

Masking Masquerade: When Liver and Pelvis Hide a Silent Killer

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ABSTRACT

Introduction: This case report discusses a patient who sustained trauma, where the patient had an active gluteal artery bleed along with pelvic fracture and liver laceration. **Case report:** The patient was a 45-year-old pedestrian involved in a high velocity collision with a bus. She was in class IV hemorrhagic shock. She was a transient responder throughout the resuscitation. Abdominal guarding and rigidity in the initial assessment led us to consider intra-abdominal solid organ injury to be the cause for the shock. The grade IV liver laceration with mild hemoperitoneum without active contrast blush did not correlate clinically with her hemodynamic instability. This prompted us to review the CT images which revealed a gluteal hematoma with active contrast extravasation which could potentially also be contributing to her ongoing blood loss and resultant hemodynamic instability. **Conclusion:** This case is significant because an emergency physician needs to be aware that there could be more than one source for the bleeding that could contribute to hemorrhagic shock & should be open to the possibility of occult sources of bleeding especially if the shock is not explained by the already identified injuries.

Keywords: Shock in Trauma, Gluteal Artery Bleed, Trauma Care, Circulatory Shock, Unexplained Shock, Pelvic Trauma.

CASE REPORT INTRODUCTION

While managing shock in trauma our primary focus is to identify and arrest the hemorrhage promptly. Sources of potential blood loss in trauma are the chest, abdomen, pelvis, retroperitoneum, extremities, and external bleeding [1]. The subcutaneous plane of the gluteal region is a potential space which can contain a lot of blood [2], which should be examined when the shock is unexplained by other injuries.

CASE PRESENTATION

A 45-year-old female pedestrian involved in a high velocity collision with a bus was referred to our Emergency Medicine department after initial resuscitation at a different hospital. Before referral, she was intubated due to low GCS & hemodynamic instability.

On arrival, she was in Class IV hemorrhagic shock with a BP of 70/40

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mmHg & PR- 124/mt; The Extended Focused Assessment using Sonography in Trauma (EFAST) was positive. Her Glasgow Coma scale (GCS) on arrival was E1 VT M5. Examination revealed pallor, bilateral racoon eye, periorbital oedema, nasal bleed, abdominal guarding and rigidity. Massive transfusion protocol was initiated, and she was a transient responder throughout. As per the initial clinical assessment, the cause of the hemorrhagic shock was thought to be an intra-abdominal solid organ injury.

Contrast enhanced CT (CECT) Chest and abdomen were performed (Figure 1) which revealed grade IV liver laceration, mild hemoperitoneum with no active contrast blush & comminuted fracture of right inferior pubic ramus. CT brain showed high parietal subarachnoid hemorrhage (SAH). There was no massive hemoperitoneum, hemothorax, or unstable hip fracture to cause persistent hypotension despite massive transfusion.



Figure 1. Coronal CT scan of the abdomen demonstrates a grade IV liver laceration with mild hemoperitoneum and no active contrast extravasation.

This prompted us to review the CECT images in detail which revealed a hematoma with active contrast extravasation in the subcutaneous plane of the right gluteal region.

Figure 2A (Plain CT): Demonstrates a fat stranding over the right gluteal region which could be a sign of inflammation or bleeding.

Figure 2B (Arterial phase) Demonstrates gluteal artery

(X) and its branches, along with contrast extravasation (*), indicating bleeding from the artery.

Figure 2C (Venous phase): (which is taken within 30 seconds after the arterial phase) demonstrates a large active contrast blush, suggesting active ongoing bleeding in the area.

The extent of the hematoma can be well seen in the coronal CT of the gluteal region as shown in the figure 3.

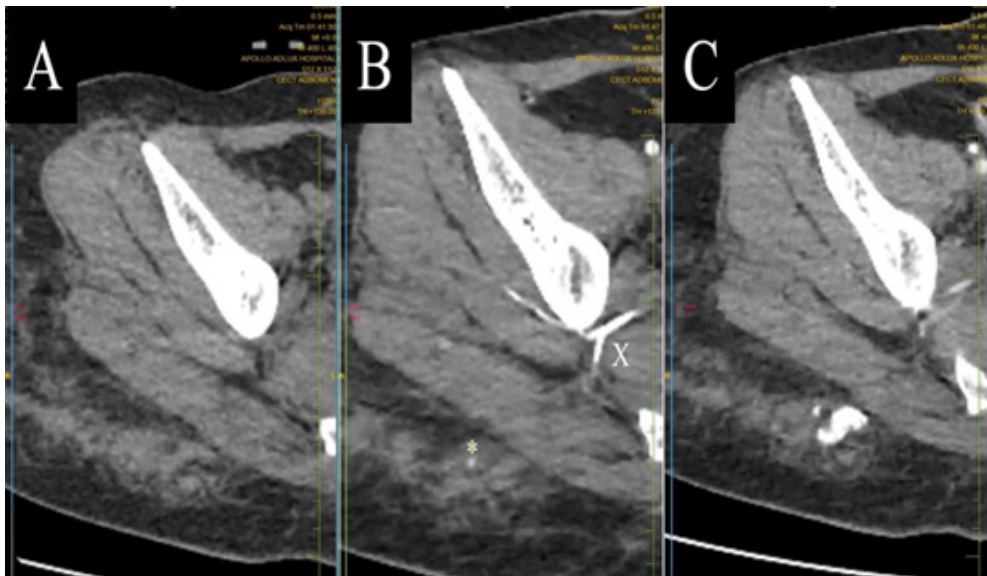


Figure 2. Figure 2A (Plain) CT image of the right gluteal region shows fat stranding. Figure 2B (Arterial phase) Branches of the gluteal artery (X) are well seen along with contrast extravasation (*). Figure 2C (Venous phase) shows active contrast blush suggestive of ongoing bleeding.

