Embolised Injection Needle Fragment to the Heart, Mimicking a Subcutaneous Charm Needle

Dear Editor,

Embolisation of a fragmented injection needle to the heart is rare, even in intravenous drug abusers.[1] The presence of an embolised needle fragment to the heart can serve as a nidus for infective endocarditis.[2] We report a case of recurrent infective endocarditis secondary to needle embolisation to the heart.

A 30-year-old Malay man with a history of intravenous drug abuse presented to the emergency department with a 30-day history of fluctuating fever. Four months earlier, he was admitted for methicillin-resistant *Staphylococcus aureus* infective endocarditis and was treated with intravenous vancomycin and cloxacillin.

In this admission, he had a leukocytosis of 26.4 x 10^9/L and his chest X-ray showed widespread consolidation. Echocardiography showed multiple vegetations on the tricuspid valve. A computed tomography (CT) scan of the thorax performed for evaluation of the lung parenchyma incidentally revealed a star artefact indicative of a high density object at the inferior wall of the right ventricle (Fig. 1). Another CT scan of the heart confirmed the presence of a

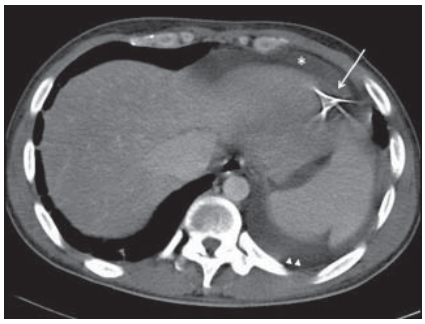

Fig. 1. Contrast enhanced single-slice axial image of the lower chest showing a star artefact (arrow) indicative of a high density object at the inferior wall of the right ventricle. There is also a small pericardial effusion (*) and a small left pleural effusion (arrowheads).

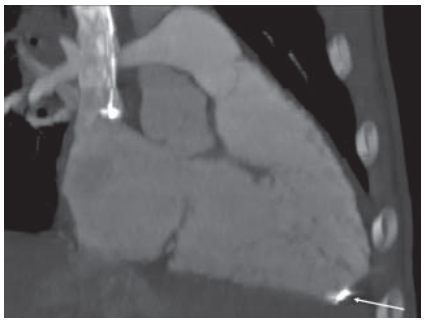

Fig. 2a. Contrast enhanced maximal intensity projection (MIP) coronal CT image of the heart showing a needle fragment (arrow) almost completely embedded within the anteroinferior right ventricular wall.

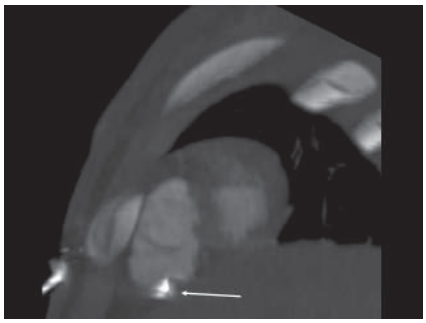

Fig. 2b. Contrast enhanced maximal intensity projection (MIP) short axis CT image of the heart showing a needle fragment (arrow) almost completely embedded within the anteroinferior right ventricular wall.

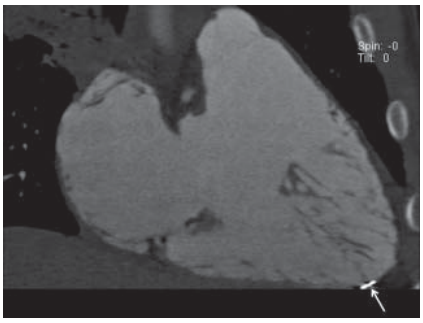

Fig. 2c. Contrast enhanced maximal intensity projection (MIP) CT long axis image of the right ventricle showing a needle fragment (arrow) almost completely embedded within the anteroinferior right ventricular wall.

