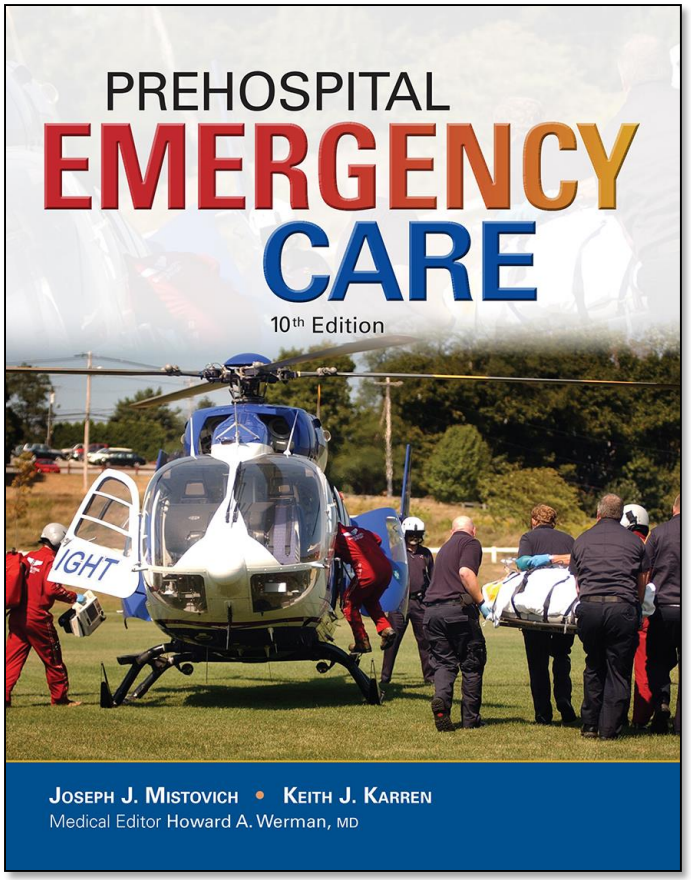
# PREHOSPITAL EMERGENCY CARE

TENTH EDITION




## CHAPTER 35

## Abdominal and Genitourinary Trauma

# Learning Readiness

- EMS Education Standards, text p. 965

# Learning Readiness Objectives

- Please refer to page 965 of your text to view the objectives for this chapter.

# Learning Readiness Key Terms

- Please refer to page 965 of your text to view the key terms for this chapter.

# Setting the Stage

- Overview of Lesson Topics
  - Abdominal Trauma
  - Genital Trauma

# Case Study Introduction

Vanessa Judy, a 35-year-old woman, was the driver of a vehicle struck in the driver's side door. There is about 12 inches of intrusion into the driver's compartment at the site of impact. She is awake and alert, complaining of left shoulder pain. Her skin is warm and dry. The EMTs' examination reveals tenderness to palpation of the left upper quadrant, along with bruising to the left lower ribs.

# Case Study

- What organ do you suspect may have been injured with this mechanism of injury?
- What are the consequences of injury to this organ?
- What are the treatment and transport considerations for this patient?

# Introduction

- Abdominal trauma has the potential to cause severe bleeding and hemorrhagic shock.
- It is important to recognize mechanisms of injury and signs and symptoms of abdominal trauma.
- Trauma to the external genitalia also can produce severe blood loss.

# Anatomy of the Abdominal Cavity

- The abdominal cavity is bounded by the diaphragm, abdominal and back muscles, the spine, and pelvis.
- The abdomen contains organs of the digestive, urinary, and endocrine systems.

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# Anatomy of the Abdominal Cavity

- The abdominal cavity is lined by a double layer of peritoneum.
- The peritoneal lining has sensitive nerves that produce severe, constant pain when irritated by substances leaking into the abdominal cavity.

