

## An Unusual Shapes of Stomach: Case Report on Hourglass and Retort Shape

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### ABSTRACT

Shape and position of the stomach can vary greatly with or without any physiological disturbances. However some of its rare shapes may result in the formation of volvulus or may increase the risk of gastric ulcer. Variant shapes of the stomach may be of congenital occurrence or are acquired later on in life. Due to the fact that pathologies of stomach are fairly common diseases nowadays, the problem of diseases associated with the shape of stomach is a very topical issue. We report here 2 atypical shapes of stomach during routine dissection for postgraduate studies in Department of Rachana Sharir, SDM College of Ayurveda and Hospital Hassan; with 1 case of hourglass stomach and 1 case of retort shape stomach noted. These variations are possibly of congenital origin and may lead to radiological misinterpretations.

**KEYWORDS:** Stomach, Hourglass, Retort, Congenital

**How to cite this paper:** Dr. Muteeba Naz | Dr. Uma B. Gopal | Dr. Simi C P | Dr. Surendra Chaudhary | Dr. Daiarisa Rymbai "An Unusual Shapes of Stomach: Case Report on Hourglass and Retort Shape" Published in International Journal of Trend in Scientific Research and Development (ijtsrd), ISSN: 2456-6470, Volume-4 | Issue-2, February 2020, pp.97-99, URL: www.ijtsrd.com/papers/ijtsrd29852.pdf



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### INTRODUCTION

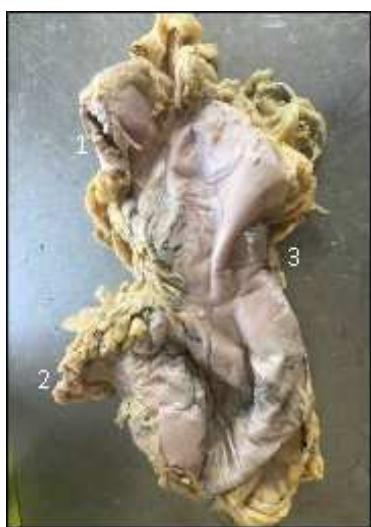
The stomach is the most dilated part of the digestive tube which intervenes between oesophagus and the first part of the duodenum. The stomach acts as a reservoir of food; converts the food into chyme by churning movements and allows the digestion of proteins into peptones and proteases under the influence of hydrochloric acid. The stomach also secretes abundant mucus which act as a protective barrier of mucous membrane. The mucosa of stomach allows some absorption of water, glucose, alcohol and some salts. The stomach secrete a hormone gastrin which regulates the secretion of pepsin and HCl. An intrinsic factor is elaborated for the absorption of vitamin B12 in the small intestine. It occupies the epigastric, left hypochondriac and umbilical regions of the abdomen. In the living individual it is 'J' shaped. Both the shape and position of the stomach vary greatly according to the status of its contents, position of the body and phase of respiration. Clinically three types of stomach may persist; sthenic, hypersthenic and hyposthenic. Sthenic type is considered as normal type with a proper 'J' shape. The hypersthenic type; also known as "steer-horn" stomach is prone to be affected by duodenal ulcer. The hyposthenic or asthenic type lies mostly vertical and people with this type are at a high risk of getting gastric ulcers.<sup>1</sup>

Among the variant shapes of the stomach, the hourglass stomach is one of the well-known shapes. The hourglass stomach was first described by the Italian Anatomist Morgagni in the 18th century and the condition commonly results due to the contracture of the stomach wall in response to a gastric ulcer.<sup>2</sup> A cascade variety of the stomach is one of the subtypes of the hourglass stomach. In both the cases, stomach is incompletely divided into two or more parts. In the cascade stomach, the food usually enters the upper chamber first and only when the upper chamber is filled, it gets entry to lower chamber.<sup>3</sup>

### Case Report:

**Procedure:** A vertical midline incision from xiphisternum to pubic symphysis and two horizontal incisions along the costal margin and along the inguinal ligament given according to Cunningham's manual of anatomy. The layers of anterior abdominal wall was reflected to expose the stomach. The stomach was identified in situ. Shape of stomach noted and recorded<sup>4</sup>. The length was measured, relations with the surrounding structures and variations were noted.

