Title: Living 'Tony Stark': A Case Report of Metallic Foreign Body in The Pericardium.

M Nasreen[1,2] KK Gan[1] NH Ahmad[2]

[1]*Emergency & Trauma Department, Hospital Sultanah Aminah Johor Bahru, Johor, Malaysia.*

[2] *Universiti Teknologi MARA, Selangor, Malaysia*

Introduction

Point of Care Ultrasonography(PoCUS) in Emergency and Trauma Department(ETD) provide an opportunity for early detection of foreign body in soft tissue. We are presenting a case of retained metallic foreign body which was readily revealed by PoCUS.

Case description

A 37-year-old foreign worker presented to ETD with chest pain 1 hour after pieces of iron flakes has penetrated into his left chest while working. Upon arrival, his vitals were stable except for severe left sided chest pain with pain score of 8/10. On inspection of the chest, there was a punctum wound over left sided chest with surrounding erythematous and tenderness. Air entry was equal and no muffled heart sound was heard. Electrocardiogram(ECG) showed multiple bizarre artefacts without any features of acute myocardial injury. Extended-Focused Assessment of Sonography in Trauma(e-FAST) revealed a small hyperechoic linear structure with posterior acoustic shadowing and re-verberation artefact. The suspicion of metallic foreign body in the mediastinum was heighted by the chest radiography findings of a linear radiopaque object near the heart. The diagnosis was then confirmed by computed tomography(CT) scan of the chest which revealed a metallic foreign body located deep to intercostal muscle involving the pericardium and abutting the myocardium with small adjacent pericardial hematoma. Patient was subsequently discharged well after uneventful observation with a memo of metallic foreign body in his body.

Discussion

PoCUS by emergency physician has demonstrated a high sensitivity(90%) and specificity(70%) in identifying radiopaque and radiolucent foreign body with improved accuracy. Although CT scan is 15 times more sensitive at detecting foreign bodies than plain radiography, metal artefacts have been known to hinder detection of foreign bodies using this method. Benefits of USG include its lack of radiation exposure and the ability for it to be conducted at the bedside. Sensitivities of 95–100% and specificities of 89.5–100% have been reported in the use of USG to detect foreign bodies.

Conclusion

The imaging techniques used to detect any foreign bodies depends on the size, material properties and position of the object. Different foreign bodies demonstrate different physical properties when viewed with different imaging techniques. Together with plain radiography, PoCUS can detect most foreign bodies and CT will aid in confirming the final diagnosis.

Keywords: PoCUS, metallic foreign body, artefact