BRIEF COMMUNICATIONS

SPONTANEOUS ANTERIOR THORACIC LUNG HERNIAS

Malcolm V. Brock, MD, and Richard F. Heitmiller, MD, *Baltimore, Md*

Herniation of the lung through a defect in the bony chest wall is rare. The majority of reported lung hernias are traumatic or postoperative; however, a small subset of lung hernias occur without antecedent overt injury and are classified as "spontaneous." We present the case histories of 2 patients who had spontaneous lung herniation through the anterior thorax, and we review the literature on this topic.

Clinical summaries

PATIENT 1. A 72-year-old obese male smoker had chronic obstructive pulmonary disease. Eighteen months before presentation he had reported the acute onset of left anterior chest wall pain during a coughing spell. Evaluation demonstrated a hematoma of the left anterior chest wall and fractures of ribs 8 and 9 anteriorly near the costal margin. The patient was treated with rest and analgesic agents. On follow-up, a chest wall bulge at the rib fracture site prompted the patient to return for re-evaluation. Examination revealed a reducible 8- × 10-cm hernia bordered by the 8th and 9th ribs superiorly and laterally and the abdominal wall fascia medially. The costal margin between ribs 8 and 9 was totally disrupted. Surgical repair was recommended. Pericostal sutures around the 8th and 9th ribs were used to narrow the chest wall defect by half. The remaining defect was reconstructed with a 2-mm thick expanded polytetrafluoroethylene patch* secured to the rib margins and the abdominal wall fascia. The repair healed without complication, the preoperative pain resolved, and there has been no recurrence of the hernia.

PATIENT 2. A 44-year-old obese male smoker had a sudden pain in the right lower anterior part of the chest during a sneezing episode 1 year before presentation. Evaluation at the time revealed tenderness to palpation over the right costal margin. A chest film revealed fractures of ribs 8 to 11. The patient was treated with rest and analgesic agents. On follow-up, a slowly enlarging bulge developed at the rib fracture site and prompted re-evaluation. Examination revealed a reducible hernia bordered by the 8th rib superiorly, the 9th rib inferiorly, and the abdominal fascia medially. The defect extended slightly into the abdominal fascia. The costal margin between ribs 8 and 9 was totally disrupted. At operation, the defect was repaired in exactly the same fashion as described for our first patient. The postoperative course was uncomplicated, and the hernia has not recurred.

Discussion. Herniation of the lung without an antecedent injury is historically classified as "spontaneous." Technically, the term is a misnomer because spontaneous lung hernias are generally the consequence of a sudden increase in intrathoracic pressure that accompanies coughing, sneezing, singing, heavy lifting, or blowing into a musical instrument resulting in rib or cartilage fracture.

Since 1968, including our 2 patients, there have been 16 reported cases of spontaneous anterior lung hernias (Table I). Patient ages ranged from 19 to 76 years with a mean of 58.4 years. All patients were male. Lung hernias occurred with equal frequency on the right and left sides. Fifty percent of patients gave a history of smoking and 5 patients (31%) were obese. Cardinal signs and symptoms included a bulge (16/16, 100%), pain at the site of the bulge (14/16, 87%), and ecchymosis (7/16, 44%). The classic clinical history is acute chest wall pain after coughing or sneezing. Acute evaluation shows rib fractures on chest film and chest wall ecchymosis on physical examination. The acute pain resolves and a chronic, painful chest wall bulge develops.

Information regarding therapy was provided in 14 cases. Twelve of 14 patients (86%) underwent surgical repair. Two patients (14%) were treated nonoperatively with truss bandages, analgesics, cough suppressants, anti-emetic agents, and weight reduction. The indication for surgery in our review was most commonly a painful bulge (14/16, 87.5%). We believe that surgery is indicated for all anterior lung hernias, even if asymptomatic, to avoid extension of the hernia onto the abdominal wall resulting in a thoracoabdominal hernia. The morbidity of thoracoabdominal hernias and the complexity of their repair are both greater than with anterior lung hernias alone.

Primary surgical repair of anterior lung hernias without prosthetic material was successfully accomplished in 7 of 16 patients (44%) in our review (Table I). We prefer to use a prosthetic patch to close the defect, restore costal margin continuity, and reattach the abdominal fascia. Standard chest wall

From the Department of Surgery, The Johns Hopkins Medical Institutions, Baltimore, Md.

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Address for reprints: Richard F. Heitmiller, MD, Osler 624, Johns Hopkins Hospital, Baltimore, MD 21287 (E-mail: rheitmil@jhmi.edu).

*Gore-Tex patch; registered trademark of W. L. Gore & Associates, Inc, Flagstaff, Ariz.

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Table I. *Spontaneous anterior lung hernias*

First author	*Sex*	*Age (y)*	*ICS*	*Obese*	*Cause*	*Side*	*Smoker*	*Size (cm^2)*	*Repair*
Nielsen[1]	M	76	9/10	NS	Cough	Left	NS	30×10	Primary
Donato[2]	M	58	7/8	Yes	Abn motion	Right	NS	8×6	Patch
Noyez[3]	M	19	7/8	NS	Cough	Right	Yes	20×6	Primary
Sheka[4]	M	NS	8	NS	Cough	Right	NS	6×15	Primary
Sloth-Nielson[5]	M	70	7/8	NS	Cough	Left	NS	2×3	Primary
Togashi[6]	M	70	8	No	Cough	Left	NS	9×15	Patch
Rob[7]	M	54	8/10	Yes	Cough	Left	Yes	10×15	None
Scullion[8]	M	60	9/10	NS	Cough	Right	Yes	NS	NS
Sonnett[9]	M	52	7/8	NS	Sneeze	Right	Yes	10×8	Primary
Gaude[10]	M	60	6/7	Yes	Abn motion	Left	Yes	24×15	None
Plandovskii[11]	M	65	8/9	NS	Cough	Left	NS	20×6	Primary
Folz[12]	M	48	2/3	NS	Cough	Left	Yes	NS	NS
Goverde[13]	M	70	8/9	NS	Cough	Right	Yes	NS	Primary
Brock	M	44	8/9	Yes	Sneeze	Right	No	10×12	Patch
Brock	M	72	8/9	Yes	Cough	Left	Yes	15×20	Patch
Ross[14]	M	55	7	NS	Cough	Right	NS	NS	Patch

ICS, Intercostal space; *NS*, not stated in the report; *Abn motion*, abnormal motion, with no blunt trauma; *patch*, prosthetic patch reconstruction.

reconstruction techniques and soft tissue coverage are used. No deaths after repair of spontaneous lung hernias have been reported. Long-term follow-up information is not available. Our 2 patients have been followed up for 8 months without recurrence.

In summary, spontaneous anterior lung hernias are rare, with only 16 cases having been reported since 1968. They tend to occur in male smokers with underlying pulmonary disease after coughing or sneezing episodes. One third of the patients are obese. Patients report acute chest wall pain with documented rib fractures and chest wall ecchymosis. The acute pain resolves and a chronically painful bulge develops that prompts re-evaluation. Surgery is indicated for all patients with these hernias. Generally, this requires the use of prosthetic patches. Standard chest wall reconstruction techniques are used.

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