Right ventricular needle embolus in an injecting drug user: the need for early removal

D L Ngaage, M E Cowen

Abstract
This case report describes an unusual cardiac complication in a 22 year old, female injecting drug user. The retention of two fractured injection needles at the site of intravenous injection in the groin, and the subsequent embolisation of one to the right ventricle, predisposed to recurrent local and systemic infections, and endocarditis. Two years later, the needle was completely embedded in the wall of the right ventricle and not suitable for transvenous removal. Removal of the retained and/or embolised needle at an earlier stage would have precluded these complications.

Keywords: right ventricle; needle embolus; recurrent endocarditis

The communal and repeated use of injection needles predisposes injecting drug users to several complications. The commonly reported cardiovascular complication in this group of patients is infective endocarditis. A right ventricular needle embolus has not yet been reported in injecting drug users.

We report and discuss the treatment of this unusual cardiovascular complication in an injecting drug user.

Case report
A 22 year old female injecting drug user was admitted for bilateral VATS decortication. She had staphylococcal pneumonia three months before admission and subsequently, developed bilateral empyema. Two years previously, she fractured two injection needles in her left groin and concealed it. This was complicated by recurrent left groin infections and a deep vein thrombosis (DVT) in the left leg. Six months afterwards, she developed a blood culture positive staphylococcal endocarditis. Her chest radiograph (fig 1) and transthoracic echocardiography demonstrated a needle lying free in the right ventricle (RV) seeded with vegetations. She refused transvenous removal of the needle embolus, and in the next 18 months she had three episodes of bacterial endocarditis. She is hepatitis C positive, a heavy user of heroine and cocaine, and an ex-convict.

The embolisation of a fractured injection needle to the RV is a clinical rarity. Di Carlo et al, and Kaushik and associates reported the embolisation of a fractured implantable venous catheter and a 0.38 calibre bullet to the right atrium, respectively. The entry of the fractured

Figure 1 A plain posteroanterior chest radiograph demonstrating the fractured injection needle in the right ventricle.
needle into the venous system through a large vein with less turbulent flow may have facilitated its embolisation to the RV. This probably prevented the needle from transgressing the vein en route to the RV.

Blood culture positive endocarditis in injecting drug users is usually due to staphylococcal aureus, and affects the right side of the heart mainly. The findings in this patient corroborate this. The needle embolus provided a focus for recurrent bacterial endocarditis.

Chronic local inflammatory response to, and the formation of vegetations on the needle, coupled with the contractile motion of the RV probably contributed to its incorporation into the RV wall. This clearly poses a management dilemma. Sometimes foreign bodies in the heart can be left alone, but as this case illustrates, it poses a high risk of recurrent bacterial endocarditis in people with increased susceptibility such as injecting drug users. There is also the potential risk of transmigration through the wall of the RV. Therefore, the removal of an RV needle embolus or any foreign body in the RV is desirable at a stage when transvenous retrieval can be achieved with low morbidity. Kaushik et al and Shannon and colleagues successfully treated bullet emboli by early percutaneous removal.

An early retrieval of the needle embolus in this patient would have precluded the occurrence of other complications and eliminated the abiding potential risk of transmigration of the RV wall.

We wish to thank Mrs Chris Hillier, cardiothoracic secretary, Castle Hill Hospital, Cottingham, for her clerical assistance.

Funding: none.

Conflicts of interest: none.