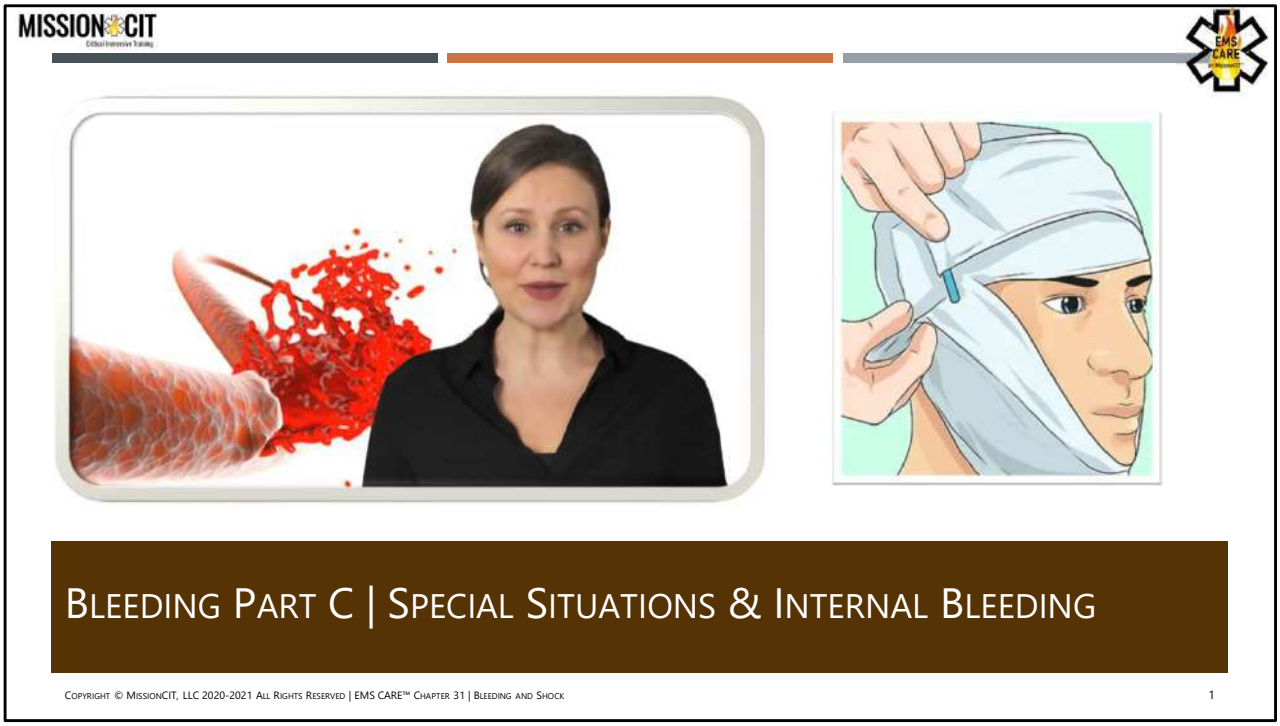


And now we continue with lesson 2 – Bleeding - Part C - Special Situations Involving Bleeding.

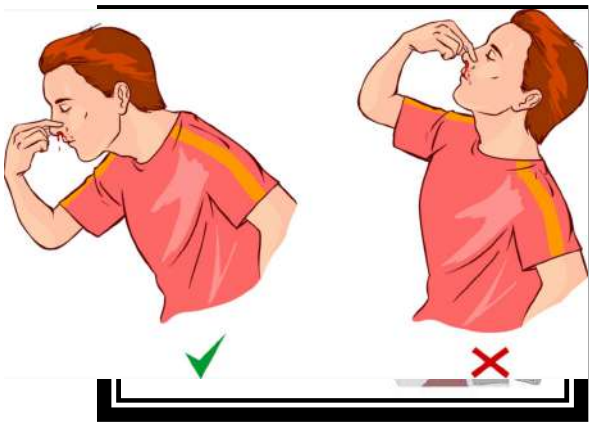
We begin with a Head injury. Head injuries can cause internal and external bleeding. Internal bleeding from a head injury may cause visible signs, such as a bruise, or cause injuries invisible to the naked eye.

