

## Retained pericardial pellets for 25 years: a case report

Yirmi beş yıldır belirti vermeyen perikart saçmaları: Olgu sunumu

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Retained cardiac pellets are clinically silent foreign bodies that do not cause any cardiovascular disturbance. A 71-year-old woman presented with exertional chest pain. Her physical examination and surface electrocardiogram were normal. After a positive treadmill test, coronary angiography was performed which showed non-significant coronary lesions. During fluoroscopy, several pellets were observed throughout the neck and two of them were simultaneously moving within the heart shadow. Transthoracic and transesophageal echocardiography showed no evidence for pericardial effusion. Computed tomography scans of the chest showed the pellets above the left diaphragm in the pericardial area. Her past medical history revealed an accidental shot from a pellet rifle by her son 25 years before, at which time no surgical intervention was planned as she had been asymptomatic.

**Key words:** Foreign bodies; heart injuries; pericardium/injuries; wounds, gunshot.

Cardiac shotgun injuries are occasionally encountered, the victim may be shot sometimes for suicide or sometimes for homicide. Gunshot wounds in the chest are mostly life-threatening and require surgical intervention; however, some patients may become stable without surgery. Retained cardiac missiles may sometimes be clinically silent for several years. Here we present a patient who was shot accidentally and had two intrapericardial pellets that had not caused any symptoms for 25 years.

### CASE REPORT

A 71-year-old woman was admitted to our clinic with exertional chest pain of two-month history. Her physical examination and surface electrocardiogram were normal. After a positive treadmill test, coronary angi-

Kalbe saplanmış saçma taneleri klinik olarak sessiz olabilir ve herhangi bir kardiyovasküler bozukluğa yol açmayabilir. Yetmiş bir yaşında kadın hasta eforla ortaya çıkan göğüs ağrısı yakınmasıyla başvurdu. Hastanın fizik muayene ve yüzey elektrokardiyogramı normal idi. Egzersiz testinde pozitif sonuç alınması üzerine başvuru koroner anjiyografide de sadece önemli olmayan koroner lezyonlara rastlandı. Floroskopide boyun bölgesinde saçma taneleri görüldü; iki saçma tanesinin de kalp gölgesi içinde eşzamanlı hareket ettiği izlendi. Transtorasik ve transözofageal ekokardiyografide perikart efüzyonu bulgusuna rastlanmadı. Bilgisayarlı tomografi incelemesinde saçma taneleri perikart alanında sol diyafram üzerinde görüldü. Hastanın öyküsünden, 25 yıl önce oğlu tarafından ateşlenen bir tüfikle kazara vurulduğu ve asemptomatik olduğu için cerrahi planlanmadığı öğrenildi.

**Anahtar sözcükler:** Yabancı cisim; kalp yaralanması; perikart/ yaralanma; ateşli silah yaralanması.

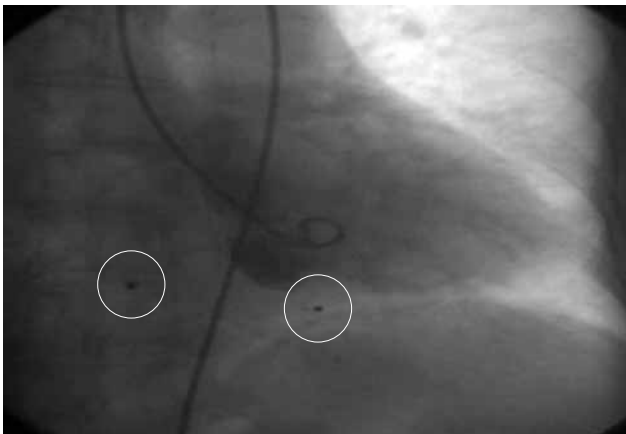
ography was performed which showed nonsignificant coronary lesions. During fluoroscopy, several pellets were observed throughout the neck and two of them were simultaneously moving within the heart shadow.

Her past medical history revealed an accidental shot from a pellet rifle by her son 25 years before. No surgical intervention was planned as she had been asymptomatic. After a benign hospital course, she was discharged and followed-up on an outpatient basis. Since then, she did not return to any follow-up visits.

We took several images of the pellets from different angles under fluoroscopy (Fig. 1). Transthoracic and transesophageal echocardiography showed no evidence for pericardial effusion. Computed tomog-

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**Figure 1.** Two pellets moving with the heart shadow in fluoroscopic view.

ography scans of the chest showed the pellets above the left diaphragm in the pericardial area (Fig. 2).

