

A Nurse In The Emergency Department Is Caring For A Client Who Has Sustained A Pelvic Fracture In A Motor

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When a patient arrives at the emergency department following a motor vehicle accident (MVA), nurses play a crucial role in the initial assessment, stabilization, and ongoing care of traumatic injuries. Among these injuries, pelvic fractures are particularly serious due to the pelvis's complex anatomy and vital functions. Proper management by emergency nurses is essential to prevent complications, promote healing, and ensure optimal patient outcomes.

In this comprehensive article, we will explore the critical aspects of caring for a client with a pelvic fracture sustained in a motor vehicle accident, including the anatomy of the pelvis, assessment strategies, stabilization techniques, diagnostic procedures, treatment options, potential complications, and nursing interventions.

Understanding Pelvic Fractures

Pelvic Anatomy and Types of Fractures

The pelvis is a ring-shaped structure composed of several bones, including the ilium, ischium, pubis, sacrum, and coccyx. It provides support for the spinal column, protects internal organs, and serves as an attachment point for muscles and ligaments.

Pelvic fractures are classified based on stability:

- Stable Pelvic Fractures: Involve a single break without disruption of the pelvic ring; generally less severe.
- Unstable Pelvic Fractures: Multiple breaks or disruptions leading to instability of the pelvic ring; often associated with significant bleeding and organ injury.

Common types of pelvic fractures include:

- Anterior-posterior compression fractures (APC): Caused by force pushing the pelvis outward.
- Lateral compression fractures: Result from force impacting the side of the pelvis.
- Vertical shear fractures: Usually caused by high-energy trauma causing vertical displacement.

Initial Assessment and Triage in the Emergency

Department

Primary Survey and Rapid Assessment

When a patient with a suspected pelvic fracture arrives, the nurse must perform a systematic primary survey following the ABCDE approach:

- Airway: Ensure airway patency.
- Breathing: Assess for adequate ventilation; provide oxygen as needed.
- Circulation: Check for signs of hemorrhagic shock; monitor blood pressure, heart rate, skin perfusion.
- Disability: Evaluate neurological status, including level of consciousness and limb movements.
- Exposure: Fully expose the patient to assess for other injuries while preventing hypothermia.

Key considerations during assessment:

- Look for signs of external bleeding or deformity.
- Check for pelvic stability by gentle palpation or stabilization techniques (avoid excessive movement to prevent further injury).
- Assess for associated injuries, such as abdominal trauma, urethral injury, or neurovascular compromise.

Signs and Symptoms of Pelvic Fracture

Patients may present with:

- Pelvic pain and tenderness
- Inability to bear weight
- Hematuria or blood in the urethral meatus
- Ecchymosis or hematoma in the pelvic area
- Flank or groin pain
- Signs of shock (tachycardia, hypotension)

Stabilization and Immediate Interventions

Pelvic Stabilization Techniques

Early stabilization minimizes bleeding and prevents further injury:

- Pelvic Binder or Sheet: Apply a commercial pelvic binder or a folded sheet firmly around the pelvis at the level of the greater trochanters to reduce pelvic volume and stabilize fractures.
- Logrolling and Proper Positioning: Avoid unnecessary movement; use logrolling techniques to prevent spinal injury exacerbation.

- Immobilization: Use of splints or braces if indicated.

Hemorrhage Control

Pelvic fractures can cause significant bleeding due to vascular injury. Immediate measures include:

- Maintaining blood pressure with IV fluids; use of isotonic crystalloids.
- Establishing large-bore IV access (preferably two 16-gauge or larger).
- Preparing for blood transfusions if indicated.
- Monitoring vital signs continuously.

Monitoring and Support

- Frequent assessment of vital signs.
- Monitoring urine output to evaluate perfusion.
- Preparing for advanced interventions if necessary, such as surgical stabilization or interventional radiology procedures.

Diagnostic Evaluation

Imaging Studies

Timely imaging is crucial for diagnosis:

- Focused Assessment with Sonography for Trauma (FAST): To detect intra-abdominal bleeding.
- Pelvic X-rays: Anteroposterior, inlet, and outlet views to identify fracture patterns.
- Computed Tomography (CT) Scan: Provides detailed visualization of fracture extent and associated injuries.
- Other Assessments: Urethrograms or cystograms if urethral injury is suspected.

