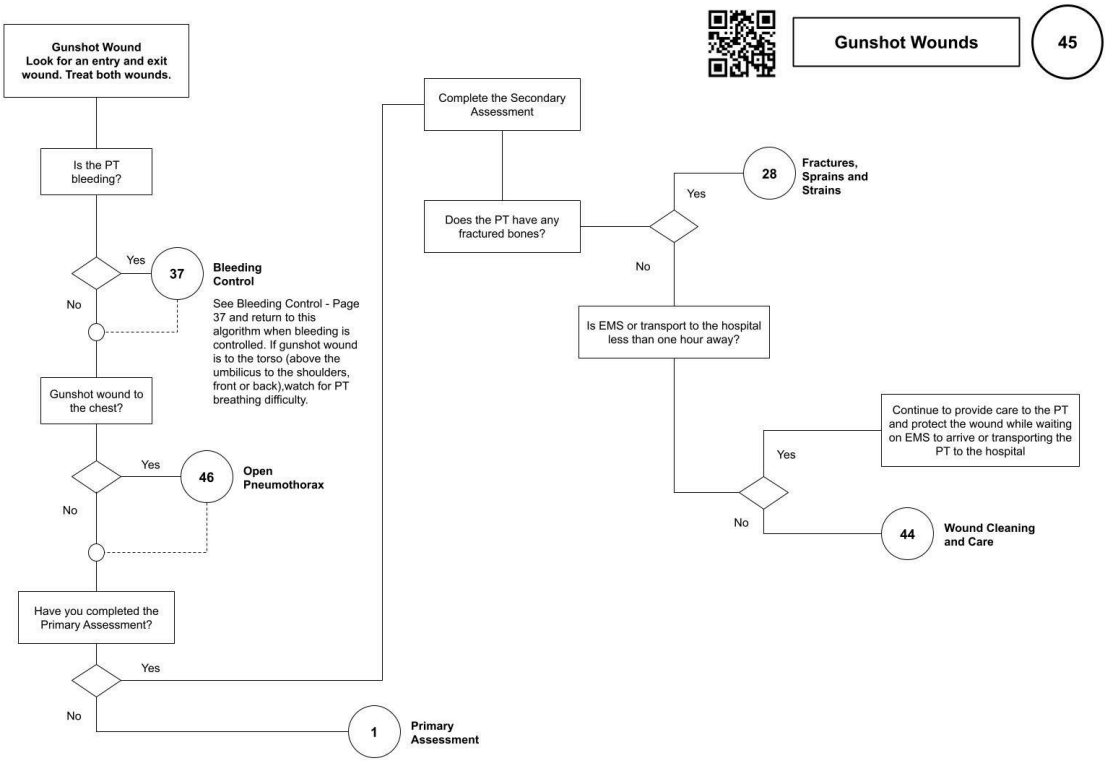
Gunshot Wound Pathophysiology, Signs, Symptoms, and Treatment

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A gunshot wound (GSW) is a traumatic injury caused by the penetration of a bullet or projectile into the body. The pathophysiology, signs, symptoms, and treatment of a gunshot wound can vary depending on the location and severity of the injury. See Workflow Diagram 45 - Gunshot Wounds in Wilderness First Aid Made Easy and view the video presentation on YouTube to learn how to treat a gunshot wound in a wilderness environment.



Pathophysiology:

The pathophysiology of a gunshot wound involves several mechanisms of injury. The bullet's impact can cause direct tissue damage along its path, including damage to organs, blood vessels, muscles, bones, and nerves. Additionally, the high-velocity impact can create a temporary cavity, leading to tissue stretching, displacement, and disruption. The bullet can also transfer kinetic energy, causing a shockwave that damages surrounding tissues.

Signs and Symptoms:

- External bleeding: Gunshot wounds often result in external bleeding, ranging from minor to severe, depending on the location and severity of the injury.

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- Pain: Patients typically experience pain at the site of the gunshot wound, which may be localized or radiate to other areas.
- Swelling and bruising: Swelling and bruising may develop around the wound due to tissue damage and bleeding.
- Deformity or visible injury: In some cases, there may be visible deformity or injury to the affected body part, especially if bones or joints are affected.
- Entry and exit wounds: A gunshot wound may have both an entry and an exit wound if the bullet passes completely through the body. The exit wound may be larger and more irregular than the entry wound.
- Internal bleeding and organ damage: Gunshot wounds can cause internal bleeding and damage to organs, leading to symptoms such as dizziness, rapid heart rate, low blood pressure, and signs of shock.
- Nerve injury: Depending on the location of the gunshot wound, there may be signs of nerve injury, such as numbness, weakness, or loss of function in the affected area.

Treatment:

- Ensure scene safety: Prioritize safety for both the patient and the responders. Ensure that the scene is safe before providing care.
- Call for emergency medical assistance: Dial emergency services or have someone else do so immediately.
- Control bleeding: Apply direct pressure to the wound using sterile gauze or cloth to control bleeding. If available, use a tourniquet for severe bleeding that cannot be controlled by direct pressure alone.
- Look for bone fractures: In the wilderness setting when professional medical care is hours away, you may need to apply a splint to an extremity with a gunshot wound.
- Keep the patient still: Minimize movement to prevent further injury, especially if there is a risk of spinal injury.
- Maintain an open airway: If the patient is unconscious or having difficulty breathing, ensure an open airway and assist with ventilation if necessary.
- Provide basic first aid: Cover the wound with a clean cloth or sterile dressing. Do not attempt to remove the bullet or probe the wound.
- Monitor vital signs: Assess and monitor the patient's heart rate, blood pressure, respiratory rate, and oxygen saturation.

Transport to a medical facility: The patient requires immediate, rapid evacuation to the nearest hospital or trauma center as soon as possible for further evaluation and treatment.

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