ISSN (Print): 2959-0159 ISSN (Online) Proposed

Original Article

Published Erratum

In International Journal of Medical and Dental Research; January-June 2022 Vol 01 No 01
In page 17
*** Abdur Rahman[1]**

Will be replaced by-
Shams–E–Tabriz[1], Anjan Kumar Das[2]

A Post Mortem study on size of the Stomach in Bangladesh

Shams–E–Tabriz[1], Anjan Kumar Das[2]

Received: 02 July 2022
Accepted: 06 July 2022
Published: 10 July 2022

Published by:
Society of Retired Professors of Medical Science, Bangladesh

ABSTRACT

Background: *From February 2011 to July 2012, the Department of Anatomy at Sir Salimullah Medical College in Dhaka conducted a descriptive cross-sectional study to examine the variation in stomach size with age among Bangladeshi people.* ***Methods****: Seventy postmortem human stomachs were gathered from unclaimed deceased corpses in the morgues of Dhaka medical college, Dhaka, and Sir Salimullah medical college, Dhaka. The samples were separated into three age groups: Group A (10-16 years), Group B (17-22 years), and Group C (23–70 years). Each stomach's length and width were measured using a flexible rubber tube and a measuring tape.* ***Results****: The mean length of the stomach were found in group A, group B and group C were 13.19±2.06, 20.94±2.49 and 24.02±1.6 cm, respectively. The mean breadth in group A, group B and group C were 8.37±0.32, 10.93±1.79 and 12.03±1.72 cm, respectively. The differences between age groups were statistically significant (p<0.001).* ***Conclusion:*** *The length and breadth of the human stomach increase with age.*

Key words*: Stomach, length, breadth, post mortem.*

(International Journal of Medical and Dental Research 2022; 1(1): 17-20)

1. *Associate Professor and head, Department of Anatomy, Sheikh Sayera khatun Medical College, Gopalganj.*
2. *Assistant Professor and head, department of Forensic Medicine, Sheikh Sayera Khatun Medical College, Gopalganj.*

INTRODUCTION

The diameter of the human alimentary canal varies significantly from one place to another. The stomach is the section of the gastrointestinal system that has the highest dilation [1]. In addition to aiding digestion, its primary function as an organ is to store food[2]. Individual differences in age, physical habitus, posture, and time since last eating all contribute to wide variations in stomach size and form[3,4]. The average stomach size has been determined via several investigations conducted on a variety of populations[5,6]. Our subcontinent's inhabitants tend to have smaller stomachs. Nutrition, eating practices, and cultural distinctions may be the root reason[7]. According to the findings of several studies, the organ sizes of Bangladeshis differ from those of Westerners [8]. Worldwide less than sufficient works have been done on morphological aspect of the stomach. In Bangladesh, only few works were done on morphological aspect of the stomach[9]. The purpose of this study is to determine the length and width of this essential organ in various age groups of the Bangladeshi population.

METHODS

This descriptive cross-sectional study was conducted between February 2011 and July 2012 at the Department of Anatomy at Sir Salimullah Medical College in Dhaka, Bangladesh, using a postmortem collection of human stomach. The Department of Forensic Medicine of Dhaka Medical College and Sir Salimullah Medical College, Dhaka, received seventy human stomachs from unclaimed deceased corpses that underwent autopsy investigation. All of the samples were collected between 24 to 36 hours of death, devoid of any signs of putrefaction, and were obtained from medicolegal situations eliminating poisoning, any cutting or crushing injuries to the stomach, and viscera that were substantially aberrant. During collecting, the proper age, gender, and cause of death were recorded in the record book of the mortuary. Immediate tagging of the samples with a code number for further identification was performed. On a dissection tray, each sample was gently cleaned with tap water shortly after collection. As much blood and blood clots as feasible were removed. Additionally, Omenta, fat, and other undesirable tissues were eliminated. The specimens were then preserved in a 10% formol saline solution. Following isolation, the samples were separated into three age groups. Farrinati et al. identified three age groups: group A (10-16 years), group B (17-22 years), and group C (23-70 years).[10] Using a clear rubber tube and a measurement tube, the length and width of each stomach were then measured.

This study was carried out after ethical approval of research protocol by the Institutional Ethical Committee (IEC) of Sir Salimullah Medical College, Dhaka. Data were expressed as range and mean ± SD. Comparison between different groups were done by one-way ANOVA test. Data were analyzed by SPSS16 software.

RESULTS

There were a total of 70 samples, with 17 coming from Group A, 21 from Group B, and 32 from Group C. The following table displays the mean, standard deviation, and ranges for length, width, and depth.

Table – I: Length and breadth of the stomach in different Study group

Group (Age in years)	Length (in cm)		Breadth (in cm)	
	Range	Mean± SD	Range	Mean ± SD
A (10- 16**)**	10.20-15.40	13.19 ± 2.06	7.80–8.80	8.37 ± 0.32
B (17-22**)**	17.60–25.00	20.94 ±2.49	8.80–14.40	10.93 ± 1.79
C (23 -70**)**	20.20–25.80	24.02 ±1.61	10.00-14.40	12.03 ± 1.72

When the groups are compared with each other by one-way ANOVA test shows Group A Vs Group B, Group B Vs Group C and Group C vs Group A, all were statistically significant (p value-<0.001***).

