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DOI
10.1136/thx.2003.005488

Publication date
2004

Published in
Thorax

Citation for published version (APA):
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Thorax 2004;59;353-354
doi:10.1136/thx.2003.005488

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CASE REPORT

The squirting bleb: image and treatment of inspiration-linked leakage of a peritoneopleural fistula

F H Krouwels, P Bresser


A 25 year old man with known chronic right sided heart failure and ascites due to a congenital heart defect presented with dyspnoea and a massive pleural effusion. Thoracoscopy revealed two diaphragmatic blebs. Changes in peritoneal and thoracic pressure during respiration resulted in periodic squirting of a ruptured bleb, illustrating preferential flow of peritoneal fluid into the thorax. The pleural effusion was successfully treated with drainage of ascitic fluid and chemical pleurodesis.

A 25 year old man was referred to our clinic with gradually increasing exertional dyspnoea. He was known to have a congenital univentricular heart for which he had had a corrective Fontan operation in 1980. He had since suffered from chronic right sided heart failure resulting in a protein losing enteropathy and ascites which was treated with diuretics and a diet of medium chain triglycerides.

On presentation he was severely dyspnoic, had gained 7 kg in weight, and his abdomen was enlarged. Chest radiography revealed a massive left sided pleural effusion and a large amount of ascitic fluid was seen on ultrasound examination. He also had raised venous pressure and hypoalbuminaemia.

The patient was treated with tube drainage of the pleural fluid and diuretics; 4 litres of pleural fluid with characteristics of a transudate (albumin 3 g/l, lactate dehydrogenase (LDH) 34 U/l; serum levels: albumin 15 g/l, LDH 212 U/l) were removed. Because of persistent pleural fluid production of more than 0.5 l/day, an inspection thoracoscopy was performed. A tense bleb was seen on the diaphragm and another bleb was visible which was ruptured and forcefully squirted fluid into the thoracic cavity when the patient inspired (fig 1). No other defects were observed. For further drainage a pleural tube was left in place, and a peritoneal tube was inserted to minimise the pressure on the diaphragm and the flow over the fistula. The next day the pleural tube leakage had nearly stopped and the chest radiograph showed only a small pleural effusion. Chemical pleurodesis was then performed with quinacrine (100 mg on three consecutive days) and the pleural drain was removed. Ten days after the removal of the peritoneal tube the patient was discharged in relatively good health without dyspnoea. After 2 years there are no clinical or radiological signs of recurrence of the pleural effusion.

DISCUSSION

Fontan operations for congenital heart abnormalities are frequently complicated by chronically raised systemic venous pressure. This can result in hepatomegaly, ascites and protein losing enteropathy.1 Pleural effusions in such patients can be

Figure 1 Thoracoscopic image of the diaphragmatic blebs: the diaphragm is situated on the left side in each figure. (A) At rest and during expiration the upper lacerated bleb is nearly collapsed while the lower bleb is undamaged and tense. (B) At inspiration the lacerated bleb forcefully squirts fluid into the thoracic cavity.
LUNG ALERT

Non-linear relationship between lung cancer risk and cigarette tar yield

This study was undertaken to determine the risk of lung cancer associated with medium, low, and very low tar filter cigarettes. Using a cohort of patients from the US cancer prevention study II (CPS-II), 364,239 men (100,868 current smokers) and 576,535 women (124,270 current smokers) were studied. The primary outcome measure was death from tracheal or lung cancer over 6 years of follow up. Tar rating per cigarette brand was designated high (>22 mg), medium (15–21 mg), low (8–14 mg), or very low (<7 mg). Assessment was made using Cox proportional hazards analysis and adjustment made for multiple covariates.

The risk of lung cancer was increased in current smokers, with high tar cigarette smokers experiencing the highest risk. No difference was evident between the medium, low, and very low tar brands. These results withstood sensitivity analysis, including exclusion of people with smoking related diseases. The study results challenge the assumption of a linear association between tar rating and lung cancer risk. “Compensatory smoking” in those smoking lower tar brands (deeper inhalation with increased puff volume, longer duration of smoke retention, and a greater total number of cigarettes smoked) and the poor correlation between tar yield and carcinogen delivery offer possible explanations. Cessation should be advised in all smokers and patients informed that low tar cigarettes are not a safer alternative.