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# Anatomy of the Abdominal Cavity

- Hollow abdominal organs are not as vascular, but if their contents are leaked into the abdominal cavity, peritonitis results.
- Peritonitis can be life-threatening, but signs and symptoms may be delayed by hours.

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# Anatomy of the Abdominal Cavity

- Hollow organs
  - Stomach
  - Gallbladder
  - Urinary bladder
  - Ureters
  - Internal urethra
  - Fallopian tubes
  - Small intestine
  - Large intestine

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# Anatomy of the Abdominal Cavity

- Solid organs are vascular and can bleed profusely when injured.
- Bleeding may not produce severe abdominal pain.
- Be alert to signs of shock.

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# Anatomy of the Abdominal Cavity

- Solid organs
  - Liver
  - Spleen
  - Pancreas
  - Kidneys

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# Anatomy of the Abdominal Cavity

- Vascular structures
  - Abdominal aorta
  - Inferior vena cava
  - Blood supply to abdominal organs

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# Anatomy of the Abdominal Cavity

- Diaphragm
  - Muscle of respiration that separates the thoracic and abdominal cavities.
  - If injured by penetrating or blunt trauma, breathing can be impaired and abdominal organs can enter the thoracic cavity.

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# Anatomy of the Abdominal Cavity

- Abdominal wall
  - An open wound in the abdominal wall can allow evisceration of the abdominal contents.

# Click on the problem of most immediate concern for a patient with abdominal injury who has a ruptured diaphragm.

A. Impaired respiration

B. Hemorrhage

C. Abdominal distention

D. Peritonitis

# Abdominal Injuries

- Mechanisms of injury can be blunt or penetrating.
- Injuries may be open or closed.

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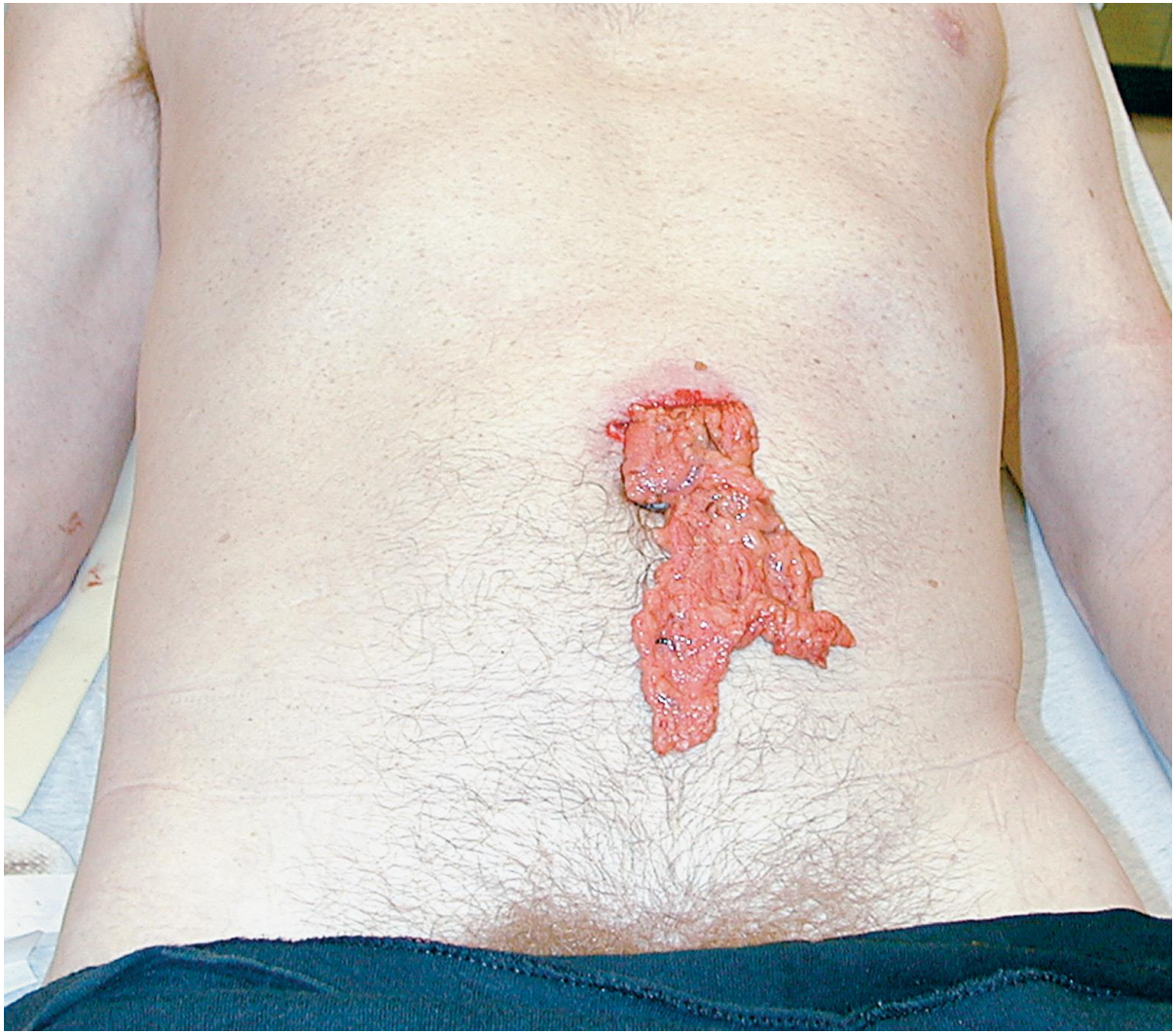
This patient was using a screwdriver to repair equipment that had been left running. The equipment “bucked,” driving the screwdriver into his abdomen, causing evisceration. (© Charles Stewart, MD, FACEP)



