Gore-Tex sheath. At the site of contact of the leads with epicardium, the prosthesis was sewn over the lead heads to the epicardium (Fig 2).

Postoperatively the patient recovered fully and the operative wounds showed good healing without any sings of infection or allergic reaction. Pacemaker parameters at discharge showed a pacing threshold of 1.2 V and 0.7 V at 0.5 ms for the atrium and ventricle, respectively; impedance was stable at 1,498 Ohm.

At last follow-up at the end of October 2012 the patient is doing well; postoperative wounds are fully healed and had, since the last operation, shown no allergic reaction. The pacemaker parameters were stable with lead pacing thresholds of 0.5 V and 1.6 V at 0.4 ms for the atrium and ventricle, respectively. Impedance on both electrodes is stable and in the range of 600 Ohms.

Comment

Silicone compounds used to cover pacemaker system components are a rare cause of wound healing problems after pacemaker implantation [4]. It has already been demonstrated that it is important to consider contact allergy as an unusual cause of repetitive pacemaker wound complications and manufacturer-based skin tests may be required to discover a reaction to a specific system component [1, 5].

We have proposed solving the problem of silicone-contact allergy by implanting a silicone-free pacemaker system [1]. Unfortunately, the only available silicone-free leads at the time were leads made for transvenous application. Our initial experience with these leads was favorable and their application for epicardial pacing seemed not to influence their function. We have observed the failure of these leads after 2 years and the second time after 2 months. There were no signs of lead fracture and by explantation a tissue reaction at the site of contact between electrode head and myocardium was observed, which could be the cause of the exit block we have described.

At the time of pacemaker system replacement there were no silicone-free epicardial electrodes available, thus we decided to use conventional epicardial electrodes and prevent an allergy reaction by enclosing the whole system in to Gore-Tex material, as previously described by Iguchi et al [6]. After 2 years of follow-up we have observed no allergic manifestations or pacemaker system or lead dysfunction.

Based on this experience we would strongly discourage the use of silicone-free transvenous pacing leads for epicardial use and would recommend using either custom made silicone-free epicardial leads if available or completely covering the conventional silicone leads with a less allergenic material such as Gore-Tex. At this time there are no silicone-free epicardial leads available on the market.

References


Spontaneous Whole-Lung Torsion After Massive Pleural Effusion and Atelectasis

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We present a case of whole-lung torsion after massive pleural effusion and atelectasis. A 79-year-old woman with a history of recent pneumonia and pleurisy presented to our hospital and complained of left leg edema and pain that was considered to be vasculitis. A sagittal computed tomography (CT) scan showed that her whole right lung had a 120-degree counterclockwise torsion toward the hilum. We obtained and compared a CT image from the previous doctor. By comparing the CT scans, we determined that lung torsion had progressed gradually. To our knowledge, this is the first report that confirms the progress of whole-lung torsion with CT images.


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Pulmonary torsion is an infrequent event and is defined as parenchymal rotation on the bronchovascular pedicle. This condition may manifest within the entire lung or individual lobes. Spontaneous torsion of an entire lung is extremely rare. We report a case of spontaneous torsion of an entire right lung, which was induced by massive pleural effusion and atelectasis. To our knowledge, this is the first report that confirmed the progress of the torsion of an entire lung by computed tomographic (CT) images.

A 79-year-old woman presented to the emergency department of our hospital and complained of left leg edema and pain. A chest radiograph showed an infiltration shadow, with a pleural effusion in the right lower lung field. A sagittal CT showed that the whole right lung had a 120-degree counterclockwise torsion toward the hilum (Fig 1). It also showed atelectasis and pleural effusion in the right upper and middle lobes. In addition, no blood clots were observed in the arteries and veins of the right lung. We diagnosed lung torsion and the patient was admitted to the emergency ward.

Two months prior to this event she had experienced fever and cough with sputum production. She visited another hospital and her chest radiograph demonstrated pneumonia and a pleural effusion in the right upper lung field. Her symptoms improved with antibiotic treatment, as well as with the drainage of approximately 500 mL of the pleural effusion, and she was discharged about half a month before visiting our hospital.

The progress of the pulmonary torsion was confirmed by CT images over the course of her illness. The right upper lobe bronchus was located in the normal position, per a CT scan performed 42 days before she visited our hospital. At the time of admission, the right upper lobe bronchus was inferiorly and posteriorly displaced and became stenotic (Fig 2).

During a physical examination upon admission to our hospital the patient had decreased breath sounds on her right side and a slightly decreased pulse oximetry reading, although she did not have any fever, dyspnea, cough, or sputum production. Moreover, the patient had erythema, edema, and pain on her left leg, along the left great saphenous vein. They were considered to be vasculitis.

