



## Assessment of proximal gastric accommodation in patients with functional dyspepsia

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### Abstract

Impaired gastric accommodation is one of the most important etiologic factors in the pathophysiology of functional dyspepsia. Ultrasound is a potential alternative method to study changes in gastric volume as a reflection of gastric accommodation. Ultrasound is suitable for patients because it is a non-invasive, easily repeated and non-radioactive procedure, and a previous study has demonstrated the feasibility of 3-dimensional ultrasound in examining functional dyspepsia. The brief article by Fan *et al* demonstrated that both the proximal gastric area and volume, measured by 2- and 3-dimensional ultrasound respectively, were significantly smaller in patients with functional dyspepsia than in healthy controls. These results are very interesting, but we raise the relevant point that it should have been mandatory to study both changes in gastric volume and their relationship with upper gastrointestinal symptoms in functional dyspepsia. In fact, the relationship between cardinal symptoms and several pathophysiologic mechanisms in functional dyspepsia remains a matter of debate. Moreover, further evaluation of distal gastric volume that has been previously implicated in the origin of functional dyspeptic symptoms is advisable.

Therefore, impaired gastric accommodation does not serve as a clear marker of the cardinal symptoms experienced by patients with functional dyspepsia in daily life.

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**Key words:** Proximal gastric function; Gastric accommodation; 2-Dimensional ultrasound; 3-Dimensional ultrasound; Functional dyspepsia; Rome III criteria

**Core tip:** Proximal gastric area and volume measured respectively by 2- and 3-dimensional ultrasound were significantly smaller in patients with functional dyspepsia compared to those of healthy controls. Hence, they could be used to assess accommodation impairment, but further prospective studies are needed to establish their clinical role in diagnosis of functional dyspepsia.

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### TO THE EDITOR

We read with great interest the article by Fan *et al*<sup>[1]</sup> showing that post-prandial measurement of both proximal gastric area, measured by 2-dimensional ultrasound (US), and proximal gastric volume, measured by 3-dimensional US, could be useful for assessment of the proximal gastric accommodation in healthy controls and in patients with functional dyspepsia (FD). The authors, therefore, concluded that US measurement of gastric area and volume could help to predict FD.

This article is welcomed because US is a potential al-

ternative method for studying changes in gastric volume as a measure of gastric accommodation that is impaired in a subgroup of about 40% of patients with FD<sup>[2]</sup>. US is suitable for patients because it is a non-invasive, easily repeated and non-radioactive procedure, and a previous study has demonstrated the feasibility of 3-dimensional US in FD<sup>[3]</sup>.

Nevertheless, the clinical significance of the conclusions of the study by Fan *et al*<sup>[1]</sup> should be regarded with a degree of caution, as the isolated determination of the lower gastric area and volume in FD compared with healthy controls is not sufficient to prove a clinical impact of this methodology in predicting FD as the authors suggest in the core tip of the study.

Dyspeptic symptoms are very common in the general population, with prevalence estimates ranging between 10% and 45%<sup>[4]</sup>. The results of prevalence studies are strongly influenced by the criteria used to define dyspepsia. FD, according to Rome III criteria, is a common disorder seen in daily clinical practice, and is characterized by the presence of pain or discomfort in the upper abdomen in the absence of organic, systemic, or metabolic disease<sup>[5]</sup>. FD patients complain about a variety of symptoms, which are frequently intermittent, and mostly related to food intake<sup>[5,6]</sup>. Therefore, it should have been mandatory to study both changes in gastric volume and their relationship with upper gastrointestinal sensations. Previous studies on this topic demonstrated that the relationship between specific upper abdominal sensations and several pathophysiologic mechanisms such as delayed gastric emptying, impaired proximal gastric accommodation, and visceral hypersensitivity, remain a matter of debate. Moreover, a further evaluation of the distal gastric volume is advisable on the basis of the previous results that showed that the distal gastric volume was larger in patients with functional dyspepsia<sup>[7]</sup> - an indirect finding in line with the observation by Caldarella *et al*<sup>[8]</sup> of antro-fundic dysfunctions in FD.

Consequently, impaired gastric accommodation does not serve as a clear marker for the symptoms experienced by FD patients in daily life. These new findings warrant further research on this interesting topic that could also expand our knowledge in other subgroups of patients suffering dyspeptic symptoms.

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