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# Abdominal Injuries

- Multiple organs may be injured by both blunt and penetrating mechanisms.
- Penetrating trauma is more obvious; blunt trauma is easier to miss.

# Assessment-Based Approach: Abdominal Injuries

- Scene size-up
  - Ensure scene safety.
  - Assess the mechanism of injury; attempt to determine the characteristics of any weapons.
  - With penetrating trauma, anticipate multiple wounds.
  - Indications of blunt trauma may be more subtle.

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# Assessment-Based Approach: Abdominal Injuries

- Primary assessment
  - In the general impression, note the patient's position.
  - Patients with abdominal injuries may have the legs drawn up.

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Patients with abdominal injuries often lie with legs drawn up in the fetal position.

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# Assessment-Based Approach: Abdominal Injuries

- Primary assessment
  - If spinal injury is suspected, use in-line stabilization.
  - Establish and maintain a patent airway; suction as needed.
  - Maintain an $SpO_2$ greater than or equal to 94%.
  - Use positive pressure ventilation if breathing is inadequate.

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# Assessment-Based Approach: Abdominal Injuries

- Primary assessment
  - Assess the skin and circulation and note any signs of shock.
  - If signs of shock are present, the patient is a high priority for immediate transport.

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# Assessment-Based Approach: Abdominal Injuries

- Secondary assessment
  - Consider the patient's complaints and mechanism of injury.
  - Perform a rapid secondary assessment.
  - Immobilize the spine if spinal injury is suspected.

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# Assessment-Based Approach: Abdominal Injuries

- Secondary assessment
  - Inspect the abdomen.
    - Look for contusions, lacerations, abrasions, punctures.
    - Look for distention.
    - Look for discoloration around the umbilicus and flanks.

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# Assessment-Based Approach: Abdominal Injuries

- Secondary assessment
  - Inspect the abdomen.
    - Look for evidence of an improperly placed lap belt.
    - Look for and provide treatment for evisceration.

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# Assessment-Based Approach: Abdominal Injuries

- Secondary assessment
  - Palpate the abdomen.
    - Start at the point farthest away from the point of pain.
    - Note any masses or tenderness.
    - Note any rigidity.

