Unhappy new year: mochi-induced small bowel obstruction

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DESCRIPTION

In the evening of 4 January a 70-year-old man presented to the hospital with signs of acute abdomen. On examination, he was afebrile. Deep palpation in the umbilical region elicited moderate tenderness. Laboratory investigations revealed that the inflammatory markers were normal. Abdominal CT showed homogeneous high-density materials in the small intestine with proximal intestinal dilation (figure 1). A detailed review of his history revealed that the patient, who had no teeth, had swallowed rice cakes (mochi in Japanese) in hot soup in the morning. This led to the diagnosis of small bowel obstruction (SBO) due to mochi. He recovered on conservative treatment of fasting and intravenous fluid therapy without any further procedures (eg, surgery and nasogastric tube insertion). After resuming eating on the second day of hospitalisation, the symptoms did not recur. The patient was discharged on the fifth day of hospitalisation.

Food-induced SBO is rare. Mochi is popularly eaten, especially during the first week of new year and celebratory occasions in East Asia and can cause SBO.^{1 2} It can cause intestinal obstruction because of (1) the unique nature of mochi and (2) patient factors. First, mochi becomes hard when cold and cannot easily dissolve in hot water. This property is due to the fact that amylopectin, the main ingredient of mochi, does not dissolve in hot water, and the process of kneading makes it indigestible.² Second, factors that interfere with chewing, including dentures, difficulty swallowing and missing teeth, can also lead to mochi-induced bowel obstruction.^{2 3}

Seasonality of the disease is a key feature. According to previous studies, the incidence of mochi-induced SBO was highest in January (approximately 60%).^{1 4 5} This seasonal tendency may be unique to the Japanese population. However, although rice cakes are sold all year round and

clinicians can encounter cases of mochi-induced SBO at any time of the year, this seasonality is worth noting.

The symptoms of mochi-induced SBO are not specific and are the same as those of usual post-operative adhesive bowel obstruction. Therefore, history of rice cake consumption and findings of imaging studies are the keys to diagnosis. The best modality for the diagnosis of mochi-induced SBO is not X-ray, but CT.³ Mochi residues show characteristic CT findings, that is, homogeneous high-density structures.^{3 4} Conversely, mochi is usually not visualised on X-ray.¹

Previously, many cases of mochi-induced SBO were treated surgically. Indeed, mochi can cause critical complications, such as perforation and necrosis of the intestinal wall, which may require emergency surgical intervention.⁵ However, the effectiveness of the conservative treatment (ie, fasting and tube decompression) has recently received attention.¹ If the obstruction is in the duodenum, endoscopic removal of retained mochi may be useful.^{6 7} The present case was successfully treated using the conservative therapy with careful observation.

Mochi-induced SBO, as well as other culturally or geographically unique diseases, can become a worldwide problem in this age of globalisation.⁴ The diagnosis is easy only if patients present with characteristic CT findings (ie, SBO by intraluminal high-attenuation mass) in the new year.

Patient's perspective

The bowel obstruction caused by mochi was very painful. So, I am not going to eat mochi again.

Learning points

- ▶ Rice cakes (mochi in Japanese) are often eaten especially during the first week of the new year in East Asia and can lead to small bowel obstruction (SBO).
- ▶ The key to the diagnosis of SBO caused by mochi is the history of mochi ingestion and the characteristic CT findings: SBO by intraluminal homogeneous high-density structures.
- ▶ Mochi-induced SBO can be treated by conservative therapy, but careful follow-up is important because of the possibility of serious complications.

Figure 1 Abdominal CT showing homogeneous high-density structures (arrows) in the small intestine with proximal intestinal dilation (A, axial view; B, coronal view).

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