

An unusual case of retained bullet in the heart since World War II: a case report

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Abstract. – Although bullets penetrating into the heart are usually known as fatal, retained cardiac bullets can have a silent course without causing any cardiovascular complications. An 89 year-old patient with myocardial infarction was admitted to our department hemodynamically stable and widely awake. His electrocardiogram didn't show any evidence of ischemia. Cardiac catheterization revealed a three-vessel coronary artery disease. In addition, a circular structure projected on the area of the marginal branch and the V. magna cordis. Removal of the bullet showed that three quarters of myocardium were involved without any perforation. The history of the patient revealed an injury under the heavy fire during World War II. Thus, this case demonstrates that bullets can remain asymptomatic within in the heart for decades. The patient was discharged home at the 10th postoperative day after having an uneventful clinical course.

Key Words:

Foreign bodies, Bullets, Cardiac injuries, Gunshots, Cardiac surgery, Retained bullets.

Introduction

Cardiac injuries due to gun shots are mostly life-threatening and require surgical intervention; however, under certain circumstances the bullets may not cause any acute or chronic complaints or signs. These cases can be clinically silent for several years despite a retained bullet or a missile. In this case report, we present a patient who was shot in World War II and had one bullet inside the myocardium that had not caused any symptoms for 70 years.

Case Presentation

An 89 year-old man was admitted with NSTEMI acute myocardial infarction to our Clinic. He was awake and hemodynamically stable. He had sinus rhythm without any evidence of ischemia in ECG.

Due to the myocardial infarction, the cardiac enzymes were significantly elevated. Cardiac catheterization demonstrated three-vessel coronary artery disease with severe stenoses. In addition, a circular structure was visible in the area of the marginal branch of the left coronary artery, without impact on clinical symptoms (Figure 1).

Median sternotomy was performed and cardiopulmonary bypass commenced. After lateral and apical pericardiolysis the foreign body became visible. Further dissection exposed a metal bullet between the marginal branch of the left coronary artery and the V. magna cordis (Figure 2).

Removal of the metal bullet revealed that it was embedded up to three quarters in the myocardium without perforating it. Complete dissection was done and three bypasses were placed. The operation was finished in the usual way and the patient was transferred to the intensive care unit (ICU).

While taking his history, we found out that he was in the pioneer substitute battalion which is well-known as 6th army. During World War II, he was injured under the heavy fire from Russian army. Emergent treatment was done only for his wounded left shoulder while he was unconscious. A round metal piece hadn't been recognized until the chest X-ray was taken for hemoptysis in 1971. However, no cause for the symptoms was found. Consecutively, the therapy was symptomatic with administration of cortisone and antibiotics.

The patient was discharged on the 10th postoperative day home hospital after an uneventful course.

Discussion

Penetrating cardiac injuries are caused by both civilian and military injuries. Battlefield injuries



Figure 1. Coronary angiography showing bullet in the area of the marginal branch of the left coronary artery.



Figure 2. Intraoperative view of the bullet on the posterior wall of the myocardium.

are most frequently fatal¹. They usually present with cardiac tamponade, with hemorrhagic shock or with haemothorax². People who have a retained bullet in the myocardium frequently do not have a chance to receive a medical intervention in hospital³.

However, under some circumstances, the bullet is located in various positions in/or around the heart, as in the myocardium or the pericardial space or even in the cardiac chamber. The clinical manifestations depend on the velocity and anatomical position of the bullet and the secondary complications⁴. Retained cardiac bullets are clinically called silent if they don't cause any specific signs or symptoms of a cardiovascular problem. On the other hand, it has to be taken into consideration that pericardial irritation and effusion may develop up to 2 years after injury⁵. The treatment of the retained cardiac bullets varies again depending on the position and the course of the bullet in the heart. After World War II, 40 patients were followed-up over 20 years with foreign bodies located in the heart. Pericardial effusions were seen in 25% of them and only three of the cases required removal of the foreign body⁶. After initial investigation with chest X-ray, the diagnosis of retained cardiac bullets is usually made by a wide range of imaging methods such as cardiac fluoroscopy, echocardiography or computed tomography or angiography². In our patient first recognition of the foreign body in hospital was on coronary angiography as the patient was admitted emergently. We performed bypass surgery for severe stenoses of all three coronaries.

In surgery, the metal bullet was detected between the marginal branch of the left coronary

artery and the V magna cordis. Excision of the bullet revealed that three quarters of myocardium were involved without any perforation.

If our patient hadn't required urgent surgery; he would have been monitored closely for complications such as lead poisoning, pericardial irritations or effusions without surgery.

A retained cardiac bullet in an asymptomatic and healthy patient is currently an uncommon finding which should be addressed if other surgery is performed. Thus, we present such a case with a retained bullet in the myocardium, with an asymptomatic period of almost 70 years.

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