She had been started on heparin to prevent thrombosis on the day of admission. As we suspected that a massive pleural effusion and an atelectasia caused the lung torsion, we performed exploratory video-assisted thoracic surgery on the day after she was admitted. During the mini-thoracotomy we discovered that her entire right lung was torqued in a 30-degree counterclockwise direction toward the hilum and that there were no adhesions. The mini-thoracotomy showed pleural effusion of about 1 L and atelectasis in the upper and middle lobes. After removing the pleural effusion, we performed bronchoscopy to examine the atelectasis that caused air to enter the bronchi and thus helped treat the atelectasis. The torsion had completely resolved; all 3 lobes almost fully expanded, and the right lung appeared viable and healthy. The surgery was finished after applying fibrin glue to the lung and the chest wall.

On postoperative day 2, a chest radiograph showed an infiltration shadow in the right upper-middle lung field and the pulmonary artery shadow. Per a CT scan on the same day, each lobe of the right lung had been restored to its original position (Fig 3). Her postoperative course was uneventful and she was discharged on postoperative day 6. At her 5-month follow-up, she had remained asymptomatic and showed no signs of recurrence per a CT scan.
Comment

Ohde and colleagues [1] wrote that approximately 10 cases of spontaneous pulmonary torsion have been reported in English literature to date. The frequency with which spontaneous torsion of an entire lung occurs is somewhat difficult to assess. In 1987, Shorr and Rodriguez [2] reported the first case of a spontaneous complete pulmonary torsion recorded in medical literature. In that same year, Moser and colleagues [3] reported 4 cases of whole-lung torsions but did not state the clinical setting of each case. To our knowledge, only 2 cases of entire lung torsions that spontaneously occurred have been reported in English literature since 1988 [1, 4].

Spontaneous pulmonary torsion may occur in pulmonary conditions such as lobar atelectasis, well lobation, pneumothorax, or pleural effusion [5]. Raynaud and colleagues [6] reported most causes of lung torsion were related to pneumothorax. In our patient, the main cause of the lung torsion was atelectasis and pleural effusion caused by pneumonia and pleurisy.

Felson [5] reported some radiographic signs of pulmonary torsion: collapsed or consolidated lobe, hilar displacement, unusual pulmonary vasculature positioning, rapid opacification, an opacified lobe’s positional change, bronchial cutoff or distortion, and lobar air trapping. Chest CT has been utilized and may be the best single diagnostic test for revealing an altered relationship between the trachea and the pulmonary arteries and a positional change of a previously located mass [7]. We believe our case was also valuable for medicine in that CT scans were used to confirm the clinical course of the pulmonary torsion. We obtained the CT scan conducted by the previous doctor and compared it to the CT scan that we had performed at our hospital. By comparing the CT scans, we found that the course of lung torsion progresses gradually.

Early recognition and prompt intervention are essential in preventing hemorrhagic infarction or gangrene and salvaging the parenchyma [4]. Exploratory thoracotomy is also usually mandated for definite diagnosis and prompt treatment when torsion is suspected [1]. As there was a report of cerebral infarction after the completion of a pneumonectomy for a pulmonary torsion [8], we started the patient on heparin to prevent any blood clots in the lung.

Fig 2. Computed tomography scans showing, in chronologic order, the right upper lobe bronchus. (A) At 42 days before admission, the right upper lobe bronchus was present in the normal position (arrow). (B) At admission, the right upper lobe bronchus was displaced inferiorly and posteriorly and had become stenotic (arrowhead).

Fig 3. Computed tomography scans showing the right lung after surgery with re-expansion. Each lobe of the right lung had been restored to its original position.
Laparoscopic Repair of an Intrapericardial Diaphragmatic Hernia

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An isolated intrapericardial diaphragmatic hernia is very rare. Only 15 cases have been reported, 2 of which are in adults. The defect in the anterior diaphragm allows abdominal contents to enter the pericardial cavity. We report the 16th case—the third in an adult—and its laparoscopic repair.


Congenital diaphragmatic defects and hernias are uncommon and are estimated to occur once in every 2,200 births. Eighty percent involve a posterolateral defect. One percent to 6% of congenital diaphragmatic hernias involve the anterior diaphragm and usually present in the neonatal period [1, 2]. An isolated, anterior diaphragmatic hernia in an otherwise healthy adult has been reported only twice previously. We report the third case in an adult.

A 36-year-old healthy male police officer presented to the emergency department with a 5-week history of epigastric discomfort, treated as gastritis. The pain intensified and persisted in the 24 hours before evaluation. Physical examination revealed epigastric guarding, and laboratory tests were normal. An anterior diaphragmatic hernia containing omentum and transverse colon was reported on computed tomography scan (Fig 1). A presumed diagnosis of a Morgagni hernia was made and surgery advised. At laparoscopy, a 4 × 6 cm central diaphragmatic defect open to the pericardium, containing omentum and transverse colon without hernia sac, was encountered. The colon was easily reduced, and the omentum was freed with a harmonic scalpel (Ethicon Endo-Surgery, a subsidiary of Johnson & Johnson, Somerville, NJ [Fig 2]). The defect was closed with a 10 × 15 cm Gore-Tex (WL Gore & Assoc, Flagstaff, AZ) mesh (Fig 3) and fixed with a spiral tacker. The postoperative chest radiograph had no pneumomediastinum or pneumothorax. There were no postoperative complications, and the patient was discharged 2 days later. He remains asymptomatic at

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References


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