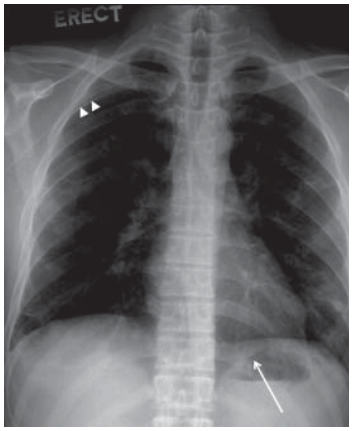

Fig. 3. Chest radiograph performed 4 months earlier than the CT scans showing a tiny metallic density projected over the base of the heart (arrow). The patient also has a right peripherally inserted central catheter (PICC) (arrowheads) for treatment of his infective endocarditis. Patchy consolidation is seen in both lungs.

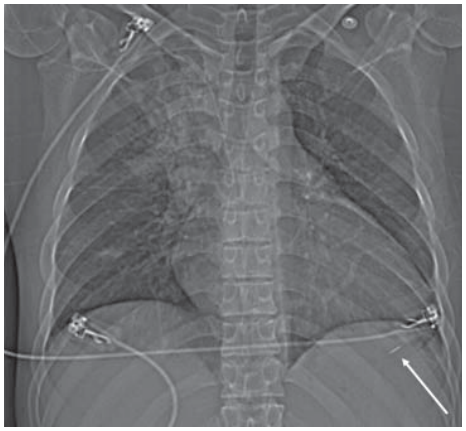

Fig. 4. Scout film obtained as part of the CT scan showing a tiny metallic density projected over the base of the heart (arrow) corresponding to the broken-off needle which is more laterally sited compared to Fig. 3. There is an increase in the cardiothoracic ratio compared to Fig. 3. There are overlying cardiac monitoring leads and a right PICC. Patchy consolidation is seen in both lungs more marked in the right upper lobe.

linear metallic density almost completely embedded within the anteroinferior wall of the right ventricle (RV) (Figs. 2a to 2c). Given the history of intravenous drug abuse, this represents an embolised needle fragment to the heart and is probably the cause for recurrent infective endocarditis. As the needle was almost completely embedded within the wall of the RV, which was unsuitable for transvenous retrieval, he was offered surgical removal. He declined. The patient refused further intravenous antibiotics and insisted on discharge.

A review of the patient's chest X-ray (Fig. 3) that was done 4 months earlier showed a metallic linear density projected over the left lower zone. On correlation with the scout film (Fig. 4) of the CT scan, this needle appears to have migrated more laterally, but this is due to an increase in heart size secondary to right ventricular dilatation in the interim. This metallic density was thought by reporting radiologists to be a charm needle. Charm needles or *susuk* are a form of talisman inserted and commonly worn subcutaneously in the face and other parts of the body as they are believed to enhance beauty and youth by Southeast Asian Malayans.[3] They are also used in traditional Malayan medicine for treatment of aches and pains.[3] In our case, the embolised needle fragment to the RV was thought to be a subcutaneous charm needle on chest X-rays.

Infective endocarditis in intravenous drug abusers is usually secondary to *Staphylococcus aureus*, mainly affecting the right side of the heart. In recent years, there has been an emergence of methicillin-resistant *Staphylococcus aureus* amongst intravenous drug abusers which occurred in our patient.[3] The embolised broken needle fragment probably provided a focus for recurrent infective endocarditis.

Needle embolism to the heart is an infrequent complication of intravenous drug abuse.[1] Repeated usage of an injection needle and its manipulation to gain intravenous access can cause it to fracture and embolise to the heart. Potential complications include cardiac perforation, tamponade and infective endocarditis.[1,2,5] Although there is limited experience with management of needle embolisation to the heart, early removal of needle emboli is desirable before chronic local inflammatory response develops and the needle becomes a focus for recurrent bacterial endocarditis.[2] However, it is known that selected patients can be managed conservatively.[6]

Whilst embolised needle fragments to the heart are less common than charm needles in Southeast Asian population, given the history of intravenous drug abuse and recurrent infective endocarditis, it should be considered as a differential diagnosis in this group of patients. Physicians and radiologists should also be aware of unusual sites of broken needle fragments in intravenous drug abusers.

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