Case 1: During the routine dissection of abdomen, in an approximately 60 years old male cadaver, at Department of Rachana Sharir, Sri Dharmasthala Manjunatheshwara College of Ayurveda and Hospital, Hassan, Karnataka, we found an hourglass shaped stomach with two distinct pouches formed by unusual notches at both greater and lesser curvatures, thus forming upper and lower pouches. The notch on lesser curvature was at a distance of 8 cm from oesophageal orifice and on greater curvature at a distance of about 20cm. Total length of lesser curvature was approximately 18cm and that of greater curvature is about 44cm. The upper pouch was larger and was formed by the fundus and partly by body and its dimension was 18x12cm while the lower pouch was 14x10 cm (Figure 1). The distance between two notches was 4 cm. Interior of the stomach had a normal appearance with plenty of parallelly arranged gastric rugae at the greater curvature, especially at the region of the unusual notch (Figure 2). As there is absence of any ulcer this shape of the stomach has been considered as congenital type.



**Figure 1: Hourglass stomach**  
1-Cardiac end, 2- Pyloric end, 3- unusual notch

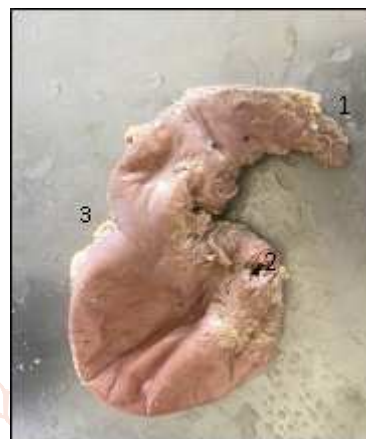


**Figure2: Interior of hourglass stomach**

Case 2: Another formaline fixed stomach was taken from Department of Rachana Sharira, SDM College of Ayurveda And Hospital Hassan, Karnataka with atypical shape and size. In which we noted an unusual incisure notch which divides

the stomach into two different halves with upper elongated part and lower pouch like resembling retort shape. The notch is noted at a distance of 5cm from oesophageal orifice on lesser curvature and about 10cm distance on greater curvature.

The length of lesser curvature is approximately about 13cm and greater curvature is 30cm. The upper part measures about 10x3cm vertically & transversely and lower part measures about 17x10 cm vertically and transeversely (Figure 3). Interior of stomach showed normal longitudinal mucosal folds with absence of any gastric ulcer. (Figure 4)



**Figure3: Retort Shape stomach**  
1-Cardiac orifice, 2- Pyloric orifice, 3- Unusual notch



**Figure4: Interior of Retort shape Stomach**

**Discussion:**

Stomach being the most distended part of gastrointestinal tract and reservoir of food has been noted with variation in shape as well as size. Variations in the shape of the stomach are encountered very frequently without any clinical symptoms. These anatomical variations have been reported by radiological studies and also by cadaveric dissection of stomach with internal structure showing absence of gastric ulcer and nature of mucosal folds present. A case study reported by Canadian medical Association as Hour-Glass contraction of the Stomach with report of three cases by A. Primrose, surgeon to the toronto general hospital reported consequences of hourglass stomach with its physiological changes<sup>5</sup>. Bi-loculation of the gastric cavity into a ventral and a dorsal recess may be a part of congenital, functional or secondary to organic disorders with the most probable case

of peritoneal adhesions<sup>6</sup>. In 18th century, hourglass stomach was thought to be of two types; congenital or acquired. However the recent reports suggest that it results as a consequence of gastric ulcer in the postnatal life<sup>7</sup>. Another case reported by S. Prasanna et al : Hourglass Stomach – A case report in which an atypical type of hourglass stomach and it was a congenital anomaly because of the absence of evidence of any ulcers at the constriction<sup>8</sup> which was similar to case 1 reported here and the variation in shape was also considered due to congenital type. One of the studies on the shape and topography of the stomach has classified the anatomical variants of stomach as malrotated, herniated and congenital variations<sup>9</sup>. A case report, An Atypical “Hourglass” Stomach due to the presence of an unusual incisure at the greater curvature by Naveen Kumar et.al: reported case of hourglass stomach with the esophagus opening into both upper and lower pouches equally<sup>10</sup> but in our case report the oesophageal orifice opens only into the upper pouch which was comparatively larger than lower pouch. Burdan et al studied the anatomy of 2034 operated stomach and categorized them into 5 groups. Group 1 & 2 according to abnormal position of the stomach along its longitudinal and horizontal axis respectively, group 3 on abnormal shapes, group 4 about stomach connections and the group 5 comprising the mixed form with the combined features of two or more of the former groups<sup>11</sup> and in this study congenital variation of shape of stomach noted with one case of hourglass stomach and another case of retort shape stomach. Munteanu has reported a rare case of upside-down stomach associated with hiatal hernia representing a special form of organo axial volvulus of the entire stomach<sup>12</sup>. A rare case of developmental anomaly showcasing the inverted stomach has been reported by Rhinerhart<sup>13</sup>.

