

# Penetrating Thorn in the Heart Complicated by Infective Endocarditis

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## Abstract

A 3 years old child presented with recurrent chest pain for 3 months, echocardiography showed a thorn inside left ventricle, patient diagnosed as foreign body plus infective endocarditis, received proper treatment, and operation done after inflammatory reaction subsided.

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## Abstract

A 3 years old child presented with recurrent chest pain for 3 months, echocardiography showed a thorn inside left ventricle, patient diagnosed as foreign body plus infective endocarditis, received proper treatment, and operation done after inflammatory reaction subsided.

## Key words:

Foreign Body, Thorn, echocardiography, infective endocarditis, Cardiopulmonary bypass.

## Introduction:

A foreign body can enter the heart either directly through a penetrating trauma or through migration of a distal fragment from peripheral vessels; however All of this events are considered to be of very rare occurrence with possible complications to occurs include infective endocarditis, cardiac tamponade and pneumothorax(1,2). Infective endocarditis (IE) is a cardiac infection that affects the endothelium. It has an annual incidence of 3–10 per 100,000 people, with a fatality rate of up to 30% after 30 days. Because of the variety of causative microorganisms, underlying cardiac diseases, and pre-existing comorbidities, the clinical presentation of IE is exceedingly diverse. It can appear as an acute, subacute, or chronic condition (6).

Our case is considered to be the first case documented worldwide of a penetrating thorn in the heart that's complicated with infective endocarditis for which it was first treated medically and then removed through cardiopulmonary bypass surgery.

## Case Report:

A 3 years old child of average body mass index and normal developmental milestones with history of falling down on his abdomen was referred to paediatric cardiology department with recurrent chest pain for 3 months that was not managed by seeking many medical experts. X-ray revealed nothing and he was treated by simple analgesia. Echocardiography showed a thorn within the left ventricle that's penetrating from the apex posteriorly covered by big clot anteriorly that measures (15cm × 11cm) and was diagnosed as foreign body that was complicated by infective endocarditis (**Figure 1** ). The patients was put on the medical treatment of infective endocarditis according to the international regimen for 2 to 3 weeks, followed by inflammatory markers follow-up and then he was shifted to operation room to undergo median sternotomy which showed normal pericardium apart from adhesions between chest and diaphragm. The patient was put on by pass after we arrest the heart; adhesions were removed completely then they revealed the definitive body (**Figure 2** ), foreign body reaction and a whole of a big slider thorn come out. We went into trans-atrial approach through left atrium and then through mitral valve with organized thrombus, we washed with antibiotic solution, we checked that's mitral valve is normal then we closed. Tricuspid valve was tested and was found to be normal so right atrium was closed. We debride the place of foreign body entry, then we closed using pericardium strips of two layers warmed and separated. Haemostasis was secured and the chest was closed with two chest tubes. Patient was sent to paediatric ICU under cover of broad spectrum antibiotics, antifungal and analgesia on need. Child was extubated successfully on the next day and was followed-up for 1 week clinically, with laboratory markers and then was sent home after Echo was done on the day of discharged which showed completely normal heart. The patient was told to be seen on refer clinic after 1 month of discharge.

## Discussion

Penetrating cardiac injury in childhood is extremely rare. The objects usually are needles, bullets, grenade acupuncture or sometimes sewing needles (3). In our case, the patient had symptoms of infective endocarditis. What's surprising is there was no cardiac tamponade after trauma as we assume blood drained to the left pleural cavity. This is an unusual case in that the thorn directly caused infective endocarditis. The

thorn was embedded in the left ventricle, penetrating from the apex posteriorly. As it settled there, it was covered by a big clot anteriorly and adhesions formed. Management for such cases is very difficult and case dependent. As data concerning foreign bodies in the heart is limited, hence no specific accredited guidelines or recommendations are available. In symptom-free patients, surgery depends on the type and place of the foreign body. Patients having foreign bodies completely embedded or in the pericardial space or in the myocardium usually remained asymptomatic for a while (4). The surgical approach for removing the foreign body is individualized according to the type of foreign body (5). Our patient was overall stable, so first we focused on treating infective endocarditis to prevent life-long complications, and to make sure the patient is in the best possible condition for the surgery. Although the risk was high, surgery with bypass was indicated to avoid a life-threatening situation. Possible complications for such cases vary, and all are life threatening if the patient is left untreated. Infective endocarditis and the presence of a foreign body in the heart both contribute to thrombosis and then fatal embolization. Also the foreign body can cause injury to the surrounding vessels, and heart rhythm can be disturbed (3).

To our knowledge and recent literature, this is the first case with such a presentation of a thorn with this measurement that is complicated by infective endocarditis.

### **Conclusion:**

Foreign bodies in the heart are rare but have high mortality and morbidity rates. Proper investigations (such as echocardiogram), proper treatment for infection, and accurate timing for surgery are keys for patient survival.

### **Declaration section:-**

#### **Conflicts of interest:**

All authors declare that there are no conflicts of interest.

#### **Funding:**

There was no fund.

#### **Informed consents:**

Considering the child was 3 years old both written and verbal consents were taken from his guardians (parents) in accordance with the general preoperative guidelines as well as consent to be the case of interest in this article.

#### **Ethical approval;**

Ethical approval was obtained from the Sudan State Ministry of Health.

#### **Authors' contributions**

All authors participated in planning the study, data collection, results and discussion sections.

#### **Acknowledgements**

Not applicable.

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