Laboratory Tests

- Complete blood count (CBC) to assess blood loss.
- Coagulation profile.
- Blood type and crossmatch.
- Urinalysis for hematuria.
- Serum electrolytes and renal function tests.

Treatment Approaches for Pelvic Fractures

Non-Surgical Management

For stable fractures:

- Bed rest with activity restrictions.
- Pain management.
- Observation and supportive care.
- Physical therapy for mobilization as tolerated.

Surgical Intervention

For unstable fractures:

- External Fixation: Temporary stabilization in the emergency setting.
- Internal Fixation: Definitive stabilization with plates, screws, or pelvic screws.
- Angiographic Embolization: To control arterial bleeding.
- Pelvic Packing: To control bleeding in severe hemorrhage.

Potential Complications and Nursing Considerations

Complications of Pelvic Fractures

- Hemorrhagic shock
- Organ injury (bladder, urethra, rectum)
- Nerve injury leading to neurovascular deficits
- Infection, particularly if open fractures or surgical intervention
- Deep vein thrombosis (DVT) and pulmonary embolism
- Pelvic instability or deformity

Nursing Interventions and Patient Care

- Monitoring and Assessment: Regular vital signs, neurological status, and pain levels.
- Pain Management: Administer prescribed analgesics; consider multimodal approaches.
- Bleeding Control: Maintain pelvic binder; monitor for signs of ongoing bleeding.
- Preventing Complications:
 - DVT prophylaxis with anticoagulants as ordered.
 - Respiratory support to prevent atelectasis.
 - Skin care to prevent pressure injuries.

- Patient Education: Inform about injury, treatment plan, activity restrictions, and signs of complications.
- Psychosocial Support: Address anxiety, pain, and trauma-related stress.

Rehabilitation and Long-Term Care

- Gradual mobilization with physical therapy.
- Weight-bearing status as per physician's orders.
- Monitoring for late complications such as pelvic deformity or chronic pain.
- Coordination with multidisciplinary teams for comprehensive recovery.

Conclusion

Caring for a client with a pelvic fracture resulting from a motor vehicle accident requires a swift, coordinated approach by emergency nurses. From initial assessment and stabilization to diagnostic imaging and definitive treatment, each step is vital to reduce morbidity and improve outcomes. Understanding the anatomy of the pelvis, recognizing signs of injury, applying appropriate stabilization techniques, and collaborating with surgical and radiology teams ensure that patients receive optimal care. Effective nursing interventions, vigilant monitoring for complications, and patient education are essential components of comprehensive trauma management.

By staying informed about the latest protocols and maintaining a vigilant, patient-centered approach, emergency nurses can significantly influence recovery trajectories for clients suffering from these serious injuries.

Frequently Asked Questions

What are the immediate priorities in managing a patient with a pelvic fracture in the emergency department?

Immediate priorities include assessing airway, breathing, and circulation; controlling hemorrhage; immobilizing the pelvis to prevent further injury; and establishing IV access for fluid resuscitation.

What signs indicate potential vascular injury or major bleeding in a patient with a pelvic fracture?

Signs include hypotension, tachycardia, pale and clammy skin, abdominal distension, and a rapidly decreasing hemoglobin level, indicating significant blood loss.

Why is pelvic stabilization important in the emergency

setting, and how is it achieved?

Pelvic stabilization reduces bleeding by limiting movement of fractured bones and blood vessels. It is achieved using sheet wrapping, pelvic binders, or commercial pelvic stabilization devices.

What are the common complications associated with pelvic fractures that nurses should monitor for?

Complications include hemorrhagic shock, organ injury (bladder, rectum), nerve damage, deep vein thrombosis, and infection. Nurses should monitor vital signs, urinary output, and neurological status closely.

What assessments are critical for a nurse caring for a client with a pelvic fracture in the ED?

Critical assessments include verifying airway and breathing, checking vital signs regularly, assessing for signs of shock, evaluating neurovascular status of lower extremities, and monitoring urinary output.

What pain management strategies are appropriate for a patient with a pelvic fracture in the emergency setting?

Pain management may include administering prescribed analgesics (opioids or NSAIDs), positioning the patient for comfort, and ensuring pelvic stabilization to reduce pain caused by movement.