With regards to bleeding from increased intracranial pressure (ICP), it is an emergency and requires immediate medical attention. Increased intracranial pressure may result from bleeding in the brain, a tumor, stroke, aneurysm, high blood pressure, or brain infection, and can cause a headache and other symptoms.

Note that stopping ICP bleeding, only increases intracranial pressure. As a result, allow drainage to flow freely, using a gauze pad to collect it.

Special Situations Involving Bleeding

- Nosebleed (epistaxis)
- Have patient sit and lean forward
- Apply direct pressure to fleshy portion of nostrils
- Keep patient calm and quiet
- Do not let patient lean back
- If patient becomes unconscious, place patient in recovery position and be prepared to suction



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Epistaxis or nasal bleeding is relatively common but rarely fatal. Anterior bleeding is usually managed by digital pressure, gentle chemical cauterization, or nasal packing. Posterior bleeding, which is less common, is characterized by massive bleeding that's initially bilateral; this bleeding may be more difficult to control.

After following your standard ABC protocol, do the following:

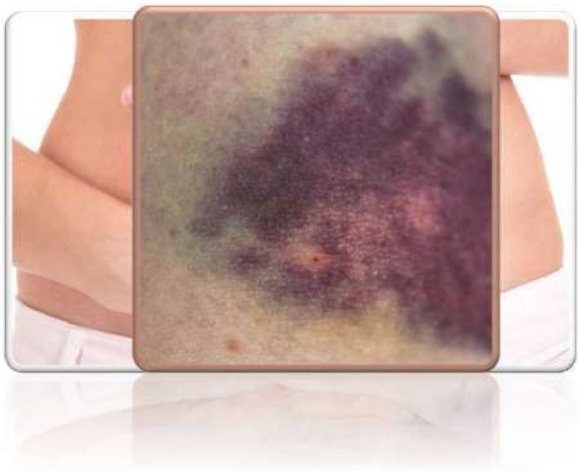
- Have the patient sit and lean forward.
- Apply direct pressure to the fleshy portion of the nostrils.
- Keep the patient calm and quiet.
- Do not let the patient lean back.
- If the patient becomes unconscious, place the patient in the recovery position and be prepared to suction.

Note that if the patient leans back, the patient can swallow blood, causing stomach irritation and eventually nausea and vomiting.

Think about how a patient on blood-thinning medications, might change your strategy for bleeding control.

Internal Bleeding

- Damage to internal organs and large blood vessels can result in loss of a large quantity of blood in short time
- Blood loss commonly cannot be seen
- Severe blood loss can even result from injuries to extremities



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Internal bleeding is difficult to assess and can be massive.
While the general public understands that internal bleeding means bleeding that can't be seen on the outside of the body, medical personnel tend to use terms that describe more precisely the location inside the body where the bleeding is found. The internal bleeding may occur within tissues, organs, or in cavities of the body including the head, spinal canal, chest, and abdomen. Examples of other potential sites of bleeding include the eye, and within tissues that line the heart, muscles, and joints. Damage to internal organs and large blood vessels can result in the loss of a large quantity of blood in a short time. Most often, Blood loss cannot be seen. And severe blood loss can even result from injuries to extremities.
If dealing with a trauma patient, be aware of Sharp bone ends from a fractured extremity that can tear surrounding vessels and tissue, resulting in severe bleeding. Symptoms and signs of internal bleeding depend on where the bleeding is coming from, but may include: Headache, Stiff neck, Confusion, Stroke symptoms (vision loss, weakness, and slurred speech), Lightheadedness, Shortness of breath, Low blood pressure, Blood in the stool, Rectal bleeding, and Blood in the urine.

Patient Assessment

- Mechanisms of blunt trauma that may cause internal bleeding
- Falls
- Motor-vehicle or motorcycle crashes
- Auto-pedestrian collisions
- Blast injuries



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Some causes of blunt trauma that may trigger internal bleeding include:

- Falls
- Motor-vehicle or motorcycle crashes
- Auto-pedestrian collisions, and
- Blast injuries

According to the NIH, Trauma is the leading cause of morbidity and mortality in patients under 35-years of age and the sixth leading cause of death worldwide. The majority of serious traumatic injuries are due to blunt trauma from motor vehicle crashes and pedestrian injuries. Falls are also an important cause, particularly in the elderly. Direct blows, assaults, and sporting injuries are also common. Non-accidental trauma is an important cause and should be suspected with certain presentations and injury patterns. Blunt impact to the body may result in a variety of injuries. Severity is related to both the mechanism of injury as well as the underlying comorbidities of the patient. Blunt impact injuries generally can be classified into four categories: contusion, abrasion, laceration, and fracture.

