AAST Acute Care Surgery Didactic Curriculum

Ballistics

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Highlights:

- Low-velocity ballistics are defined as traveling at a speed < 350 m/s, which encompasses most handguns and rifles
- High-velocity ballistics travel > 600-700 m/s and commonly result in explosive effects and cavitation of the affected tissue
- During flight, bullets are subjected to destabilizing effects from air resistance, causing the bullet's longitudinal axis to diverge, which is called "yaw"
- After meeting tissue, the bullet's yawing commonly becomes irreversible, resulting in tumbling and a larger wound track

Retained Ballistics

Highlights

- Indications for bullet removal include: bullets found in joints, CSF, or the globe of the eye, bullets resulting in nerve impingement or lie within the lumen of a vessel.
- Patients with multiple retained ballistics should be monitored with lead levels at 3 month intervals for one year.
- Patients with lead levels > 5 µg/dL should be considered for bullet fragment removal, if safe and feasible.

Antibiotic prophylaxis

Highlights:

- 48 hours of prophylactic antibiotics is recommended for patients with ballistic fractures from high-velocity weapons, shotguns, and those with intraarticular involvement
- For patients with ballistic fractures from low-velocity weapons, antibiotic prophylaxis is controversial
- For patients with ballistics that traverse a hollow viscus and result in pelvic fractures or spinal column injury, prophylactic antibiotics ≤48 hours may be adequate

Shotgun Injuries

Highlights

- Shotgun wounds pose diagnostic challenges due to variable fragment penetration and degradation of CT images
- A high index of suspicion for injury and a period of observation after negative CT scan may be warranted