

A Sewing Needle Completely Buried in the Myocardium Removed under Extracorporeal Circulation

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A 14-year-old boy had a needle accidentally inserted through his chest wall. Chest X-ray showed a needle-shaped metallic density localized in the cardiac silhouette. An echocardiography indicated the needle had passed through the interventricular septum, and its eye and point had reached the right and left ventricle, respectively. Surgical removal of the needle was performed. The needle could not be observed from the heart surface, and was recognized in a dent 5 mm on the right side from the left anterior descending branch (LAD). The needle was easily removed under extracorporeal circulation, and he was discharged ten days after the operation. (Ann Thorac Cardiovasc Surg 2006; 12: 216–8)

Key words: foreign body, sewing needle, extracorporeal circulation, echocardiography

Introduction

A needle in the heart is a comparatively rare event. It has been reported in cases of suicide,¹⁻³⁾ intravenous injections,⁴⁾ and puncturing with acupuncture needles.⁵⁾ It is thought that a needle may move with time,²⁾ and thrombotic complications increase if a needle is detained in the body for a long term.³⁾ Therefore early removal of the needle is desirable. In this report, we presented a case of a teenage boy who had a sewing needle enter the myocardium.

Case Report

A 14-year-old boy had a needle accidentally inserted through his chest wall. He was playing with a needle sticking upwards on a desk, and he dozed off. He then lay on

his stomach, and the needle further advanced into the front of his chest. He was brought to the emergency department of our hospital by an ambulance. He was asymptomatic, but examination of the skin over the chest demonstrated one puncture site at the cardiac apex. He had no history of psychiatric disorder. Blood pressure and pulse were 134/50 mmHg and 100 beats/min, respectively. Results of routine blood and urine analyses were normal. Electrocardiography disclosed no abnormality. The needle was localized within the cardiac shadow on chest X-ray (Fig. 1). Computed tomography (CT) showed the needle as metal density from the right ventricle *via* the ventricular septum to the left ventricle. No cardiac sac liquid was seen (Fig. 2). Echocardiography revealed a linear metallic foreign body passing through the ventricular septum, and its eye point reached the right and left ventricles, respectively. There was no thrombus or pericardial effusion. The eye of the needle was completely buried in the myocardium (Fig. 3). Based on the above findings, the removal of the foreign body was performed under extracorporeal circulation with the heart beating. The operation commenced 3 hours after the accident. We prepared extracorporeal circulation, and approached with a median sternotomy. A small amount of blood was seen in the cardiac sac, but the needle could not be observed from the heart surface as evidenced preoperatively. A dent was ob-

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Fig. 1. Chest X-ray showed a sewing needle in the cardiac silhouette.

served at a portion 5 mm distal from the left anterior descending branch (LAD) segment 8 on the right side. Neither end of the needle was denuded, and ablation from the surface was not possible. Under extracorporeal circulation with the heart beating, the internal right ventricle was examined *via* the tricuspid valve. The needle had penetrated from the right ventricle *via* the ventricular septum into the left ventricle. This was removed easily. The length of the needle was 45 mm. Recovery was uneventful, and he was discharged ten days after the operation.

Discussion

In the recent decades, eleven cases of intracardiac injuries with needles have been reported in the English literature. They are reported in the cases of suicide,¹⁻³ intravenous injections,⁴ and puncturing with acupuncture needles.⁵ Nine of these eleven cases were associated with serious complications including cardiac tamponade,⁵ thrombus,² pneumothorax,² vegetation⁴ and empyema.⁴ In eight cases, the needle was removed by surgery without extracorporeal circulation. In our case, we removed the needle under extracorporeal circulation with the heart beating, because the needle was completely buried in the myocardium, this being a comparatively rare case. The most useful noninvasive diagnostic tool is echo-

cardiography.⁶ Since extracorporeal circulation is necessary depending on the depth of a needle and the existence of a thrombus, it is important to diagnose the exact position of the needle and thrombus. In our case, we found *via* echocardiography preoperatively that the eye of the needle was completely buried in the right interior myocardium, and *via* the ventricular septum, the point was located in the left interior of a room. The needle could not be observed from the heart surface during operation, and external circulation, was utilised. He was discharged ten days after operation without any complications.

In this report, we describe a case of a needle in the heart which reached the left ventricular cavity from the front of the chest wall. It was thought that the needle moved with time, and thrombogenic complications would arise if it was retained in the heart and required urgent removal.

