Case Report: Bullet in heart removed from knee

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Watching my own beating heart recently on an echocardiogram, I was reminded of the beating heart I held in my hand 26 years ago. In 1989, in a routine surgical list in Malawi, 8 year old Richard was rushed into the corridor. He had been shot in the chest by a friend while playing with a pump-up air gun that fired BB bullets. He was pale and pulseless, and there was a small clot on his sternum. The wet x ray chest film that came with him showed a bullet. A lateral x ray picture taken while theatre was being prepared confirmed it to be in the heart. He obviously had cardiac tamponade.

In theatre, a sternum knife was used to open his chest, and the tense pericardium released the blood. The heart could now expand properly and his blood pressure improved. The puncture wound in the left ventricle, spurting blood, was closed with two sutures. But there was no sign of the bullet in the wound or in the blood on the floor. Now stable, he was sent to the ward.

The next day he was doing well, and a repeat chest x ray picture showed no bullet. He complained of a little pain in his left leg where there was a "cut-down" drip. His foot was warm, and there was no sign of ischaemia from a possible embolus elsewhere. However, whole body radiography finally showed the bullet behind the left knee. He obviously had a good collateral circulation in the leg.

The next day the bullet was removed from the popliteal artery together with antegrade and retrograde clots. It had probably first lodged in the intraventricular septum and was displaced into the left ventricle when his heart was handled. Luckily it then embolised to an accessible situation. There was good bleeding on removal through an arteriotomy, but the dorsalis pedis pulse could not be felt either then or at his discharge some days later. Months afterwards he was doing well, without signs of an interventricular shunt.

In 40 years working as a very general surgeon in poor countries I had to cover all specialties. I was working mostly with paramedics, not doctors. They dealt with all the basic surgery, caesarean sections, laparotomies, trauma, and orthopaedics. Few cardiac cases came to theatre—stab wounds, constrictive pericarditis, and drainage of pericardial effusions through the diaphragm.

I now have a scar like Richard's. Luckily my mitral valve prolapse and tissue valve replacement occurred in Cambridge. I have searched the internet for cases similar to Richard's. Metal bullets and fragments have remained in the heart for years; BB bullets have travelled to the heart after penetrating major veins, also to the body periphery after penetrating major arteries.

But I have not found a case like this.

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