

CASE REPORT

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Bullet-Shaped Chest Tube Tip: Potential Pitfall in Diagnosis

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ABSTRACT: A potential pitfall in diagnosis with the use of a radiopaque tipped chest tube is reported. A discussion of bullet embolization to and from the heart is given.

KEYWORDS: pathology and biology, chest tube, pneumothorax, ballistics, embolus, wound ballistics

A chest tube with a radiopaque bullet-shaped tip caused difficulty in interpretation of a chest film in a gunshot wound victim. To our knowledge this potential pitfall has not previously been reported in the literature.

Case History

A 42-year-old male was shot in the left chest with a .22 caliber weapon. He was admitted to an outlying hospital where a chest tube was inserted to treat a pneumothorax. Once stabilized, he was transferred to our institution. The initial chest radiography (Fig. 1) demonstrated a radiopaque bullet-shaped structure overlying the tip of the chest tube. Although a bullet was seen in the abdomen on the abdominal radiograph (Fig. 2), the possibility that a second bullet had become lodged in the chest tube was considered.

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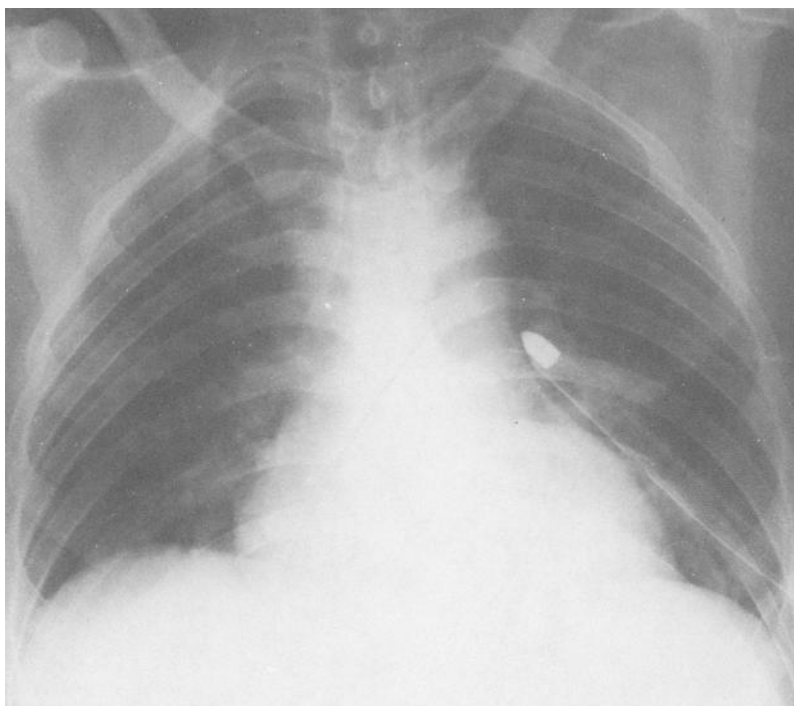


FIG. 1—The initial chest radiograph shows a bullet-shaped density overlying the tip of the left chest tube.

Discussion

A number of modifications have been made in chest tubes to facilitate their introduction and to minimize the damage to the lung and hilar vessels. One such modification employs a radiopaque, a nonremovable tip. The chest tube and its radiograph (Fig. 3) demonstrate the similarity in appearance to an undamaged .22 caliber bullet.

Bullets that have struck the chest can lodge within the great vessels or heart and be carried to other parts of the body [1-3]. Smaller projectiles, such as shotgun pellets, can embolize superiorly and have been reported to cause cerebral vascular insufficiency when lodged within intracranial vessels [4].

Heavier projectiles tend to embolize inferiorly into the femoral vessels, but they can occasionally embolize into the subclavian vessels [5]. Bullets can also embolize to the heart and lungs from peripheral gunshot wounds [6, 7]. This complication usually occurs following a gunshot wound of the abdomen but has been reported from a wound to the head. Although usually occurring immediately after wounding, delays in embolization of up to 13 months have been reported. Bullets can also lie free within the thoracic cavity and could become lodged within a chest tube of sufficient size.

Although the confusion in our case was resolved promptly, the appearance of this tip may cause confusion in gunshot wounds of the chest and demonstrates a potential pitfall in diagnosis with the use of this chest tube.

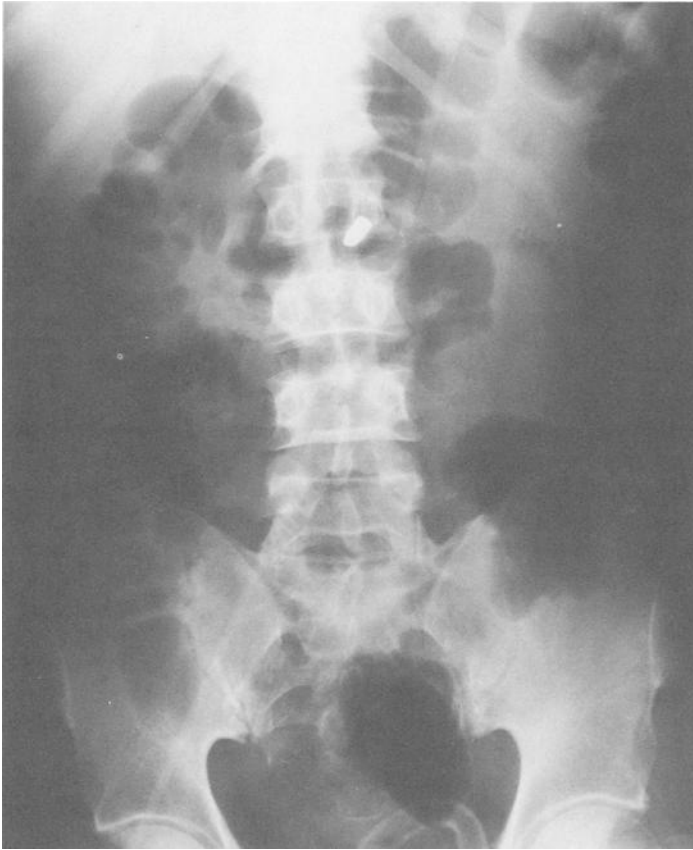


FIG. 2—The KUB shows a .22 caliber bullet in the upper mid-abdomen. This bullet has entered via the left chest.

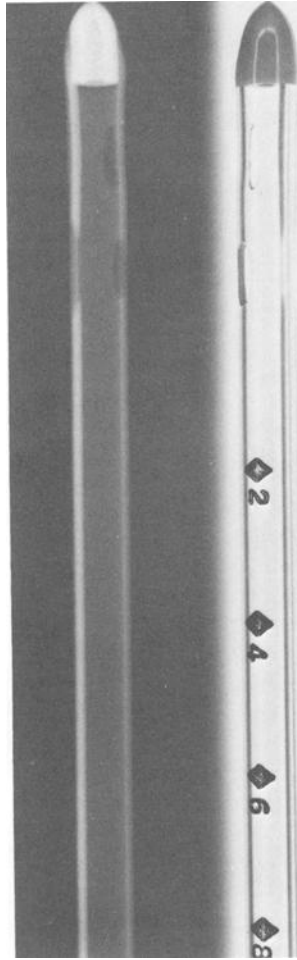


FIG. 3—The radiograph of the chest tube (left) shows the similarity of the radiopaque tip to a bullet. The chest tube is shown on the right.

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