite was the correct diagnosis of the cause and site of the bowel obstruction.

In this small case series, we present two cases of small bowel obstruction due to shiitake mushrooms requiring surgical intervention. Although the causes of the bowel obstructions were not clear pre-operatively, the two patients underwent urgent surgical operations due to mechanical bowel obstructions and both of them recovered uneventfully post-operatively. Two lessons can be learned from the case report: (i) for any patients with small bowel obstruction, dietary history is an important indication for determining the cause; and (ii) for any lump found in the bowel, it is important to differentiate a foreign body in the bowel cavity from a tumor of the bowel.

Conflict of interest

None declared.

References

1. Tian Y, Zhao Y, Huang J *et al*. Effects of different drying methods on the product quality and volatile compounds of whole shiitake mushrooms. *Food Chem* 2016;**197(Pt A)**:714–22.
2. Shozushima M, Ohata K, Nonaka K *et al*. Shiitake mushroom-induced ileus managed using double-balloon enteroscopy. *Endoscopy* 2013;**45 (Suppl 2 UCTN)**:E437.
3. Martínez-Flores HE, Maya-Cortés DC, Figueroa-Cárdenas JD *et al*. Composición química y propiedades físico-químicas del hongo shiitake y de productoscon alto contenido de fibra [Chemical composition and physicochemical properties of shiitake mushroom and high fiber products]. *CYTA–J Food* 2009;**7**:7–14.