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| **Title:** | **Assessment of the 50 % and 95 % effective paratracheal forces for occluding the esophagus in anesthetized patients** | | |
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| **Abstract:** |  |
| This study aimed to evaluate the 50% and 95% effective paratracheal forces for occluding the esophagus in anesthetized patients. In 46 anesthetized patients, the upper esophagus was examined using ultrasonography, and the lower paratracheal area over the esophagus just above the clavicle was marked. Manual paratracheal force was applied over that area using a novel pressure sensing device set-up. In the first patient, a 20 N paratracheal force was applied, and the patency of the esophagus was assessed by advancing the esophageal stethoscope. Unsuccessful advancement of the esophageal stethoscope was considered an effective paratracheal force. If advancement of the esophageal stethoscope was successful, the paratracheal force was increased by 2 N for the next patient, and if it was unsuccessful, the force was decreased by 2 N for the next patient. These sequential tests were performed using 12- and 18-Fr esophageal stethoscopes, respectively. According to Dixon and Mood method, the 50% effective paratracheal force (confidence interval) was 18.4 (17.5‒19.3) N with the use of a 12-Fr esophageal stethoscope and 12.8 (11.0‒14.6) N with the use of an 18-Fr esophageal stethoscope. Using probit regression analysis, the 50% and 95% effective paratracheal forces were 18.4 (16.8‒19.6) N and 20.6 (19.4‒27.9) N, respectively, with the use of a 12-Fr esophageal stethoscope, and 12.4 (8.3‒14.4) N and 16.9 (14.7‒37.3) N, respectively, with the use of an 18-Fr esophageal stethoscope. Our findings suggest a guide for applying paratracheal force during rapid sequence induction and tracheal intubation. | |