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Title: Pectus excavatum, small lungs or small chest cavity?

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Body: INTRODUCTION. It is accepted that a pectus it is primary deformation of the chest. An alternative explanation is that the lung is underdeveloped and the small lung retracts the chest wall. According to this hypothesis, the small lung to chest volume ratio augment the negative intrapleural pressure thereby deforming the chest wall. With surgical correction of the supposed chest deformity the chest cavity volume is increased and these small lungs are stretched even more than they were stretched. This traumatizes the lungs, further impairs their function. Patient's studied: 27 patients with Pectus Excavatum without surgical correction and 5 patients after surgical correction of the chest. Methods: Body-plethysmography, Cardio-Pulmonary Exercise test, mathematical modeling. Results.

Spirometric functions before and after surgical correction

	TLC (% of pred)	RV (% of pred)	VC (% of pred)	FRC (% of pred)
Before	91.8%± 3.9%	155.3% ± 12.3%	72.9% ±4.6%	119.7% ±10.2%
After	60.5% ±7.9%	123.8% ±19.8%	56.1% ±7.4%	76.8% ±9.8%

Cardiac functions before and after surgical correction

	CO (% of pred)	SV (% of pred)	HR (% of pred)
Before	94.3%± 3.0%	102.9% ± 6.7%	94.4% ±4.2%
After	72.5% ±7.2%	76.6% ±5.9%	98.1% ±5.3%

Discussion. The preoperative TLC and VC were almost normal, but FRC and RV was significantly increased in the 27 patients. Central hemodynamic parameters were also within normal limits. Hence, the chest deformity is a secondary effect caused by this "Little Lung Syndrome". After surgery, all lung volumes and hemodynamic functions decreased. Conclusion. It is probable that we need to change the surgical technique to not only correct the chest wall defect but also to reduce the intra-thoracic volume, so as not to stretch the lungs.