Case #73

NAME Educational Activities Committee

Case provided by:

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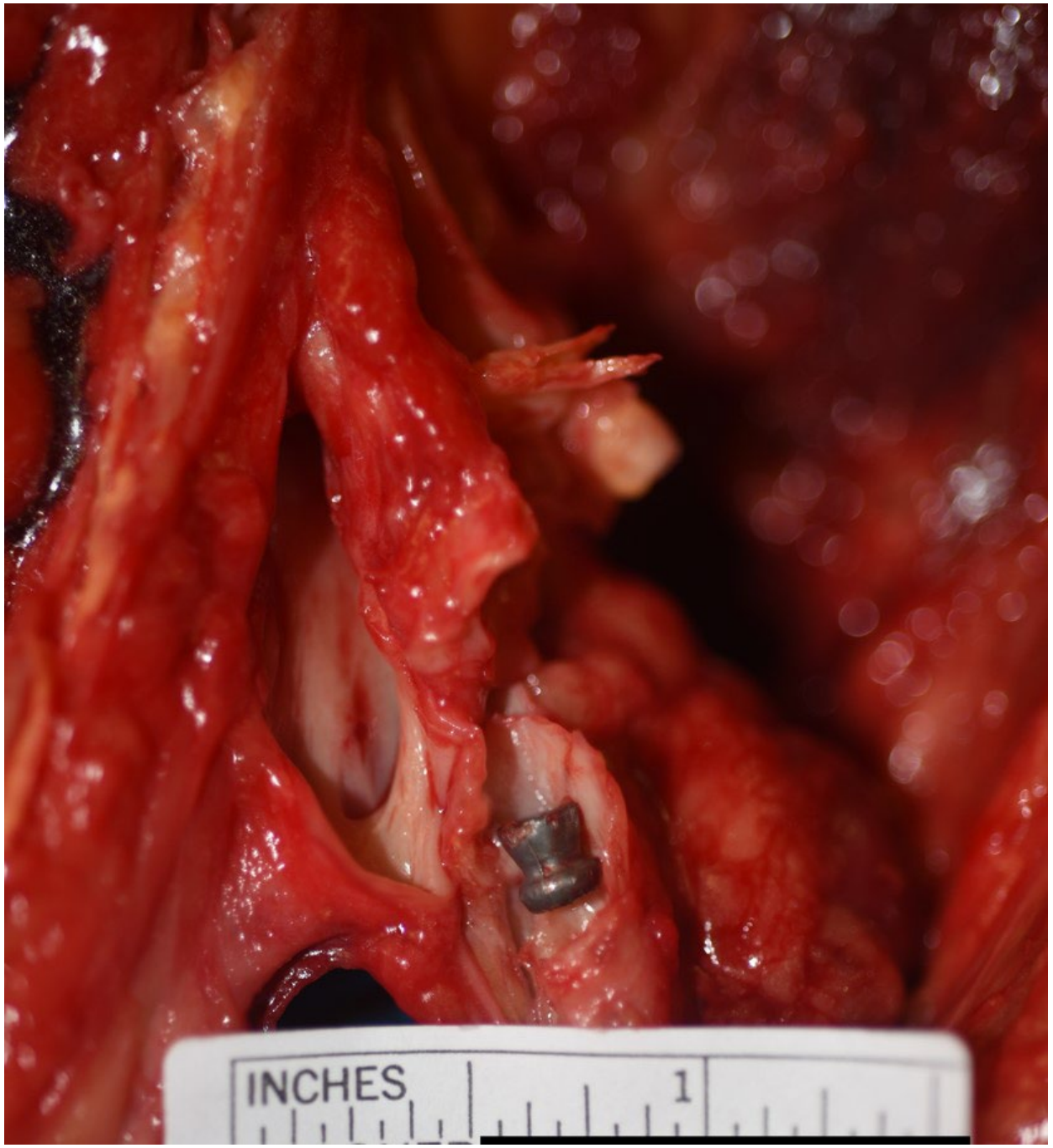
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1. This foreign object was discovered in the right femoral artery on autopsy of a 58-year-old man. What is it?

- ◯ .22 caliber rimfire projectile
- ◯ Snakeshot ammunition
- ◯ Broken vascular catheter tip
- ◯ .177 caliber pellet
- ◯ Steel slingshot ammunition

Answer...

D. .177 caliber pellet – (CORRECT ANSWER, 61.81% of responses)

This case depicted a .177 caliber pellet round, which is most often used in a compressed air airgun[5]. These pellets are typically wasp-waisted, which is seen in this case. Their unusual shape can even occasionally be identified on x-ray imaging (see additional images).

