

CLINICAL IMAGE

Mesenteroaxial Gastric Volvulus Diagnosed with MR Imaging during the Early Stages of Pregnancy

Akitoshi Inoue^{1,2*}, Hiroo Mizuta³, Akihiko Ito³, Tomoyuki Tsujikawa³,
Akira Furukawa⁴, and Kiyoshi Murata²

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A 34-year-old Japanese pregnant woman presented with epigastralgia and nausea after meals. She was in her 7th week of pregnancy. She suffered from the same symptoms 5 years ago. Computed tomography (CT) performed then showed gastric dilatation and her symptoms improved only after placement of a nasogastric tube. Similarly, a nasogastric tube was inserted and approximately 300 ml of discharge was collected; however, her epigastralgia did not improve. Ultrasonography (US) showed an extremely dilated alimentary tract. We did not perform CT because she was in her first trimester; however, we performed MRI.

T₂-weighted coronal imaging (half Fourier acquisition single-shot turbo spin echo [HASTE]) showed a markedly dilated stomach turned upside down; it also showed that the cardia and pylorus stomach with transition points existed close to each other (Fig. 1). MRI revealed mesenteroaxial gastric volvulus. An endoscopic procedure helped successfully reposition the stomach (Fig. 2). The patient's symptoms were relieved after the procedure, and she was discharged after 4 days. She suffered no recurrence and delivered her baby at 40 weeks, which developed normally.

Computed tomography plays a pivotal role in the diagnosis of acute abdomen in adult patients and radiation doses <50 mGy between the 2nd and 10th weeks of pregnancy and

<100 mGy after the 10th week of pregnancy do not result in fetal teratogenicity. Abdominal CT can be performed for pregnant patients as the average radiation dose that can affect the fetus is 8 mGy. However, radiation exposure may increase the risk of carcinogenesis as fetuses are highly sensitive to it. Considering the risks and adequate benefits, CT can be performed for pregnant patients. Conversely, US and MRI are the preferred modalities for abdominal pain in pregnant females owing to absence of radiation exposure. Exposure to MRI without gadolinium-containing contrast agents has not been associated with increased risk of harm during any stages of pregnancy,¹ although the safety of 3T MRI is not secured. Currently, MRI is considered to be a useful modality for acute abdominal pain to assess requirement of intervention.²

The gastric volvulus defined as abnormal rotation of the stomach causes epigastralgia and vomiting and is categorized into mesenteroaxial and organoaxial volvulus based on its axis of rotation. Gastric volvulus appears more commonly in children and the elderly than in young adults. Gastric volvulus is generally diagnosed by CT, based on the findings that an antropyloric transition point exists without any abnormality at the transition zone and the antrum is positioned at a level similar to or higher than that of the fundus.³ In the present case, MRI could depict these characteristic findings to diagnose mesenteroaxial gastric volvulus in pregnant female. In conclusion, MRI helped to diagnose mesenteroaxial gastric volvulus in a pregnant patient; furthermore, the patient was treated with minimal radiation exposure.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

¹Department of Radiology, Higashi-Ohmi General Medical Center, 255 Gochi-cho, Higashi-Ohmi, Shiga 527-8505, Japan

²Department of Radiology, Shiga University of Medical Science, Shiga, Japan

³Department of Gastroenterology, Higashi-Ohmi General Medical Center, Shiga, Japan

⁴Department of Radiological Science, Tokyo Metropolitan University, Tokyo, Japan

*Corresponding author, Phone: +81-748-22-3030, Fax: +81-748-23-3383, E-mail: akino@belle.shiga-med.ac.jp

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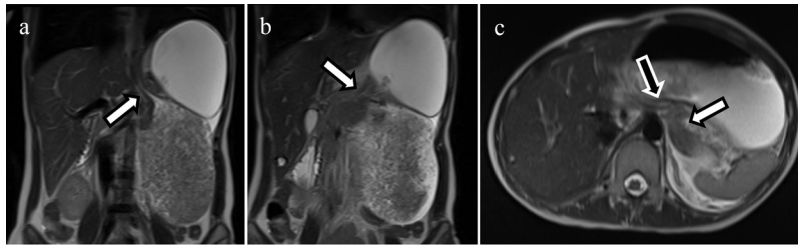


Fig. 1 Coronal half Fourier acquisition single-shot turbo spin echo (HASTE) images (TR, 700 ms; TE, 70 ms; FOV, 400 mm; slice thickness, 5 mm) showed a considerably dilated stomach and transition point (beak sign) at the fundus (**a**: arrow) and pylorus (**b**: arrow). Axial HASTE image (TR, 700 ms; TE, 70 ms; FOV, 320 mm; slice thickness, 5 mm) revealed that the fundus (**c**: white arrow) and pylorus (**c**: black arrow) were close to each other and at the same level.

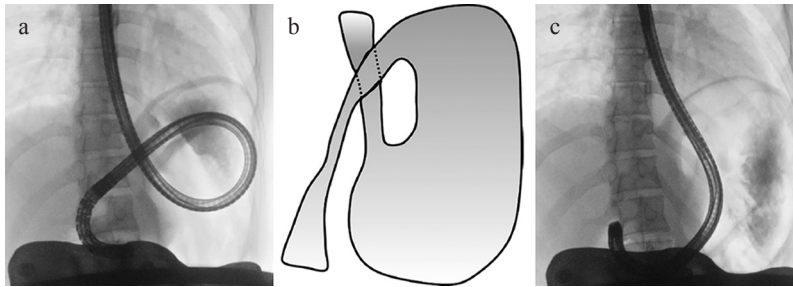


Fig. 2 Fluoroscopy showed an upside down turned stomach (**a**). The schema demonstrates the shape of the stomach with volvulus (**b**). The gastric volvulus is released after the endoscopic procedure (**c**). Time taken for total fluoroscopy was 16 s.

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