

PNEUMOTHORAX AND SUBCUTANEOUS EMPHYSEMA AFTER PACEMAKER IMPLANTATION

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Key words: pacemaker implantation, pneumothorax, subcutaneous emphysema.

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ПНЕВМОТОРАКС И ПОДКОЖНАЯ ЭМФИЗЕМА ПОСЛЕ ИМПЛАНТАЦИИ ЭЛЕКТРОКАРДИОСТИМУЛЯТОРА

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Ключевые слова: имплантация электрокардиостимулятора, пневмоторакс, подкожная эмфизема.

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82-year-old patient with arterial hypertension and chronic obstructive lung disease was admitted to cardiac ward due to second — degree atrioventricular block in order to pacemaker implantation. A DDDR pacemaker was implanted via left subclavian vein puncture with use of active fixation leads for both atrial and ventricular pacing. Pacemaker control confirmed dual chamber stimula-

tion mode with appropriate electrical parameters of ventricular and atrial channel. At the next day after pacemaker implantation the patient became rapidly dyspneic. In chest X-ray posteroanterior examination left-sided pneumothorax with dislocation of the mediastinum to the right hemithorax was elucidated (Figure 1A). Decision of invasive pneumothorax removal was taken. Surgeon inserted

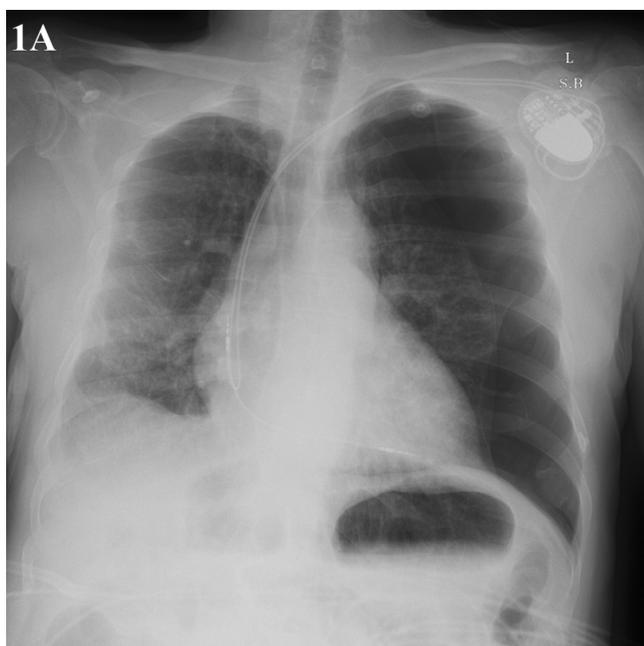


Figure 1A. Chest X-ray acquired 24 hour after placement of dual chamber pacemaker showing left-sided pneumothorax (arrow) with a shift of the mediastinum to the right side of the thorax.

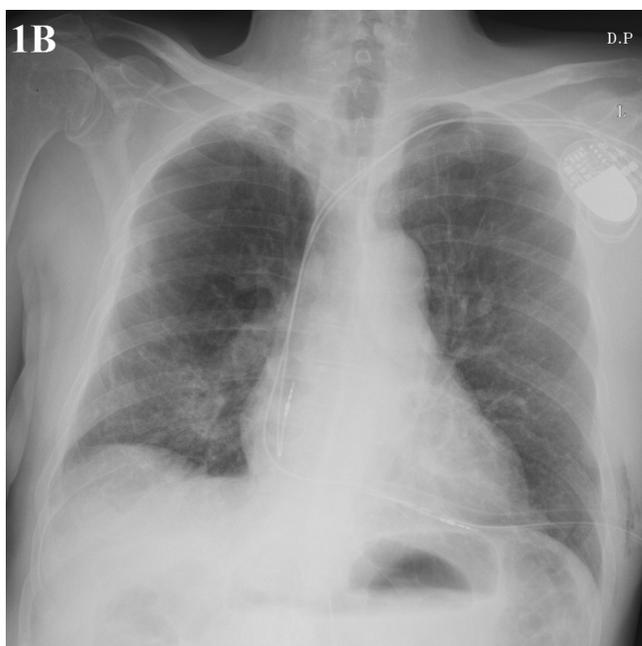


Figure 1B. Chest X-ray — state directly after pneumothorax evacuation; in pleural space visible chest tube.



Figure 1C. Chest x-ray showing diffuse subcutaneous emphysema (arrows).

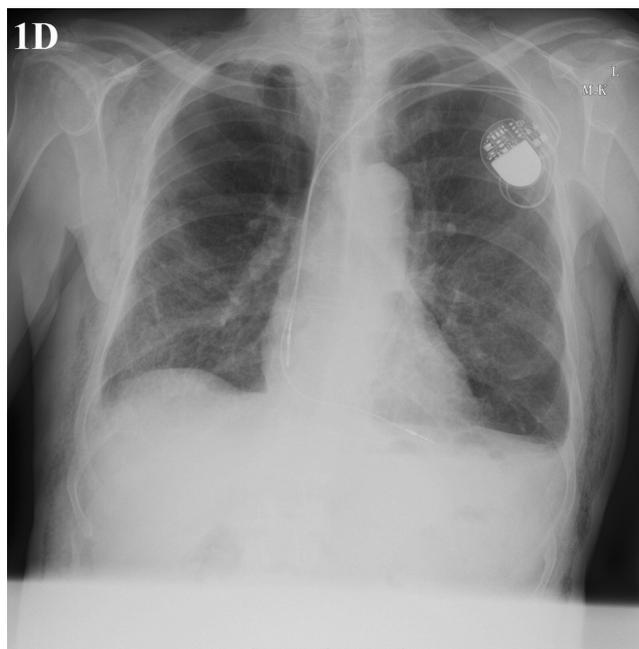


Figure 1D. Chest x-ray after 14 days — visible significant reduction of subcutaneous emphysema.

chest tube into the pleural space. Control chest X-ray showed significant reduction of pneumothorax (Figure 1B). Pacemaker interrogation revealed no change in lead data. After 7 days of therapy the surgeon removed chest tube. The removal was followed by large subcutaneous emphysema occurrence (Figure 1C). During the next 14 days observed was gradual reduction of subcutaneous emphysema confirmed by serial chest X-rays (Figure 1D).

Pacemaker implantation is connected with potential risk of complications. The complications could be divided into acute — directly after implantation, early — up to 3 months and late — beyond 3 months. As acute complications considered are: pneumothorax, bleeding into pleural space, hematoma, heart wall or central vein perforation, diaphragm or skeletal muscle stimulation, electrode dislocation and inappropriate functioning of pacemaker or electrode. The long-term complications are: pacemaker pocket infection, thrombosis or occlusion

of vein with inserted electrodes, twiddler's syndrome. The presented patient had pneumothorax complicated by subcutaneous emphysema. The cause of pneumothorax occurrence was insertion of pacemaker electrodes via subclavian vein. More safe method of electrode placement seems to be cephalic vein preparation. Method of instrumental healing of pneumothorax is puncture of pleural space with chest tube insertion — procedure that is also connected with a risk of complications.

Pneumothorax is usually a complication of percutaneous insertion to the subclavian vein. The clinical course of pneumothorax could be variable: from nearly asymptomatic to clinical course presenting with acute signs and symptoms such as dyspnea, chest pain, cyanosis and shock. In every case of patient with pneumothorax before chest tube insertion potential benefits and risk of complications accompanying the procedure should be considered.