



Case #39

NAME Educational Activities Committee

Case provided by:

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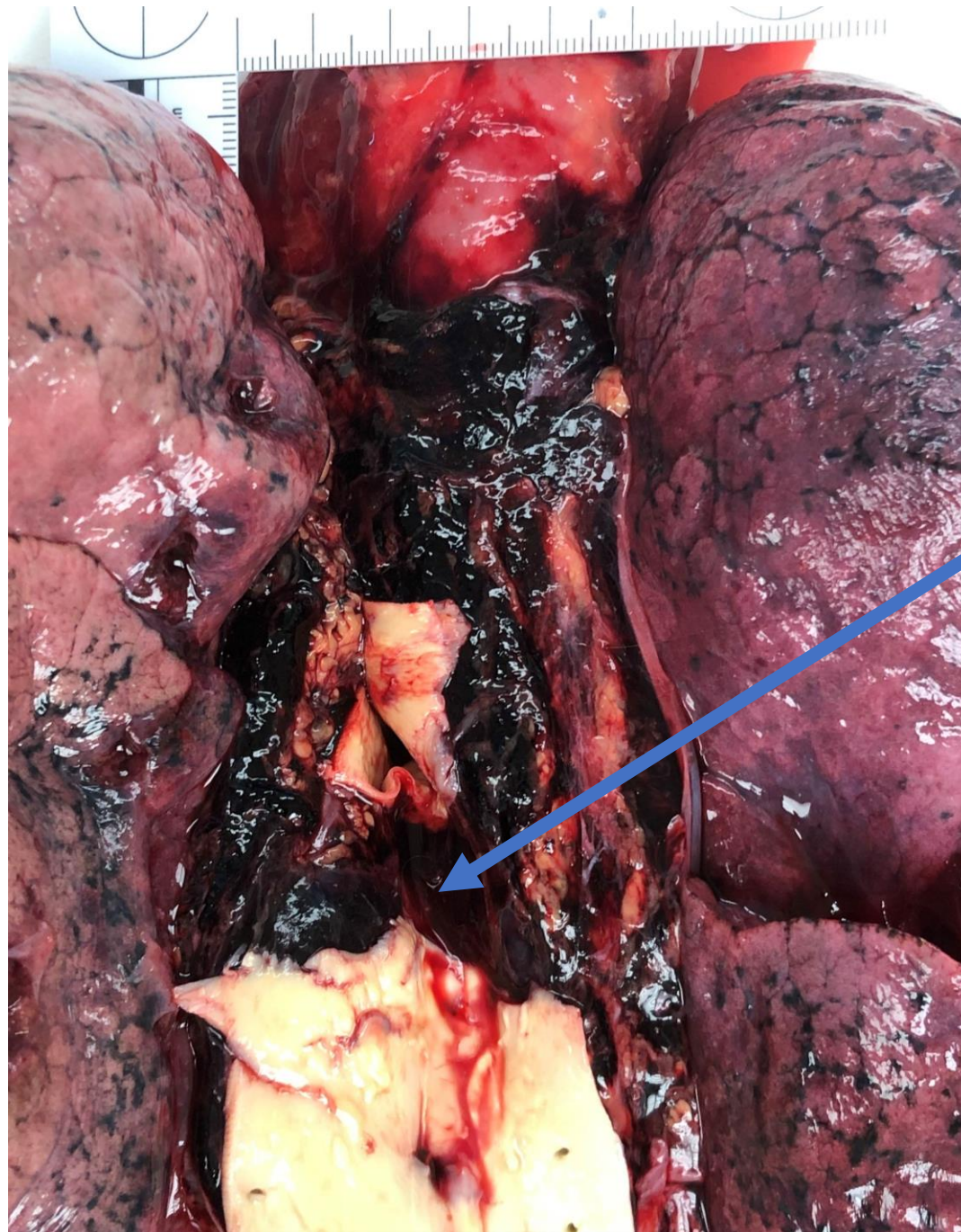
1. An adult male was found in the driver's seat of a car that left the roadway at high speed and struck an embankment, subsequently rolling over and striking several trees. What is the cause of the ankle injuries depicted in the photo?

- Defensive incised wounds
- Medical intervention
- Brake pedal fracture lacerations
- Self-inflicted injuries
- Postmortem (autopsy procedural) defects

Answer...

D. Self-inflicted injuries (8.44% responses)

We did not share a few extra vital points (surprise!). This was an unwitnessed one-vehicle collision, in a remote area where the decedent had no reason to be driving. Accident reconstruction revealed a high rate of speed, dry road conditions, absence of brake or skid marks, and absence of seat belt use. No drugs of abuse or ethanol were found in the decedent's blood. There was no cellphone use to suggest distracted driving, and no sign that the vehicle struck an animal on the highway. Subsequent to the scene investigation and autopsy, a suicide note was discovered. This was determined to be a suicide by blunt force injury/motor vehicle collision, with a classic aortic laceration deceleration injury (see image).



Aortic laceration
(deceleration injury)



Faint hesitation marks, wrist

Responses:

A. Defensive incised wounds (1.69% responses)

A razor or sharp knife may cause incised wounds like those seen on the ankles and wrists, but would not typically be so symmetrical. Furthermore, there was nothing in the scene investigation to suggest a homicide.

B. Medical intervention (9.77% responses)

Although medical vascular access may employ skin incisions, use of cut-downs would be extremely uncommon, especially out in the field by EMT's. Intra-osseous needle puncture, in the upper tibia or humerus, is the standard mode of emergency vascular access now.

C. Brake pedal fracture lacerations (71.53% responses)

High speed impact injuries while "standing on the brake" or on the gas pedal may cause leg and ankle fractures, possibly with concomitant cutaneous lacerations. Such lacerations will have the typical findings of a crushing or shearing force: irregular contused or abraded margins, bridging soft tissue strands, and underlying or protruding bone fracture fragments, none of which were present in this case. The decedent's winter boots revealed no sign of trauma, blood, or motor vehicle pattern imprints on the soles. As mentioned above, accident reconstruction showed no evidence of braking.

D. Self-inflicted injuries (CORRECT RESPONSE, 8.44%)

Close examination of the ankle wounds reveals sharp edges and lack of bridging tissue strands, indication incised wounds rather than lacerations (tears). Lack of significant bleeding is accounted for by the superficial nature of the wounds, which did not reach the posterior tibial arteries. Minimal blood was found on the overlying ankle socks. Examination of the ventral wrist revealed very superficial parallel "hesitation marks" (see image #3).

E. Postmortem (autopsy procedural) defects (8.56% responses)

Incisions into the ankles are not part of any standard autopsy. Postmortem blood samples are best collected from large peripheral vessels such as the iliac veins. Bleeding at the site of each wound and on the decedent's socks would usually indicate antemortem injury, with intact blood circulation.

References:

- Forensic Pathology, 2nd ed., by D. Dimaio and V. DiMaio, CRC Press, 2001, chapter 4 (re/ incisions vs. lacerations)
- An Atlas of Forensic Pathology, by C. Wetli, R. Mittleman, and V. Rao, ASCP Press, 1999, pp. 186-188 (re/ brake or gas pedal imprints)
- Medicolegal Investigation of Death, 2nd ed., by W. Spitz and R. Fisher, Charles Thomas Publisher, 1980, pp. 403-404 (re/ ankle fracture in driver)
- Morton, J.: The suicide driver. Traffic Safety, 68:37, 1968.
- Edland, J.F.: Vehicular suicide. In Brinkous, K.M. (Ed.): Accident Pathology. Washington, D.C., U.S. Govt. Print. Office, 1971, pp.42-45.