EM:RAP

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August Introduction

Anand Swaminathan, MD and Jan Shoenberger, MD

Case: A 30-year-old man presents after a rollover motor vehicle collision. He was a restrained driver of a truck that landed on its side and was extricated through the windshield. He was noted to have a deep, gaping laceration to his upper right arm and notable blood loss at the scene. A tourniquet was applied by EMS. No other injuries were noted by EMS. Vitals on arrival: BP 112/66, HR 95, RR normal. The primary survey is normal with the exception of a 30 cm x 17 cm gaping wound to the right upper arm with fat and muscle extruding through soaked dressings. The tourniquet is still in place and he reports some numbness to his right hand.

- Initial evaluation
  - Perform the primary survey as usual.
  - Don't get distracted by an injury that is already temporized with a tourniquet.
  - If no tourniquet is present, temporize with direct pressure and prompt tourniquet placement.
- The hard and soft signs of arterial injury
  - **Hard signs:** pulsatile bleeding, absent distal pulse, expanding hematoma, bruit, and thrill.
  - **Soft signs:** non-expanding hematoma, prior pulsatile bleeding on scene or during transport, neurologic deficit, or proximity of the wound tract to major vasculature.
  - In the case presented, the patient had two soft signs (prior pulsatile bleeding on scene and proximity of the wound tract to major vasculature)

PITFALLS ◆

- Injured arteries can spasm so you may not see that classic pulsatile bleeding that you may be expecting. Don't let the absence of pulsatile bleeding make you less concerned!

- CT angiography is the diagnostic modality of choice.
- Tourniquets can be in place for 4-5 hours before you risk permanent damage due to distal ischemia from the tourniquet itself.