MORPHOLOGY AND VARIANTS OF THE STOMACH SHAPE IN HUMANS IN NORMAL AND PATHOLOGICAL CONDITIONS

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INTRODUCTION

The human stomach is a dynamic, J-shaped organ with high anatomical variability depending on age, sex, body constitution, and pathological conditions. Understanding its morphological variants is of great importance in anatomy, radiology, surgery, and gastroenterology [1, 2]. Variations in stomach shape can affect digestion, lead to diagnostic errors, and influence clinical outcomes in patients with gastrointestinal disorders [3].

In recent years, the development of advanced diagnostic tools such as computed tomography (CT), magnetic resonance imaging (MRI), and gastroscopy has revealed significant variations in the stomach's shape and positioning [4, 5]. However, a systematic analysis and classification of these morphological variants under normal and pathological conditions remain a vital topic for clinical research [1, 6].

This study aims to examine and classify different morphological variants of the human stomach, define their normal and pathological significance, and highlight the implications for diagnosis and treatment [7].

Key words: *Stomach morphology, Anatomical variants, Gastric shape, Gastroptosis, Endoscopy, Radiological imaging, Gastrointestinal pathology*

Purpose of the stady

To study the morphology of the human stomach and its shape variants in both healthy individuals and patients with gastrointestinal pathologies, and to evaluate the clinical importance of these variants in diagnosis and management [1].

Materials and methods

This study was conducted between 2022 and 2024 in collaboration with diagnostic departments of medical centers in the Fergana region. A total of 120 participants were examined, including 60 males and 60 females, aged between 18 and 70 years.

Methods used:

- Radiological examination (barium contrast fluoroscopy) [5]
- Gastroscopy (endoscopy) [8]
- Computed tomography (CT) [2, 4]
- Clinical evaluation and symptom analysis [6, 9]

Based on these investigations, the stomach shapes were classified into several types [1, 3]:

1. Horizontal (transverse)
2. Hook-shaped
3. Horns-shaped (cornu type)
4. Cascade or hourglass-shaped
5. Ptotic (downward displacement)
6. Asymmetrical or deformed (pathological)

Results

The analysis revealed the following distributions and observations:

- The most common shapes in healthy individuals were hook-shaped (28%) and horns-shaped (26%) [1].
- Horizontal stomach was more frequently observed in females, while hook-shaped stomachs were more prevalent among males [3, 9].
- Ptosis of the stomach (gastric prolapse) was observed in 24% of participants aged over 40, especially in females with reduced muscle tone or post-pregnancy [7].
- Deformed or asymmetrical shapes were often linked with pathological conditions such as chronic gastritis, peptic ulcer disease, and gastric tumors [3, 4].
- Morphological variants were often associated with specific clinical symptoms: for example, in ptotic stomachs, symptoms included a feeling of heaviness, bloating, and early satiety [6, 7].

Discussions

The stomach, although classically described as a J-shaped organ, can have numerous anatomical variants, which are often physiological but may become pathological depending on several factors [1, 9]. These shape variants are influenced by:

- Age-related changes (e.g., ptosis in elderly patients) [7]
- Body habitus and muscle tone [9]
- Pathological conditions (e.g., tumors, ulcers, previous surgeries) [4, 5]
- Functional disorders (e.g., gastroparesis) [6]

Understanding these variants is essential in clinical diagnostics. For instance, an hourglass stomach may mimic submucosal tumors or diverticula in imaging [2]. Likewise, in gastroptosis, the elongated and low-lying stomach may be mistaken for intestinal pathologies during ultrasound [7].

Proper identification of morphological variants through modern imaging techniques can improve diagnostic accuracy and prevent unnecessary surgical interventions [5, 10].

Conclusion

- The human stomach exhibits significant morphological variation in both healthy and diseased individuals [1, 3].
- Accurate classification and understanding of these variants are crucial for effective diagnosis and treatment planning [4].

- Pathological variants, such as ptosis or deformation due to tumors, must be carefully differentiated from normal anatomical variants [6, 7].
- Incorporating stomach shape analysis in routine diagnostic protocols can enhance the clinical assessment of gastrointestinal disorders [2, 5].

Recommendations

- Development of clinical guidelines for interpreting stomach shape variants in diagnostic imaging [6].
- Inclusion of morphological classification training in anatomy and radiology curricula for medical students [9].
- Use of multi-modal imaging (endoscopy, fluoroscopy, CT) to improve the diagnostic clarity in uncertain cases [2, 5, 8]

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