Original Article

A Postmortem study on length and breadth of the Stomach in Bangladeshi people

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ABSTRACT:

Context: *A cross sectional, descriptive type of study was done in the department of Anatomy, Sir Salimullah Medical college, Dhaka, from January 2010 to June 2011, to see the variation in the size of stomach with age in Bangladeshi people.* ***Methods****: The study was done on 60 postmortem human stomach collected from the unclaimed dead bodies in the morgue of Dhaka medical college, Dhaka and Sir Salimullah Medical College, Dhaka. The samples were divided into three age groups including Group A (10-16 years), Group B (17-22 years) and Group C (23–70 years). The length and breadth of each stomach were measured with the help of a flexible rubber tube and 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, postmortem.*

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INTRODUCTION:

Human alimentary canal is very much variable in caliber in different regions. Stomach is the most dilated part of the GI tract[1]. As an organ it acts as a reservoir of food and helps in digestion partly[2]. The size and shape of the stomach vary greatly from person to person, depending on age, body habitus, posture and interval since taking food[3,4]. Several studies have been done on different population to determine the size of normal stomach[5,6]. Peoples of our subcontinent tends to have smaller stomach. Nutrition, dietary habits and ethnic differences may be the underlying cause[7]. According to various research results, dimensions of different organs of Bangladeshi people have got variations from those of the western population[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]. Therefore, it has been designed to see the length and breadth of this vital organ in different

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age groups in a Bangladeshi population following autopsy.

METHODS AND METERIALS:

This is a cross-sectional descriptive study, was carried out in the Department of Anatomy of Sir Salimullah Medical College, Dhaka, from January 2010 to June 2011, based on the postmortem collection of human stomach. Sixty human stomach were collected from the unclaimed dead bodies that were underwent autopsy examination in the Department of Forensic Medicine of Dhaka Medical College and Sir Salimullah Medical College, Dhaka. All the samples were collected within 24-36 hours of death without any sign of putrefaction and taken from the medico legal cases excluding poisoning, any cutting or crushing injury to the stomach and grossly abnormal viscera. During collection appropriate age, sex and cause of the death were noted from the morgue's record book. The samples were tagged immediately, which was bearing a code number for subsequent identification. Soon after collection, each sample was gently washed in tap water on a dissection tray. Blood and blood clots were removed as far as possible. Omenta, fat and other unwanted tissues were also removed. Then the samples were fixed in 10% formol saline solution. After isolation, the samples were divided into three age groups. i.e. group A (10-16 years), group B (17-22 years) and group C (23-70 years), according to Farrinati et al.[10] Then the length and breadth of each stomach were measured by using transparent rubber tube and measuring tube.

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:

Among 60 samples, 12 were found in Group A, 16 in group B, and 32 in Group C. Mean**±** SD length, breadth and ranges are shown in the following table.

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:

Naik et al.[7] in 1971 found that the people residing in Indian subcontinent usually have a smaller stomach. The underlying cause may be nutritional, dietary habits or ethnic differences. In 1979, Goldsmith and Akiyama[5] worked with 70 subjects (half of them from USA and half from Japan). They observed the dimensional variation of the stomach in relation to racial and ethnic criteria. They found that the Japanese have more mobile and longer stomach. Osemlac et al.[11] in 1982 studied on 51 stomachs taken from the dead bodies of newly born children. The length of the empty stomachs ranged from 32–85 mm (mean 53.6 mm) in premature newborns, whereas 48–97 mm (mean 72.9 mm) in full term newborns. The stomachs of the male were found broader than that of female newborns. 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: The present study showed that the length and breadth of the human stomach increase with age. The results of the present study can be used as a standard reference for the stomach of Bangladeshi people. However, further studies with larger sample and comparison between sexes are recommended.

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