IMAGES IN THORAX

Extrathoracic hyperinflation

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Received 26 July 2017
Revised 17 August 2017
Accepted 21 August 2017
Published Online First
2 September 2017

To cite: Bruyneel M, Ninane V. *Thorax* 2018;**73**:96.

An 82-year-old non-smoker man underwent evaluation for increasing dyspnoea. Clinical examination of the chest was normal but abdominal distension was noted. Pulmonary function test (PFT) revealed a significant increase in thoracic gas volume (TGV). Forced expiratory volume in 1 s (FEV_1) and forced vital capacity (FVC) were reduced (table 1). Asthma was suspected on the basis of hyperinflation and a slightly reduced FEV_1/FVC ratio but the chest X-ray showed significant colonic dilation resulting from a dolichocolon, confirmed by thoracoabdominal CT scan (figure 1). After colonoscopic decompression, without insertion of a decompression tube, dyspnoea improved markedly. Repeat PFT demonstrated near normalisation of FVC and FEV_1 (table 1).

TGV remained unaffected. Indeed, plethysmograph tends to count as TGV any air that is within the thoracic cage as it is compressed by the panting manoeuver.[1] We usually think that only the air volume being above the diaphragm is counted but in case of diaphragmatic hernia, hiatal hernia[2] or major colonic dilation,[3] subdiaphragmatic air being forced up into the thoracic cage is also taken into account. In the present case, TGV measured both intrathoracic gases, which increased after colonic exsufflation, and subdiaphragmatic gases, decreased by exsufflation, resulting in a non-significant change in TGV. We can conclude that major accumulation of air within the abdomen can be associated with dyspnea due to decreased lung volumes and may mimic lung hyperinflation on PFT.

Table 1 Pulmonary function tests of the patient, measured during first visit and after colic exsufflation

Lung volumes	Initial measures	After colic exsufflation
Forced vital capacity (FVC)	1.52 L (65% PV)	1.81 L (78% PV)
Forced expiratory volume in 1 s (FEV_1)	0.97 L (51% PV)	1.74 L (91% PV)
FEV_1/FVC ratio	64%	96%
Total lung capacity	7.32 L (142% PV)	7.32 L (142% PV)
Thoracic gas volume	5.65 L(202% PV)	5.48 L (196% PV)
Residual volume	5.55 L (240% PV)	5.12 L (221% PV)

PV, predicted values

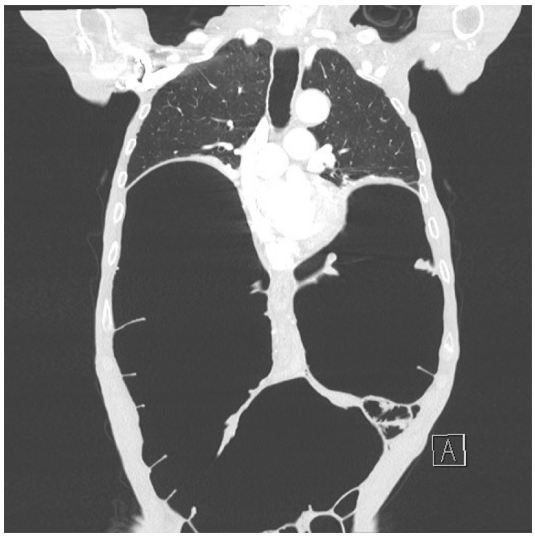

Figure 1 Frontal image of the thoracoabdominal CT scan. Marked colonic dilation results in an upward shift of both lungs.

Contributors Both authors managed the patient and wrote the manuscript. Both authors have approved the final version of the manuscript.

Competing interests None declared.

Provenance and peer review Not commissioned; externally peer reviewed.

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