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Patient Assessment (Cont.)

- Common injuries from penetrating trauma
- Gunshot wounds
- Stab wounds
- Impaled objects



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Penetrating injury is usually the result of the abrupt, direct application of a mechanical force to a focal area. A knife or projectile, produces tissue damage by stretching and crushing. While injury is usually confined to tissues in the path of penetration. The severity of the internal injury depends on the organ penetrated and on how vital the organ is.

Common causes of injuries from penetrating trauma include:

- Gunshot wounds
- Stab wounds, and
- Impaled objects

Penetrating trauma can impact all body regions, cavities and structures. These can include the head, neck, chest, abdomen and pelvis, and the extremities. It is exceedingly challenging to deal with.

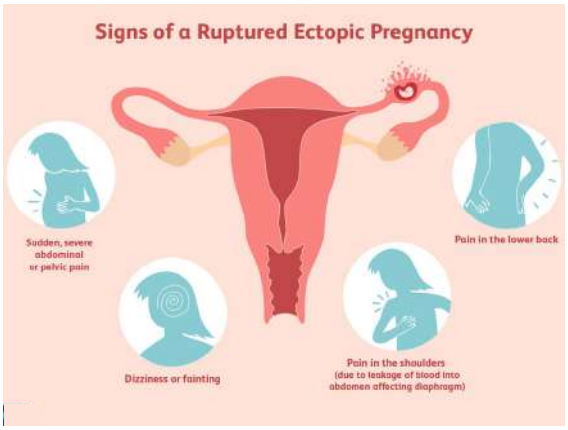
Patients with penetrating trauma tend to die sooner than those with blunt trauma. Following a rapid assessment, patients with penetrating trauma, should be transported to the appropriate level trauma center. Supportive measures as airway maintenance, hemorrhage control and maintenance of body temperature should be provided en route. IV access should be obtained en route. And do not delay transport to place an IV. Follow the protocol for your skill set, advice from the medical team and your assessment..

So, in summary, if you encounter a penetrating trauma injury, call for ALS, begin rapid ABC assessment, get medical advice, treat per your protocol and be prepared for immediate transport.

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PATIENT ASSESSMENT (CONT.)

- Signs of internal bleeding
- Injuries to surface of the body
- Bruising, swelling, or pain over vital organs
- Painful, swollen, or deformed extremities
- Bleeding from mouth, rectum, or vagina
- Bleeding during the first trimester of pregnancy is a sign of a potential miscarriage, and is not uncommon
- Bleeding after 20 weeks of pregnancy – Requires urgent medical care