DISCUSSION

According to research that was conducted in 1971 by Naik et al.[7] and colleagues, persons who live in the Indian subcontinent often have a smaller stomach. It is possible that disparities in nutrition, eating habits, or ethnicity are at the root of the problem. 1979 saw Goldsmith and Akiyama[5] conduct research on a total of 70 participants (half of them from USA and half from Japan). They looked examined the variance in the dimensions of the stomach in relation to racial and ethnic factors. They discovered that Japanese people had a stomach that is both more mobile and longer. In 1982, Osemlac et al.[11] conducted research on 51 stomachs that had been removed from the bodies of recently deceased youngsters. Premature neonates had shorter empty stomachs, measuring 32–85 mm (mean 53–6 mm), compared to full term newborns, whose empty stomachs were 48–97 mm (mean 72–9 mm). Male neonates were discovered to have larger bellies than their female counterparts. Garg[12] in 2004 stated that the average length of the stomach is about 25 cm in adult. Radcliffe and Donald[13] in 1998 stated that the length of adult stomach is 25 cm. Rahman MM found that the average length of the stomach ranges from 5-25 cm. and the breadth from 3-10 cm.[9]. In a study with 60 cadaveric stomach (age ranges from 15 and above) Hossain M [14] in 2006, found length of stomach is 22.21 ± 1.34 cm and the breadth is 10.25 ± 0.88 cm. Begum GN[15], stated the (mean ± SD) length of the stomach were 12.18 ± 1.77, 17.74 ± 1.95 and 25.31 ± 1.63 cm in group A (2-16 years), group B (17–22 years) and group C (23 years and above). Begum GN found mean (± SD) breadth of the stomach were 6.81 ± 0.40, 8.26 ± 0.56 and 9.54 ± 0.45 cm in group A, B and C, respectively. Only a few data available to compare with our study. However, the findings of our present study are more or less similar to those previous findings.

CONCLUSION

According to the results of the present study, both the length and width of the human stomach expand with age. The present study's findings provide a reliable baseline for evaluating the health of the human stomach in Bangladesh. It is suggested, however, that more research be conducted with a larger sample size and a comparison of the sexes.

REFERENCES

1. *Borley NR. Abdominal esophagus and stomach. In: Standring S, Ellis, Healy JC, Jhonson D, Williams A, Collins P et al., editors. Gray's Anatomy: the anatomical basis of clinical practice. 40th ed. Edinburgh: Elsevier Churchll Livinstone; 2008:1112 -1122.*
2. *Rauffman JP, Goldberg E. Stomach and duodenum: anatomical and structural anomalies. In: Yamada T, Alpers DH, Kalloo AN, Kaplowitz N, Owyang C,*

Powel DW, eds. Textbook of gastroenterology.5th ed. Vol.1. Oxford: Blackwell. 2009: 889 -902.

3. *Newton JL. Effect of age related changes in gastric physiology on tolerability of medications for older people. Drugs Aging. 2005; 22(8); 655-61.*
4. *Valle JD, Todisco A. Gastric secretion. In Yamada T, Alpers DH, Kalloo AN, Kaplowitz N, Owyang C, Powel DW, eds. Textbook of Gastroenterology ,5th ed. Vol. 1. Oxford, Blackwell. 2009;284- 329.*
5. *Goldsmith HS, Akiyama H. A comparative study of Japanese and American gastric dimensions. Ann Surg. 1979; 190(6):690-3.*
6. *Cox AJ. Stomach size and its relation to chronic peptic ulcer. Arch Path. 1952; 54:407-22.*
7. *Naik SR, Bajaj SC, Goyal RK, Gupta DN, Chuttani HK. Parietal cell mass in healthy human stomach. Gastroenterology. 1971; 61(5):682–5.*
8. *Enayetullah M. Gross and histomorphological study of thyroid and parathyroid glands in Bangladeshi people. [Thesis]. Dhaka. IPGMR. University of Dhaka; 1996:88.*
9. *Rahman MM. An anatomical study of age and sex related changes in human postmortem stomach of Bangladeshi people [thesis]. Dhaka: IPGMR. University of Dhaka; 1993:87*
10. *Farinati F, Formentini S, Della Libera G, Valiante F, Fanton MC, Di Mario F, et al. Changes in the parietal and mucous cell mass in the gastric mucosa of normal subjects with age; a morphometric study. Gerontology. 1993; 39(3):146-51.*
11. *Osemlac J, Siwek R, Chomiak A. Dimensions and shape of stomach in newborns. Folia Morphol. 1982; 41(3): 295-306.*
12. *Graig K. ed.BD Chaurasia's Human anatomy: regional and applied. 4th ed. New Delhi: CBS Publishers & Distributors. 2004: 238.*
13. *Radcliffe DV. Stomach. Compton's Encyclopedia Online V3.0. The Learning Company, 1998.*
14. *Hossain M. Gross and Histomorphological study of stomach in Bangladeshi people. [Thesis]. Dhaka. University of Dhaka; 2006:98.*
15. *Begum GN. Histo-morphological Study of stomach in Bangladeshi people. M.Phil. Thesis. Dhaka. University of Dhaka; 2006:92.*