## DISCUSSION

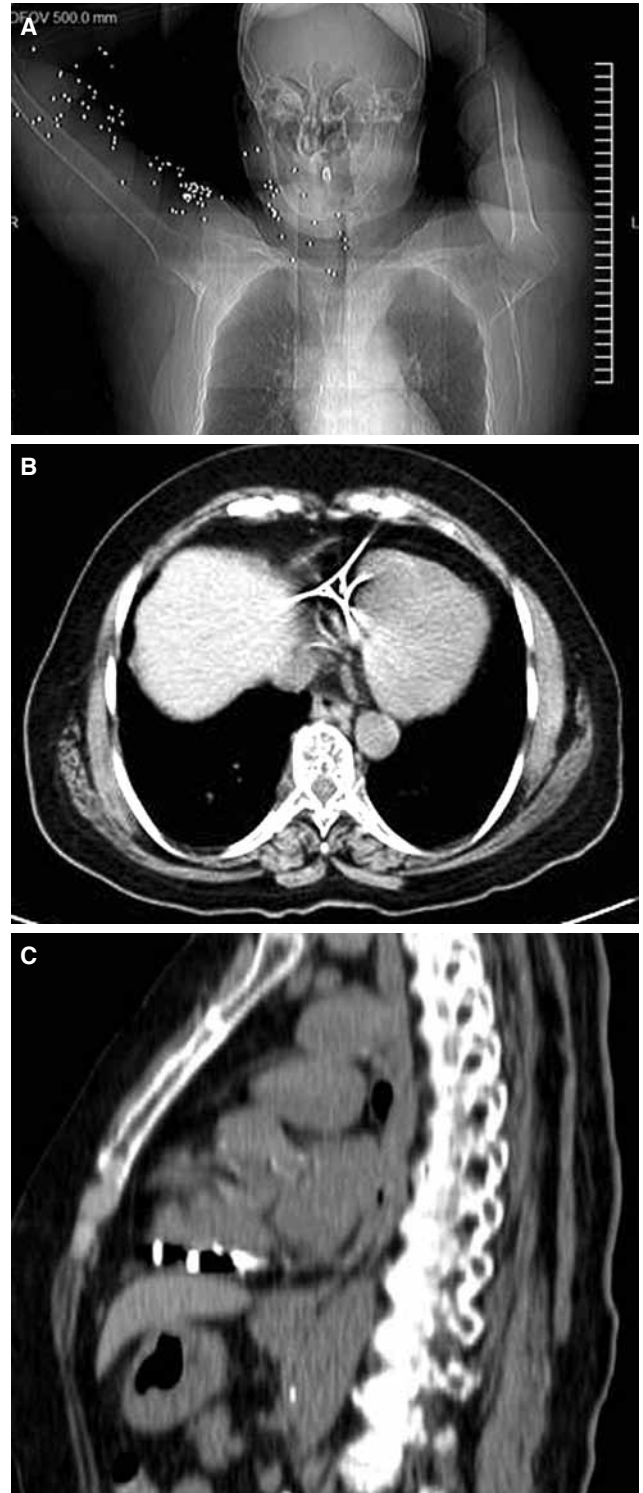
In 1939, Decker reported a patient whose symptoms resembled pericarditis, beginning one month after a gunshot in the chest. The symptoms resolved within two years. Physical examination of the patient was normal and a bullet was seen in the pericardial space by fluoroscopy. The bullet was not removed.<sup>[1]</sup>

The incidence of missiles retaining in the myocardium in patients reaching the hospital alive is rare. In these cases, the missile is usually partially embedded in the myocardium without causing damage to any cardiac cavity.<sup>[2]</sup>

Penetrating cardiac injuries by gun bullets or pellets may cause severe cardiovascular collapse, by bleeding or cardiac tamponade.<sup>[3]</sup> In a gunshot wound, invasive hemodynamic monitoring is indicated and thoracotomy should be performed if a penetrating cardiac injury is confirmed.

The term 'retained cardiac pellet' describes the clinically silent cardiac pellet that does not cause serious cardiovascular disturbance.<sup>[3]</sup> The diagnosis of a cardiac foreign metallic body (intrapericardial, intramyocardial, or intracavitary) is generally made after numerous imaging studies. It is suggested that multiple imaging modalities be used in the initial evaluation to check out any possible injuries to adjacent structures, including chest X-ray, transthoracic echocardiography, computed tomography, esophagography, transesophageal echocardiography, and fluoroscopy.<sup>[1]</sup> An intrapericardial lodgement of a retained cardiac pellet may be suspected if the metallic body changes its position in the mediastinum either on serial chest

X-rays or computed tomography scans. Diagnosis is confirmed by fluoroscopy.<sup>[1]</sup> It is widely available, simple to perform, and can easily demonstrate whether the object moves simultaneously with the heart.<sup>[4]</sup>



**Figure 2.** Computed tomography sections showing the pellets (A) in the neck and arm, and (B, C) in the pericardial area.

The management of missiles in the heart should be individualized based on the patient's clinical condition, the site, shape, and size of the missiles.<sup>[3]</sup> It is recommended that missiles that are completely embedded in the myocardium or pericardium and in the pericardial space are tolerated well and therefore may be left in place.<sup>[5]</sup> In contrast, partially embedded missiles may cause clot formation and embolization so they should be removed.<sup>[2]</sup> Free-floating missiles within a cardiac chamber requires surgery to prevent embolization. Other surgical indications include missiles located next to an artery, large missiles, missiles passing through an intra-abdominal viscus, bullets in the pericardial cavity, complications such as valve dysfunction, endocarditis, erosion into adjacent structures, and pericarditis unresponsive to medical treatment.<sup>[2,3]</sup>

If a nonsurgical approach is selected, close monitoring of the patient is required for detection and recognition of complications such as pericardial effusion, pellet embolization, and lead poisoning.<sup>[3]</sup> It should be kept in mind that pericardial irritation and effusion may develop even after 26 months of injury.<sup>[1]</sup> The time for discontinuation of monitoring in an asymptomatic patient has not been clarified. After World War II, 40 patients were followed-up over a period of

20 years for foreign bodies fixed in the heart, during which pericardial effusions were detected in 25% of the cases, and only three of the cases needed removal of the foreign body.<sup>[4]</sup> On the other hand, it has been reported that removal of the bullet/pellet after failure of conservative management is not associated with increased morbidity or mortality.<sup>[1]</sup> To our knowledge, our case, with 25 years of asymptomatic period, represents the longest duration of intrapericardial pellets reported in the literature.

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