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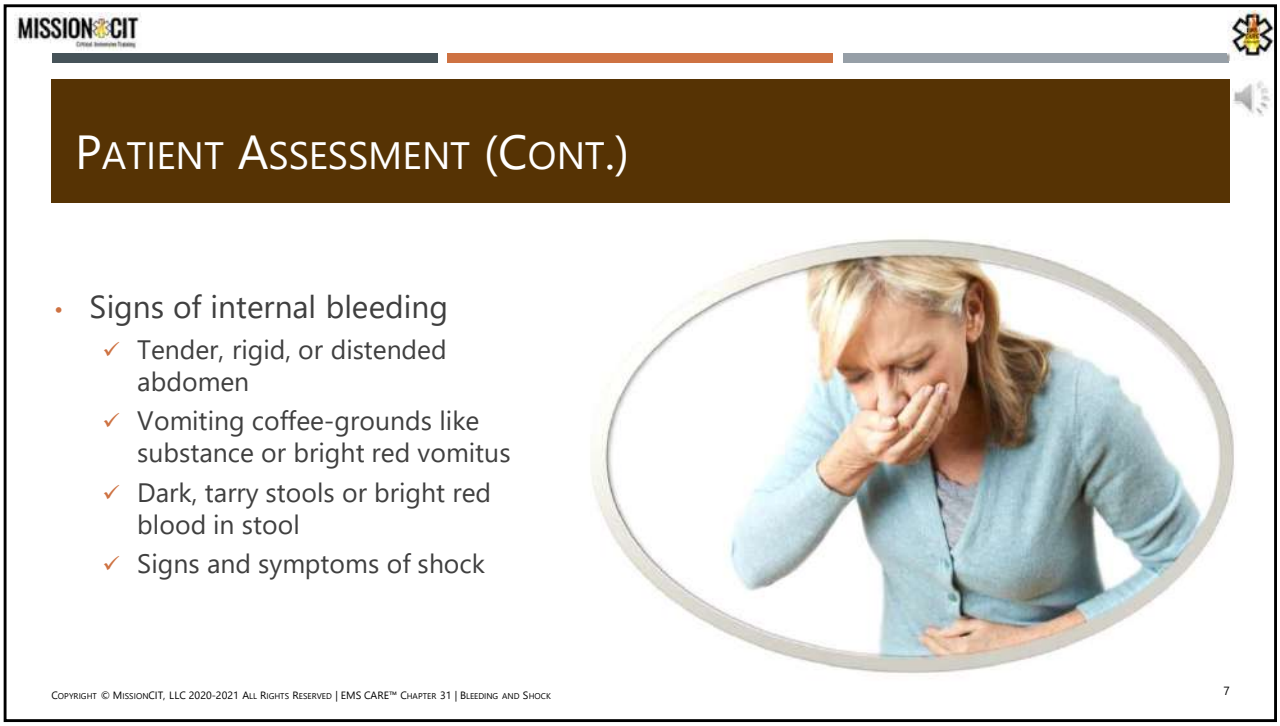
When treating a blunt force or penetrating trauma patient, Signs of internal bleeding may include:

- Injuries to the surface of the body
- Bruising, swelling, or pain over vital organs
- Painful, swollen, or deformed extremities, and
- Bleeding from the mouth, rectum, or vagina

Not all serious internal bleeding is from trauma as may happen during pregnancy. Bleeding during the first trimester of pregnancy is a sign of a potential miscarriage, and is not uncommon. Moreover, vaginal bleeding during the first few weeks of pregnancy may be a possible symptom and sign of a tubal or ectopic pregnancy. In an ectopic pregnancy, the placenta and the fetus implant in the Fallopian tube or another location outside of the uterine cavity. As the placenta grows, it erodes through the tube or other involved organs and may cause fatal bleeding unless the ectopic pregnancy is recognized and treated.

Bleeding after 20 weeks of pregnancy may be due to placenta previa or placental abruption, and urgent medical care should be accessed. Placenta previa describes the situation in which the placenta attaches to the uterus close to the opening of the cervix and may cause painless vaginal bleeding. Abruption occurs when the placenta partially separates from the uterine wall and causes significant pain, with or without

bleeding from the vagina.



Additional signs of internal bleeding may also include:

- Tender, rigid, or a distended abdomen,
- Vomiting coffee-grounds like substance or bright red vomitus,
- Dark, tarry stools or bright red blood in stool, and
- Signs and symptoms of shock.

Most people understand that falling from a height or being involved in a car accident can inflict great force and trauma upon the body. If blunt force is involved, the outside of the body may not necessarily be damaged, but enough compression may occur to internal organs to cause injury and bleeding.

Deceleration, such as from a fall or car accident, may cause organs in the body to be shifted. This may shear blood vessels away from the organ and cause bleeding. Force applied to the head causes an acceleration or deceleration injury to the brain. Hence, causing the brain to "bounce around" inside the skull. This can tear some of the small bridging veins on the surface of the brain and cause bleeding.

Organs within the abdominal cavity are often attached by a pedicle or stalk, to arteries and veins that provide blood supply. In a deceleration injury, the pedicle can shear off, tearing the blood vessels, causing bleeding.

Patient Assessment (Cont.)

- Internal bleeding occurs when damage to artery or vein allows blood to escape the circulatory system
- Bruising is one sign of internal bleeding



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Internal bleeding occurs when damage to an artery or vein allows blood to escape the circulatory system and collect inside the body. The amount of bleeding depends upon the amount of damage to an organ, the blood vessels that supply it, and the body's ability to repair breaks in the walls of the blood vessels. The repair mechanisms available include both the blood clotting system and the ability of blood vessels to go into spasm to decrease blood flow to an injured area.

