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**MORPHOMETRIC STUDIES OF THE HUMAN TRACHEA AND MAIN BRONCHI
USING MAGNETIC RESONANCE IMAGING**

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Objective. The peculiarities of the morphology of the trachea and the main bronchi are a relevant topic in surgical care of the mediastinum, taking under consideration the spatial orientation. The obtained data can be useful for advanced and precise invasive operations, while minimizing damage to healthy tissues.

Aim: to find morphometrical peculiarities of the trachea and the bronchi in adult human.

Materials and methods. The study was performed in 14 adult humans using Magnetic Resonance Imaging. During the study the following measurements were taken: the anterior-posterior (AP) diameter of right main bronchi, AP diameter of left main bronchi, AP diameter of the trachea at the level of jugular notch, the distance between the center of the tracheal bifurcation and the supraspinal ligament, the distance between the tracheal bifurcation and the sternum and the angle of the tracheal bifurcation on the frontal plane.

Results and discussion. The results were obtained during the research are following: for Males: AP diameter of right main bronchi 14.39 (11.64-16.65) mm, AP diameter of left main bronchi 12.63 (10.98-14.10) mm, AP diameter of the trachea at the level of jugular notch 18.21 (15.65-19.87) mm, the distance between the center of the tracheal bifurcation and the supraspinal ligament 94,19 (87.63-101.10) mm, the distance between the tracheal bifurcation and the sternum, 102.95 (97.93-110.53) mm, the angle of the tracheal bifurcation on the frontal plane 97.55 (94.10-101.00) deg. For Females: AP diameter of right main bronchi 12.67 (11.05-14.22) mm, AP diameter of left main bronchi 12.21 (10.01-14.10) mm, AP diameter of the trachea at the level of jugular notch 16.71 (15.18-17.00) mm, the distance between the center of the tracheal bifurcation and the supraspinal ligament 87.84 (81.73-91.19) mm, the distance between the tracheal bifurcation and the sternum, 94,67 (87.52-100.03) mm, the angle of the tracheal bifurcation on the frontal plane 106.60 (95.45-117.75) deg.

A Spearman's rank-order correlation was run to determine relationships. The result shows statistically significant very strong positive correlation between AP diameter of right main bronchi and AP diameter of left main bronchi, ($r_s = 0.84$, $p < 0.05$), strong positive correlation between AP diameter of right main bronchi and the AP diameter of the trachea at the level of jugular notch ($r_s = 0.71$, $p < 0.05$), strong, positive correlation between AP diameter of right main bronchi and the distance between the center of the tracheal bifurcation and the supraspinal ligament ($r_s = 0.64$, $p < 0.05$), strong, positive correlation between AP diameter of left main bronchi and the distance between the center of the tracheal bifurcation and the supraspinal ligament ($r_s = 0.73$, $p < 0.05$).

Conclusions. With a larger AP diameter of main bronchi, a greater is the distance between the center of the tracheal bifurcation and the supraspinal ligament.