Here we report 2 cases of variation in shapes of stomach due to presence of unusual incisural notch at both greater and lesser curvature which resulted in case one of hourglass stomach and case two as retort shape. Internally absence of any ulcer suggested that it is congenital type. However, knowledge of this case may be of importance to radiologist in interpretation of a barium meal radiograph. The double pouched appearance may result in misinterpretation of the case as a constriction resulted due to a gastric ulcer. The gastroscopic examination may help in seeing the normal mucosa but it might keep the clinicians intrigued about the exact cause of the condition.

#### Conclusion:

Hourglass shape and retort shape of stomach are types of congenital variation which was noted here due to absence of any gastric ulcer in the interior of stomach. And knowledge of this variation is of great importance to radiologist, gastroenterologists, surgeons, and clinicians to avoid misinterpretation in diagnosis and also helps in

understanding the consequences of such variations on physiological functions and leading pathological conditions.

#### References:

- [1] Datta AK, Essentials of Human Anatomy (Thorax and Abdomen). 7th ed. Current Books International, Kolkata 2006. pp166-179
- [2] Moir A. Hourglass stomach. *Can Med Assoc J.* 1992;12(1):20-24
- [3] Schaffner VD, Burton G V. Cascade stomach. *Can Med Assoc J.* 1941;45(1): 52-56
- [4] G. J. Romanes, Cunningham’s Manual of Practical Anatomy, Vol. 2, 15th Edition, Oxford University Press. Page No. 133
- [5] The canadian medical journal hour-glass contraction of the stomach with report of three cases by a. primrose, m. b., c. m., m. r. c. s. *canmedaj00244-0034:776-782*
- [6] Kose M, Pekcan S, Kiper N, Akgul S, Cobanoglu N, Yalcin E, Dogru D, Ozcelik U, Haliloglu M, Senocak ME. Gastric organo-axial malrotation co existing respiratory symptoms. *Eur J Pediatr.* 2009;168:491-494
- [7] Moir A. Hourglass stomach. *Can Med Assoc J.* 1992; 12(1):20-24 10 Spriggs EA, Marxer OA. Kinking, Rotation and twisting of the stomach. *Br Med J.* 1954;7;2(4883):325-330
- [8] S. Prasanna et al : Hourglass Stomach – A Case Report] *www.ijaar.in : IJAAR VOLUME III ISSUE XI NOV –DEC 2018 Page No:1621-1623*
- [9] Francisek B, Ingrid RK, Justyna S, Krzyszof Z, Wojciech D, Witold K, Andrzej D. Anatomical classification of the shape & topography of the stomach. *Surg Radiol Anat.* 2012;34:171-178
- [10] Nayak SB, Kumar N, Bincy M, Mishra S, Rao SS, Shetty SD, Patil J. An Atypical “Hourglass” Stomach Due to the Presence of an Unusual Incisure at the Greater Curvature. *Online J Health Allied Scs.* 2017;16(1):13.
- [11] Burdan F, Zinkiwicz K, Szumilo J, Rozylo-Kalinowska I, Staroslawska E, Kruski W, Dwozanski W, Dabrowski A, Wallner G. Anatomical classification of the shape and topography of the operated stomach. *Folia Morphol (Warsz).* 2012;71(3):129-35
- [12] Munteanu AC, Munteanu M, Surlin V, Dilof R. Upside – down stomach and hiatal hernia. *Chirurgia (Bucur).* 2012;107(3):399-403
- [13] Rhinerhart D A, Rhinehart BA. Congenital abnormalities of the stomach: with report of a rare Case. *Radiology.* 1926;7(6):492-497