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Role of preoperative multidetector row computed tomography (MDCT) in surgical decision making for PE: can CT scan help surgeons to estimate the number of pectus bar preoperatively?

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PURPOSE: We aimed to assess the usefulness of multidetector row computed tomography (MDCT) that would have an impact on the preoperative prediction including the number decision of pectus bars in patient with pectus excavatum (PE).

MATERIALS AND METHODS: This study included 497 patients (412 men and 85 women; age, 2–39 years; mean age, 7 years) underwent low dose MDCT and had surgical correction with variable number of pectus bars. We calculated depressed angle and depth of anterior chest wall, distance between two tops of chest wall, depressed angle of the chest wall, the transverse diameter of the chest, the anteroposterior diameter of the chest, the length of the sternum, the distance of the depressed center from the midline, and Haller index. We performed logistic regression analysis using each index, sex, and age as predictor variables.

RESULTS: Only 1 pectus bar for the pectus correction was used in 358 (72%), and 2 or 3 bars were used in 139 (28%). After backward stepwise multivariate logistic regression analysis, age, sex, depressed depth, transverse diameter of chest wall, and the distance of the depressed center from the midline were significantly related with the number of inserted pectus bars.

CONCLUSION: Preoperative MDCT would provide useful indicators to make a decision about how many bars the surgeons insert for PE.