CARDIO-CUTANEOUS FISTULA DUE TO RETAINED EPICARDIAL PACING ELECTRODES AFTER CABG SURGERY

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Temporary epicardial pacing wires are easily removed in most patients within few days after cardiac surgery. In case of difficult extraction, wires are left in situ. Retained electrodes are usually well tolerated and complications are rare. We report a patient in whom the retained wires were complicated by the fistula, leading along the wires to the right atrial wall. The fistula was preceded by a mediastinitis. The wires and the fistula were removed using video-assisted right anterolateral minithoracotomy approach. This case report suggests that the risk of retained epicardial pacing wires infection may be increased in patients who develop mediastinits after cardiac surgery.
Key words: temporary epicardial pacing wires, fistula, minithoracotomy, mediastinitis.

KARDIO-KUTÁNNÍ PÍŠTĚL ZPŮSOBENÁ PONECHANÝMI EPIKARDIÁLNÍMI STIMULAČNÍMI ELEKTRODAMI PO REVASKULARIZAČNÍ OPERACI MYOKARDU
Dočasné stimulační epikardiální elektrody jsou u většiny pacientů běžně odstraněny během několika dní po srdeční operaci. V případě obtížného vytažení zůstavají elekrody na původním místě. Ponechané elektrody jsou obvykle dobře tolerovány a komplikace jsou vzácné. V naší kazuistice popisujeme nemocného, u kterého byly ponechané elektrody komplikovány vznikem píštěle vedoucí podél elektrod do stěny pravé síně. Vznik píštěle byl předcházen mediastinitidou. Elektrody a píštěl byly odstraněny pomocí přístupu z videoasistované pravé anterolaterální minitorakotomie. Cílem naší kazuistiky je upozornit na zvýšené riziko infekce ponechaných epikardiálních stimulačních elektrod u nemocných, u nichž je stav po srdeční operaci komplikován mediastinitidou.
Klíčová slova: dočasné stimulační epikardiální elektrody, píštěl, minitorakotomie, mediastinitida.

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Background

Most patients have temporary epicardial pacing wires placed during cardiac surgery; the wires are removed usually during the first five postoperative days[(1)]. In some patents, however, wire removal is difficult. In these cases, wires are cut short at the skin level and left in situ. Retained electrodes are usually well tolerated and complications are rare. Hereby we report a patient in whom the retained wires were complicated by the fistula, leading along the wires as far as to the right atrial wall.

Case-report

A 74years old male patient with stable exertional angina underwent CABG surgery for the tight left main trunk stenosis and the multiple stenoses in remaining coronary arteries. He suffered from diabetes mellitus, mixed hyperlipidemia and hypertension. Surgery and the early postoperative period were uncomplicated. Ventricular pacing wires were easily extracted; atrial wires were cut short at the skin level and left in situ because of the difficulties with their extraction (Figure 1). Further postoperative course was complicated by the sternal wound dehiscence and mediastinitis. The complication was treated by pectorales muscle myoplasty. Following this surgery, wound heeling was satisfactory, with minimal serosanguinolent secretion from the lower part of the wound. However,

Figure 1. Native chest x-ray showing retained temporary pacing wires (arrows) leading to the right atrium.

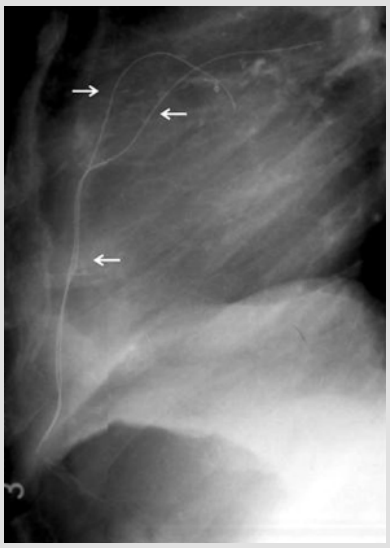
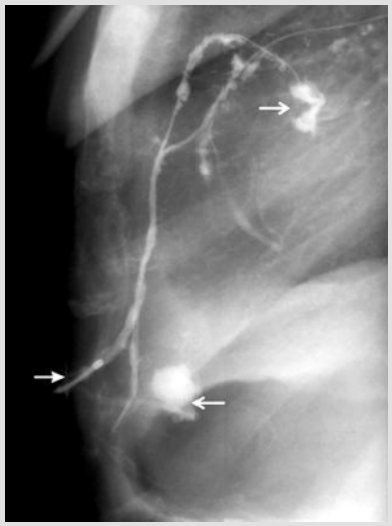


Figure 2. Fistulography showing a fistula, leading along the retained wires towards the right atrium wall. Contrast depots (line arrows) were located under the sternum; entry of the fistula is marked with full arrow.



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the patient wasn´t doing well, having non-specific symptoms of fatigue, anorexia and weight loss. Intermittent fevers appeared and the secretion became purulent. CT scan failed to identify any pathology in the chest. Fistulography revealed a fistula, leading along the retained epicardial wires, laying on the surface of the right ventricle continuing to the right atrial wall (Figure 2). Along the fistula, the depots of contrast medium were evident under the sternum and in the site of wire insertion to the right atrium, about 20 mm in diameter. Because of this, another surgical reexploration was performed using video-assisted right anterolateral minithoracotomy approach. After entering the pericardial cavity, the wires couldn't be identified in the region of the right atrium. The fistula was excised from the lower part of the sternotomy and removed together with the distal necrotic part of the sternum. The wires were subsequently located in tight adhesion on the surface of the right ventricular wall. After the right ventricle wall was relieved from adhesions, the continuation of the fistula become apparent, containing both pacing wires. The wires and the remaining part of the fistula were then easily removed. After that the post-operative course was uneventful and now the patient is doing well.

Discussion

Temporary epicardial pacing wires are easily removed by gentle traction in most patients within few days after cardiac surgery. In case of difficult extraction, however, wires are left in situ. Forced extraction should be avoided, because it is associated with increased risk of bleeding and pericardial tamponade, a potentially fatal condition[1, 2, 3]. On the other hand, retained electrodes are well tolerated and complications are rare; individual cases of infection[4] and wire migration[5] were published. Precise number of unsuccessful wire extractions is not known, being in about 5–10 % approximately. In our patient, the retained wires were complicated by the fistula. It might be therefore speculated that the intolerance of the wire gave rise to this complication. However, we don't believe that this was the case. Despite the high prevalence of retained wires in post-CABG patients, no similar case was reported to date; the wire retention itself is therefore probably not associated with the risk of fistula development. In our patient, the fistula was preceded by a mediastinitis and sternomyoplasty. There were no signs of fistula before mediastinitis appeared. We therefore believe that, more likely, the wire became infected during the episode of mediastinitis and only later this infection gave rise to the fistula.

In conclusion, this case report suggests that the risk of retained wires infection may be increased in patients who develop mediastinits after cardiac surgery. Possibility of this complication should be kept in mind in patients with complicated healing despite the proper treatment for mediastinitis.

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