Also, Internal bleeding may occur with broken bones that contain bone marrow in which blood production occurs. These bones have a rich blood supply, and significant amounts of blood can be lost with fractures. The trauma from the fracture can tear many blood vessels surrounding the structure, which causes massive internal bleeding.

Bruising is one sign of these types of internal bleeding.

Patient Care

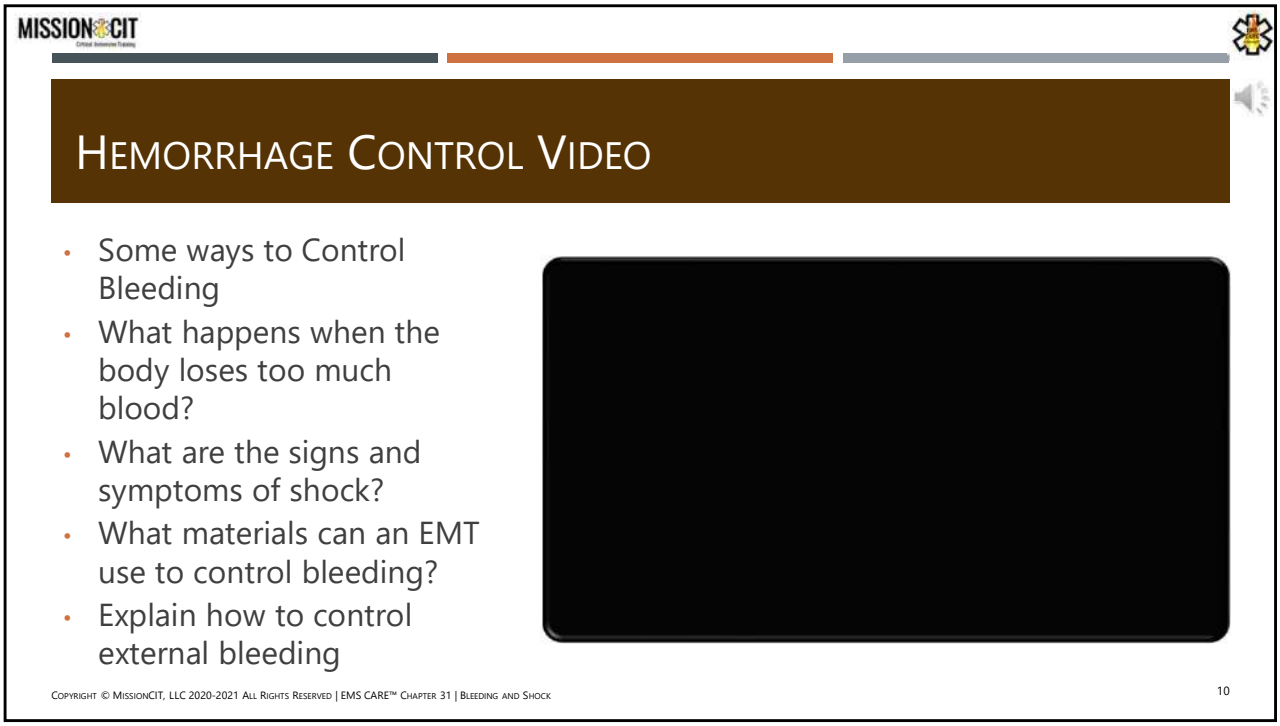
- Maintain ABCs
- Administer high-concentration oxygen by nonrebreather mask
- Control any external bleeding
- Take steps to preserve body temperature
- Provide prompt transport to appropriate medical facility





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Once recognized, care for internal bleeding must include rapid transport to an appropriate facility.
Follow your protocol, and maintain ABCs. Either at the scene or en route:
Administer high-concentration oxygen by a nonrebreather mask.
Control any external bleeding.
Take steps to preserve body temperature, and
Provide prompt transport to an appropriate medical facility.



Now you will watch a video on Hemorrhage Control. While watching, be sure to think about:

- Some Ways to Control Bleeding
- What happens when the body loses too much blood?
- What are the signs and symptoms of shock, and
- What materials can an EMT use to control bleeding?

Your takeaway is to be able to Explain how to control external bleeding

That's it for Lesson 2 on Bleeding. After the video, Justin will return to discuss Shock with you.

Good Studying.