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# Assessment-Based Approach: Abdominal Injuries

- Secondary assessment
  - Assess the extremities, including pulses and sensory and motor function.
  - Inspect the posterior body.
  - Obtain baseline vital signs.

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# Assessment-Based Approach: Abdominal Injuries

- Secondary assessment
  - Obtain a history.
  - OPQRST can be used to assess symptoms.

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# Assessment-Based Approach: Abdominal Injuries

- Signs and symptoms of abdominal injury
  - Contusions, abrasions, lacerations, punctures, or other signs of blunt or penetrating trauma
  - Pain

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# Assessment-Based Approach: Abdominal Injuries

- Signs and symptoms of abdominal injury
  - Tenderness on palpation to areas other than the site of injury
  - Rigid abdominal muscles
  - Lying with legs drawn up to the chest

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# Assessment-Based Approach: Abdominal Injuries

- Signs and symptoms of abdominal injury
  - Distended abdomen
  - Discoloration around the umbilicus or to the flank
  - Rapid, shallow breathing
  - Signs of hemorrhagic shock

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# Assessment-Based Approach: Abdominal Injuries

- Signs and symptoms of abdominal injury
  - Nausea and vomiting
  - Abdominal cramping possibly present
  - Pain that radiates to either shoulder from irritation of the diaphragm
  - Weakness

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# Assessment-Based Approach: Abdominal Injuries

- General emergency medical care
  - Establish and maintain an open airway.
  - Maintain adequate oxygenation.
  - Reassess breathing; provide positive pressure ventilation for inadequate breathing.

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# Assessment-Based Approach: Abdominal Injuries

- General emergency medical care
  - Treat for hemorrhagic shock.
  - Control external bleeding; treat evisceration.
  - Position the patient with legs flexed, if possible.

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# Assessment-Based Approach: Abdominal Injuries

- General emergency medical care
  - Stabilize an impaled object.
  - Apply PASG if indicated according to protocol.
  - Transport.

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# Assessment-Based Approach: Abdominal Injuries

- Abdominal evisceration
  - Do not touch or attempt to replace the organs.