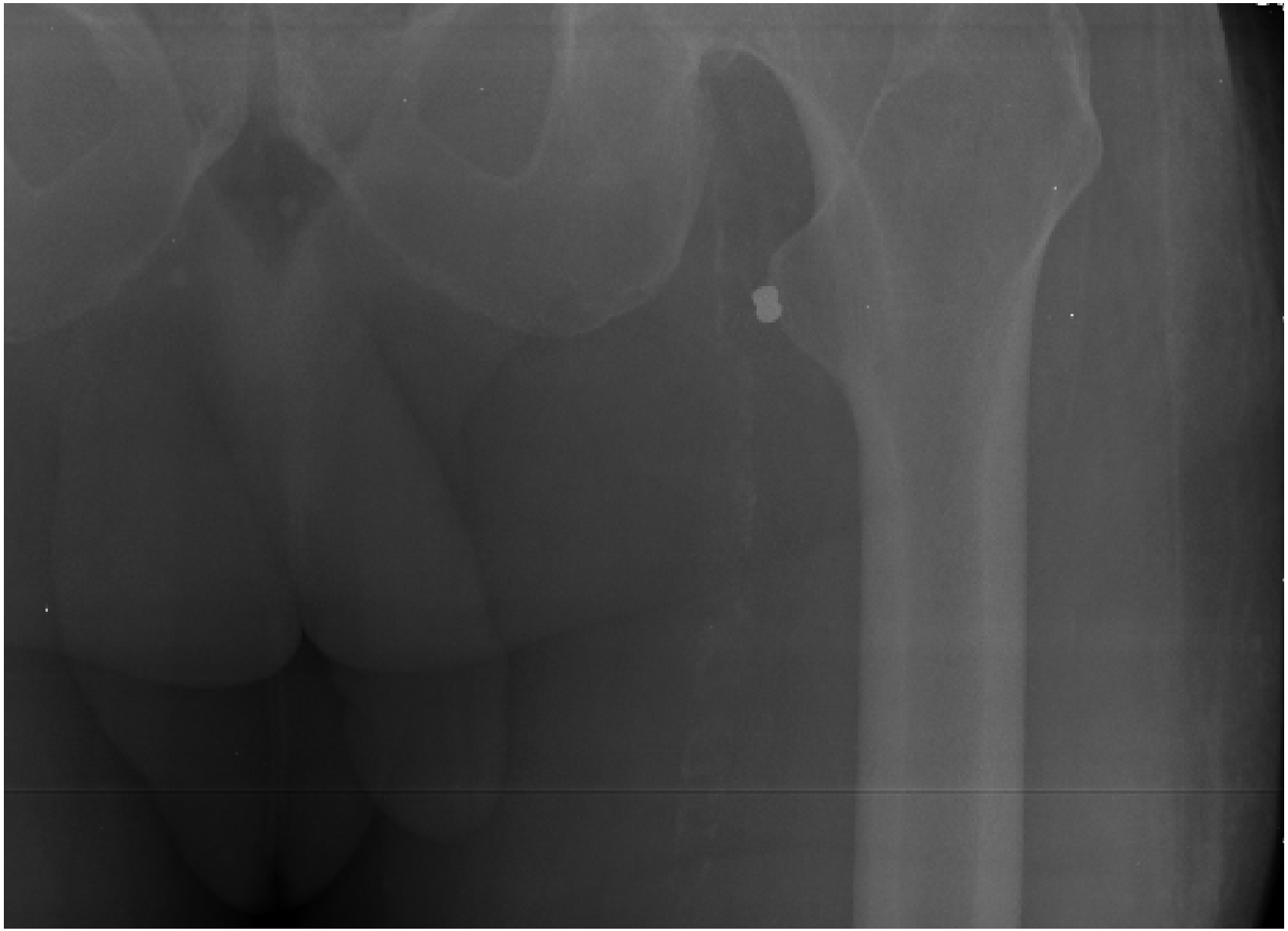
Due to their small size, these rounds have previously been reported to embolize, which was seen in this case as well[6 7 8]. In this case, the decedent was shot in the chest (see additional images) with the airgun, and the pellet embolized to his femoral artery. Though pellets are not often discussed in terms of caliber, they can technically be .177 or .22 caliber.

Classic entrance-type gunshot wound with peripheral rim of abrasion.

Note the diameter roughly corresponds with the small caliber of the projectile, but one must be very careful being too dogmatic about the significance of the size of wounds on the skin.

X-ray image showing a projectile adjacent to the femoral bone.

Note the hourglass shape, which can alert the medical examiner to the possibility of an atypical projectile.



A. .22 caliber rimfire round (19.76% of responses)

This object does not resemble a .22 caliber rimfire bullet, but rather a .177 caliber airgun pellet, making this answer choice incorrect[1]. A rimfire round would be dome-shaped without a tapered midsection, as traditional bullets are. The term “rimfire” refers to the location of the primer on a bullet. In rimfire ammunition, the primer is located inside the cartridge’s rim, where the firing pin then strikes to ignite the gunpowder. Although a traditional bullet can be deformed by air resistance and intermediate targets, a partial or deformed projectile wouldn’t have such a symmetrical shape as seen in this photograph.

B. Snakeshot ammunition (2.77% of responses)

Snakeshot is a handgun or rifle cartridge that is loaded with small lead pellets. The pellets are typically round, although they can deform upon entry into the body. This object is larger than snakeshot, making this answer choice incorrect. Additionally, in a case of a snakeshot gunshot wound, there would likely be a number of small projectiles lodged in the tissue rather than the solitary one observed in this case.

C. Broken vascular catheter tip (10.48% of responses)

The morphology of this object is not reflective or representative of a Swan-Ganz catheter or other cardiac catheterization instruments[3]. It is much more representative of a projectile or pellet. A traditional 4 lumen catheter will have a colored tip containing an inflatable balloon (red) between two separate ports in order to measure right atrial (blue lumen) and pulmonary artery (yellow lumen) pressures, along with a temperature sensor (red/white) and port for drug infusion (white lumen)[4].

E. Steel slingshot ammunition (5.18% of responses)

Slingshot projectiles tend to be spherical, with some of the most common ammunition being stones, gravel, and rubber balls[10 11]. Although our picture does show a metal projectile, the shape is more consistent with a wasp-waisted .177 pellet that has undergone expansion and deformation after impact. Slingshot or lower-velocity projectiles induce pathology by different mechanisms; the primary injuries caused by slingshot weapons are tissue laceration, whereas high velocity projectiles induce shock waves and tissue cavitation which can lead to additional injuries[9].

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