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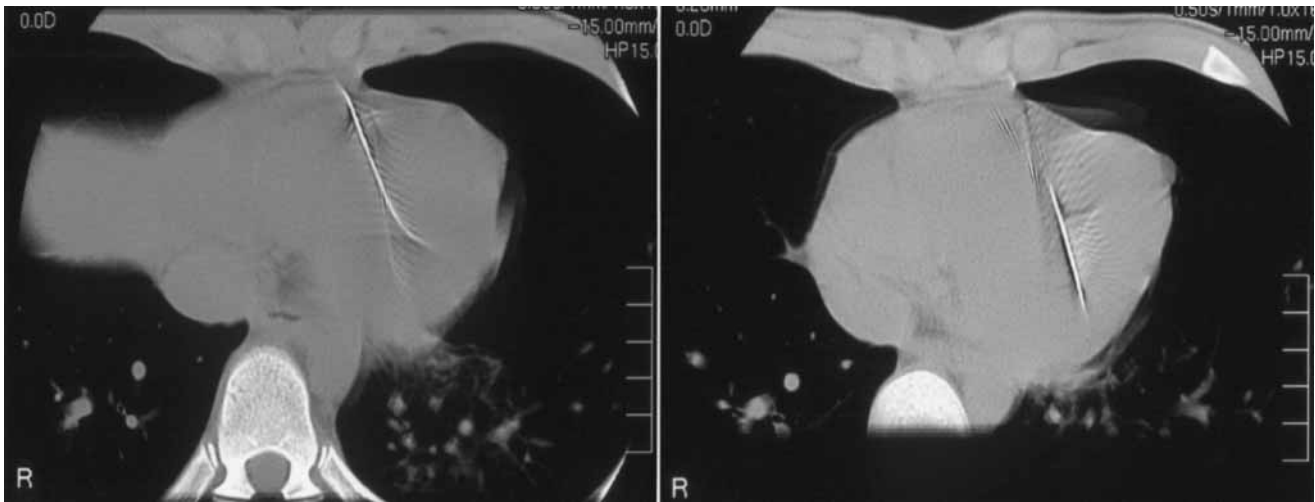


Fig. 2. Chest CT scan showed a needle as metal density from the right ventricle (a) via the ventricular septum to the left ventricle (b).

a | b

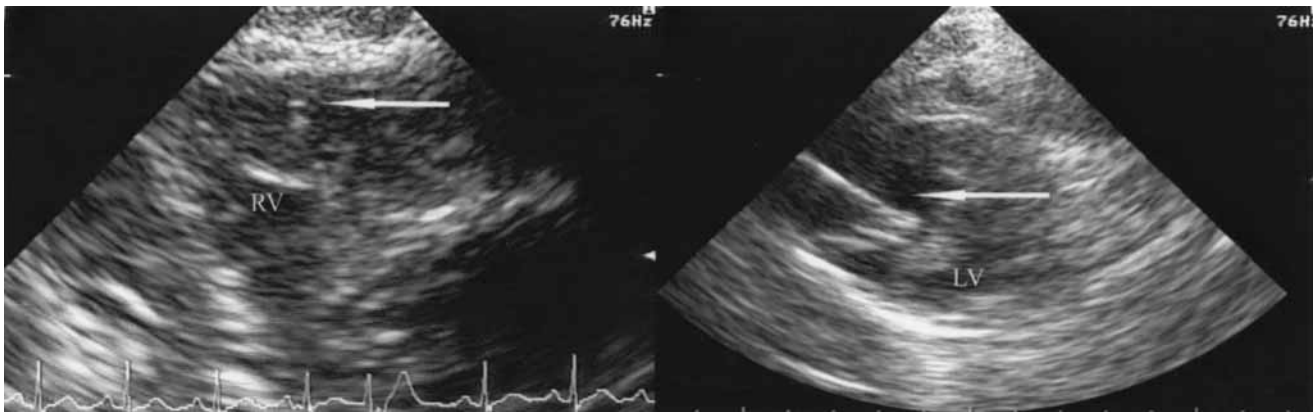


Fig. 3. Echocardiography revealed a linear metallic foreign body passing through the ventricular septum, and the eye (a, arrow) and point (b, arrow) reached the right and left ventricle, respectively. RV, right ventricle; LV, left ventricle.

a | b

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