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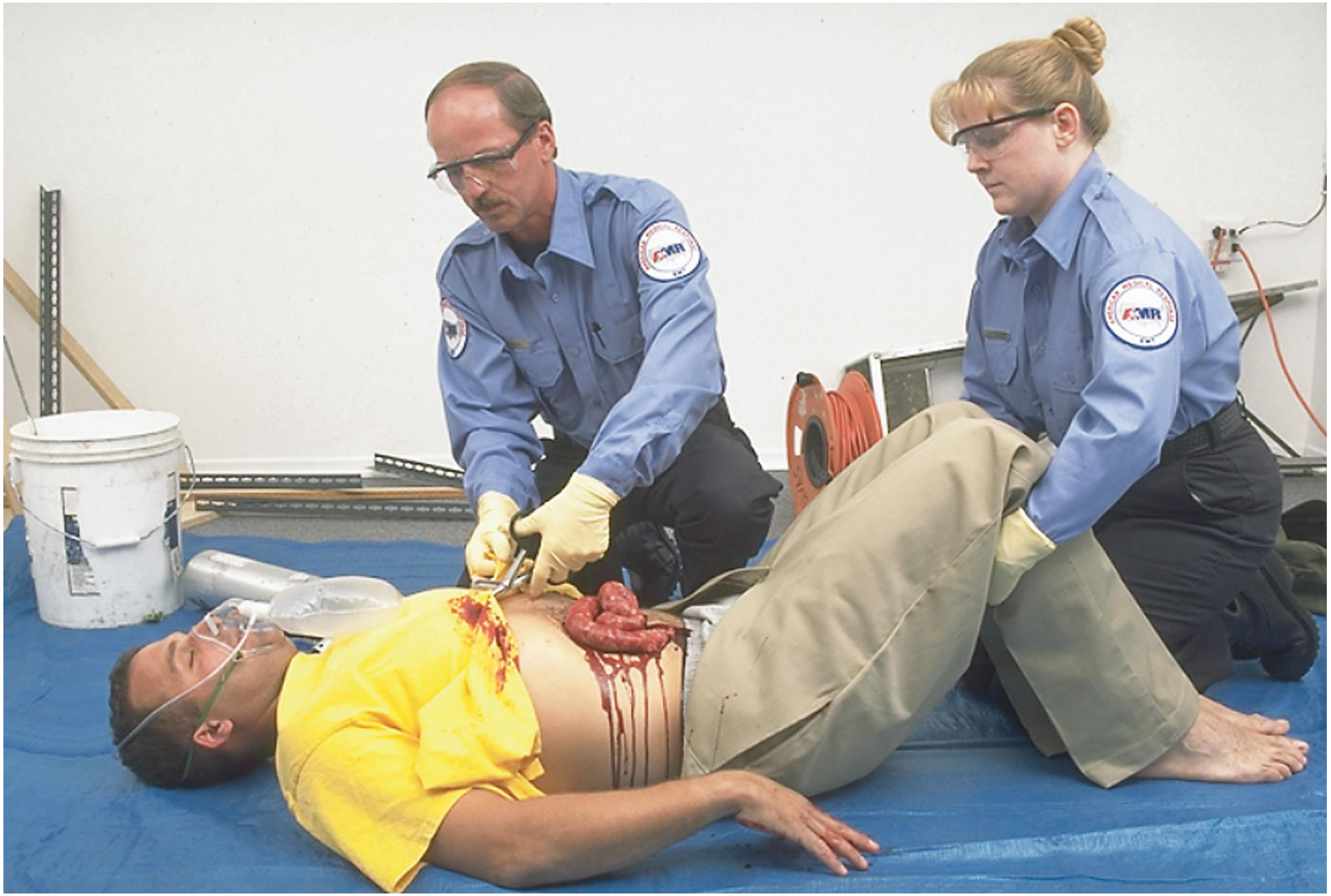
# EMT SKILLS 35-1

## Dressing an Abdominal Evisceration

Cut away clothing from the wound and support the knees in a flexed position.