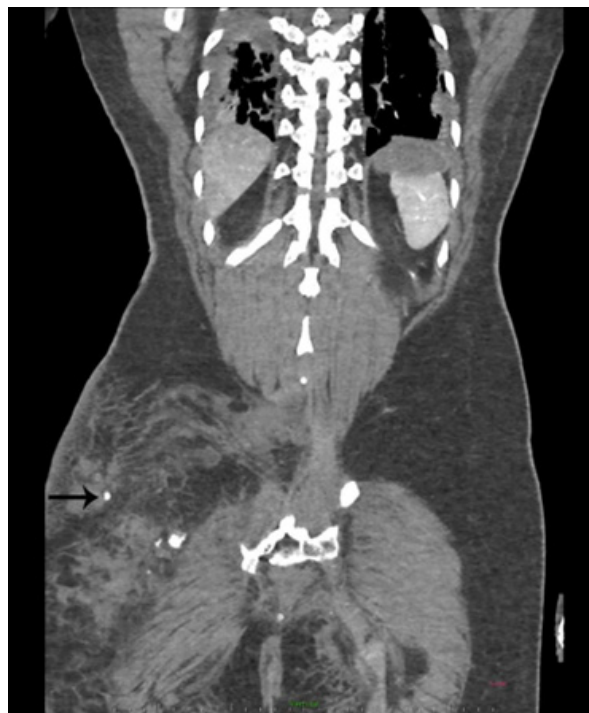


Figure 3. Coronal plane image from the CT abdomen scan obtained during the arterial phase demonstrates active contrast extravasation (black arrow) from an artery with a large surrounding hematoma. The left side of the image shows normal subcutaneous tissue for comparison.

Direct compression was applied over the suspected right gluteal region, which improved the patient's hemodynamics and decreased the rate of blood transfusion requirement.

Amidst the sustained resuscitation efforts, she was moved against medical advice, to a nearby hospital for additional care at her family's request. There she succumbed to illness on the post op day 2 after the damage control surgery.

DISCUSSION

In trauma care, identification of all potential sources of bleeding is crucial for achieving hemodynamic stability. This case highlights the significant challenges encountered during the course of identification, especially when the initial presentations are misleading.

Intra-abdominal solid organ injury detected during the primary assessment of the patient was suspected to be the cause of hypotension in the patient. The pelvic binder which was applied by the previously attended medical facility restricted our examination over the gluteal region. However, grade IV liver laceration with mild hemoperitoneum without any active contrast extravasation in the solid organs did not correlate clinically with her hemodynamic instability and large requirement of the blood products. This prompted us to review the CECT images which revealed a gluteal hematoma with active contrast extravasation which could potentially be contributing to her ongoing blood loss and resultant hemodynamic instability.

Identifying and controlling the source of the bleeding is the cornerstone in the treatment of hemorrhagic shock. In most cases it presents itself as exsanguinating bleeding in the limbs associated with fractures or else detected in abdominal or thoracic cavity. The intramuscular plane is a well-known potential space for large blood loss with minimal visible signs especially in individuals with darker skin tone.

Gluteal arterial bleeding or bleeding from the pelvic venous plexus can be a potential source of pelvic bleeding with few external signs. There is a large potential space within the buttock with minimal overlying fascia which prevents tamponade. This can lead to massive hemorrhage. The superior and inferior gluteal arteries, originating from the internal iliac artery, traverse the pelvis through the greater sciatic foramen, rendering them susceptible to injury from both blunt and penetrating trauma. Gluteal artery injury is uncommon, and the injury of the inferior branch (IGA) is rarer than that of the superior branch (SGA). In the past 30 years, 21 cases of traumatic IGA injury have been reported in world literature [3].

Clinical clues: A high index of suspicion is crucial, particularly in cases with mechanism of injury suggesting potential gluteal trauma (e.g., falls on buttocks). Quite often detailed history or mechanism of injury is not available, especially with intubated patients.

External signs like bruising or swelling can be helpful, but they are not always evident, especially in the early stages & in patients with darker skin tone. A pelvic binder which is applied previously might restrict the detailed examination.

Pelvic fracture which can disrupt the gluteal vasculature should raise a concern of gluteal artery bleed [2].

CONCLUSION

An emergency physician needs to be aware that there could be multiple sources of bleeding that could contribute to hemorrhagic shock. We must be open to the possibility of occult sources of bleeding, especially when the shock is not explained by identified injuries. This should prompt a detailed examination of the soft tissue and musculoskeletal system.

In trauma, unstable patients with circulatory shock and suspected intra-abdominal bleeding typically undergo direct OR (operating room) transfer for exploratory laparotomy. This case highlights the importance of CECT imaging, as it helps in identifying an occult bleeding source that could have been missed, potentially leading to a delay in hemorrhage control.

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CONFLICT OF INTERESTS

The Authors declare that there is no conflict of interest.

GRANT

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