Radiology Case Reports ■■ (2017) ■■–■■

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journal homepage: http://Elsevier.com/locate/radcr

Chest

Occult lawn mower projectile injury presenting with hemoptysis

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ARTICLE INFO

Article history:
Received 25 July 2017
Received in revised form 27 July 2017
Accepted 8 August 2017
Available online

Keywords:
Penetrating injury
Hemoptysis
Lawn mower injury

ABSTRACT

We present the case of a 72-year-old man with hemoptysis after a thoracic projectile injury, which occurred while mowing the lawn. Chest radiograph followed by a computed tomography angiogram revealed a metallic foreign body in the right middle lobe of the lung. The patient underwent a right anterolateral thoracotomy where the object was successfully retrieved. The patient had an uneventful postoperative recovery.

Introduction

Power lawn mowers have the potential to cause severe injury and even death. Typically, direct contact with the turning blades causes severe wounds that require hospitalization. These injuries can occur by running over limbs, injury while attempting to remove debris when the mower is running, and falls that could cause the lawn mower blades to come into contact with the torso and other parts of the body. The blades are able to cause significant injuries because they can spin at 3000 rpm and produce 2100 ft lb of kinetic energy [1]. This force is 3 times as powerful as a 0.357 magnum revolver [2,3]. However, there are multiple other ways lawn mowers can cause severe injury and hospitalization including burns, broken blades, driver falling off riding mower, and debris projectile injury. Injuries from projectiles can be severe as they can be thrown at a speed of 232 mph (374 kph; 104 m/s) [1].

Approximately 30 million lawn mowers are currently in use in the United States and are a significant cause of morbidity,

Competing Interests: All authors claim no conflicts of interest or disclosures.

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http://dx.doi.org/10.1016/j.radcr.2017.08.007

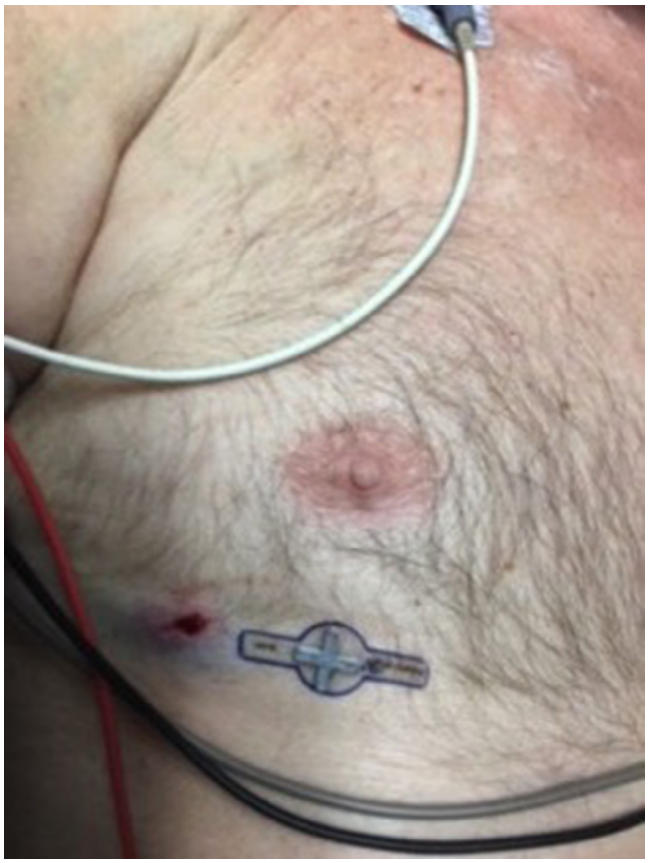

Fig. 1 – Photograph of skin laceration lateral and inferior to the right nipple.

with approximately 74,000 annual emergency room visits for lawn mower-related injuries [3,4]. Projectiles-related injuries are the most frequent injury requiring treatment [4]. We present a case of an occult projectile injury, which presented with hemoptysis.

Case presentation

A 72-year-old man presented to the emergency department with right-sided chest pain and hemoptysis, which began while mowing the lawn 2 hours before admission. A small hemostatic laceration was noted just below and lateral to the right nipple (Fig. 1). Chest radiograph revealed a linear radiopaque foreign body in the right lung (Fig. 2). Computed tomography angiogram showed the metallic foreign body to be located in the right middle lobe, possibly involving a subsegmental artery and surrounded by extensive pulmonary hemorrhage with associated right hemothorax without pneumothorax or pneumomediastinum (Fig. 3). Additionally, the projectile was located less than 1 cm from the cardiac silhouette and ascending aorta, but it did not penetrate the pericardial sac. Because of potential further bleeding, the patient was offered surgical exploration with goal of removing the foreign body, which he elected to undergo.

The patient was taken to the operating room for a right anterolateral thoracotomy. The projectile was palpated in the medial aspect of the right middle lobe just deep to the parietal pleura. A small incision was made, and the foreign body was extracted. It was found to be either a nail or a small piece of wire (Fig. 4). A C-arm was used to ensure no pieces or other projectiles were left before closure. A 32-Fr chest tube was placed intraoperatively before the wound was closed.

Postoperatively, the patient was taken from the operating room to the intensive care unit and remained intubated. He was extubated the following morning and had self-limited minimal hemoptysis. The chest tube was removed 2 days postoperatively and he was discharged that same day.

Discussion

Power lawn mower injuries from debris and projectiles can be extensive despite mild or nearly imperceptible entry wounds. Patients may be asymptomatic or have mild symptoms, which

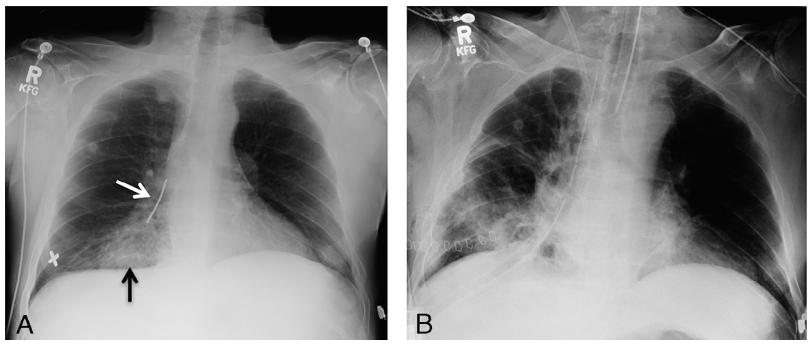

Fig. 2 – Initial portable chest radiograph (A) shows the metallic nail projecting over the right hilum (white arrow). The X in the right lower chest marks the entrance wound on the skin. Diffuse airspace opacification in the right cardiophrenic angle (black arrow) suggests lung contusion or hemorrhage. The follow-up portable chest radiograph (B), obtained after the surgery, shows absence of the nail in the right lung, right lower chest wall skin staples, a right-sided chest tube, and an endotracheal tube. Patchy opacities are seen in the right lung, suggesting contusion, hemorrhage, and linear atelectasis.