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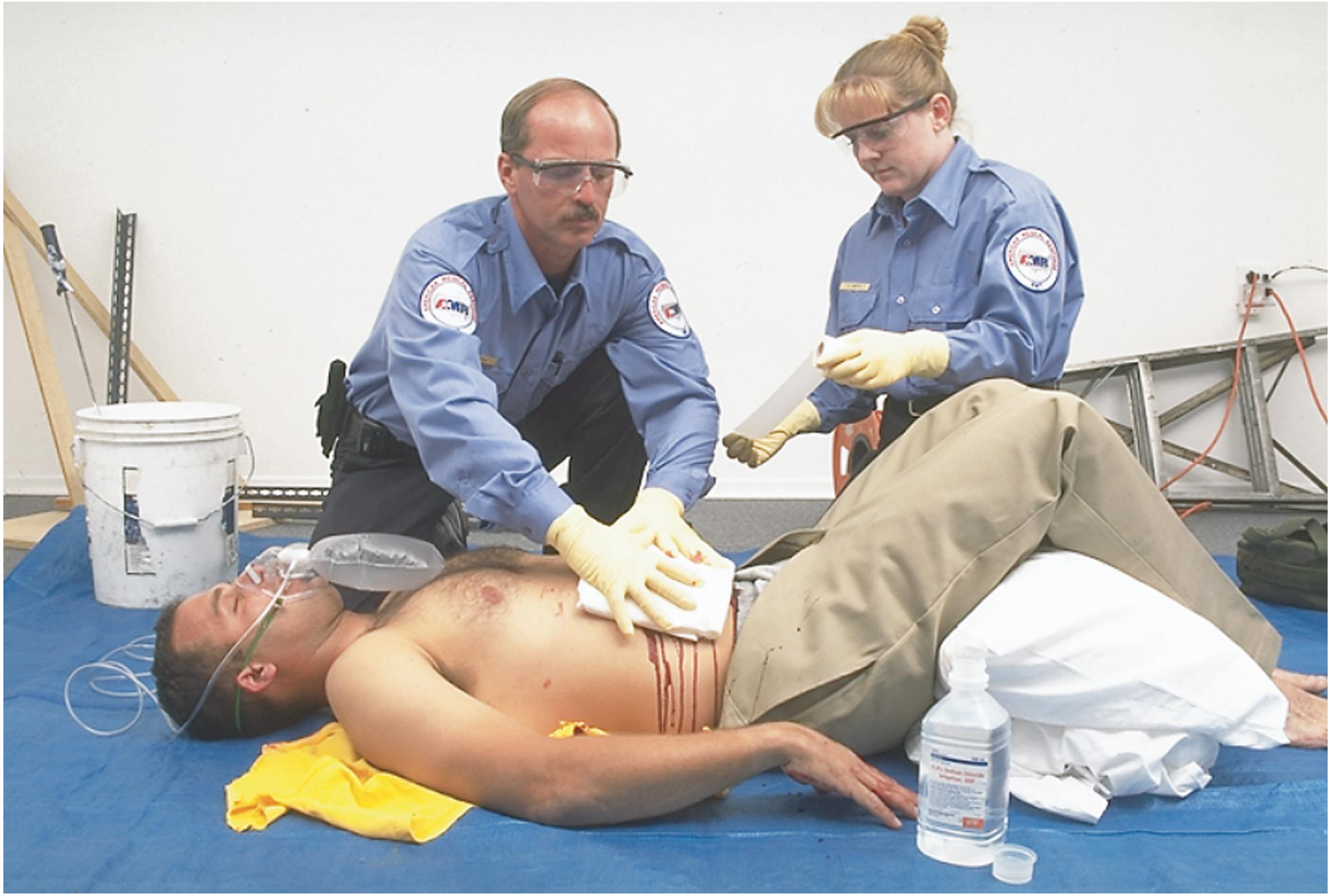
Place a premoistened dressing over the wound (follow local protocol) and gently tape it in place. Do not attempt to replace intestines within the abdomen.



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Apply an occlusive covering (follow local protocol). Tape it loosely to keep the dressing moist.


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# Assessment-Based Approach: Abdominal Injuries

- Reassessment
  - Repeat the primary and secondary assessments.
  - Repeat vital signs.
  - Observe for indications of deterioration.
  - Check the effectiveness of interventions.

# Genital Trauma

- Can be painful and embarrassing for the patient.

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# Genital Trauma

- Injuries to the male genitalia
  - Control bleeding with direct pressure.
  - Apply cold compresses if the scrotum is injured.
  - If the penis is avulsed or amputated, wrap the part in a sterile, saline-moistened dressing and keep it cool.
  - Assess for and manage shock.

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# Genital Trauma

- Injuries to the female genitalia
  - Control external bleeding with direct pressure.
  - Do not pack or place dressings in the vagina.
  - Assess for and manage shock.

# Case Study Conclusion

The EMTs recognize the potential for injury to the spleen, and the associated risk of bleeding. They immobilize the patient's spine and begin transport, obtaining a baseline set of vital signs and carefully monitoring the patient for signs of shock.

An abdominal ultrasound in the emergency department reveals blood in the capsule around the spleen, and the patient undergoes a splenectomy.

# Lesson Summary

- Abdominal injuries may present subtly, but can result in peritonitis and life-threatening hemorrhage.
- Eviscerations are treated with a moist, sterile dressing covered by an occlusive dressing.
- The patient with abdominal injuries may be most comfortable with the legs drawn up.

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# Lesson Summary

- Genital trauma can be painful and bleed profusely.
- Manage external genital bleeding with direct pressure.