Additional Resources

A Nurse In The Emergency Department Is Caring For A Client Who Has Sustained A Pelvic Fracture In A Motor Vehicle Accident

In the high-stakes environment of the emergency department (ED), nurses are often the first line of defense in managing trauma patients. Among these critical cases, pelvic fractures resulting from motor vehicle accidents (MVAs) present unique challenges due to their potential for life-threatening complications. These injuries demand swift assessment, meticulous management, and a comprehensive understanding of both the injury mechanism and the therapeutic interventions required to optimize patient outcomes. This article explores the role of the ED nurse in caring for a client with a pelvic fracture from an MVA, detailing the assessment process, stabilization strategies, diagnostic considerations, and ongoing care.

Understanding Pelvic Fractures in Motor Vehicle Accidents

The Anatomy and Mechanics of Pelvic Fractures

The pelvis is a complex bony structure comprising the ilium, ischium, pubis, sacrum, and coccyx, serving as a vital support for the spine and lower extremities and protecting vital organs such as the bladder, rectum, and blood vessels. Pelvic fractures typically result from high-energy trauma, especially MVAs, where rapid deceleration or direct impact causes the pelvis to break.

Mechanisms of injury include:

- Lateral compression: Impact from the side compresses the pelvis, potentially causing a ring fracture.
- Anteroposterior compression: Frontal or rear impact forces open the pelvis anteriorly or posteriorly.
- Vertical shear: A force applied vertically causes displacement, often associated with severe instability.
- Combined injuries: Multiple mechanisms can occur simultaneously, increasing complexity.

Classification of Pelvic Fractures

Pelvic fractures are classified based on stability and pattern:

- Stable fractures: Involve a single break with minimal displacement; generally less severe.
- Unstable fractures: Multiple breaks or displacements that compromise pelvic stability; more prone to bleeding and organ injury.

Common classification systems include the Tile and Young-Burgess classifications, guiding management decisions.

Initial Assessment and Primary Survey

Rapid Triage and the ABCDE Approach

In the ED, the nurse's initial role is to perform a rapid assessment following the ABCDE approach:

- Airway with cervical spine stabilization: Ensure airway patency while protecting the cervical spine, especially important in high-impact trauma.
- Breathing: Assess for respiratory compromise, including chest injuries or hemothorax.
- Circulation: Evaluate perfusion status, pulse, blood pressure, and signs of bleeding.
- Disability: Assess neurological status, including consciousness level and motor function.
- Exposure and Environment: Fully expose the patient to assess for other injuries while preventing hypothermia.

Identifying Signs of Pelvic Fracture and Hemorrhage

Pelvic fractures may present with:

- Pelvic pain or tenderness
- Hematuria (blood in urine)
- Abdominal distension or bruising
- Decreased blood pressure or tachycardia indicating hypovolemia
- Instability or crepitus over the pelvis

The nurse must recognize that signs of hemorrhage may be subtle initially but can rapidly progress to hemorrhagic shock, requiring immediate intervention.

Stabilization and Hemorrhage Control

Pelvic Binder Application

One of the most critical interventions by the ED nurse is the prompt application of a pelvic binder or

sheet:

- Purpose: To reduce pelvic volume, stabilize fractured bones, and control bleeding.
- Technique:
- Position the binder around the greater trochanters or over the iliac crests.
- Secure tightly but comfortably to avoid skin injury.
- Ensure proper placement to maximize stabilization.
- Timing: Should be applied as soon as a pelvic fracture is suspected, ideally before transfer to imaging.

Hemorrhage Management

Pelvic fractures are often associated with significant bleeding due to injury to pelvic vessels or bone surfaces. Strategies include:

- Fluid resuscitation: Administer isotonic crystalloids (e.g., normal saline) as initial measures.
- Blood product transfusion: Type and crossmatch blood as soon as possible; the goal is to restore circulating volume and oxygen-carrying capacity.
- Massive transfusion protocols: Coordinate with the trauma team for balanced blood component therapy.
- Monitoring: Continuous blood pressure, heart rate, urine output, and mental status.

Diagnostic Procedures and Imaging

Imaging Modalities

Once the patient is stabilized, imaging confirms the diagnosis and guides management:

- Focused Assessment with Sonography for Trauma (FAST): To detect free fluid in the abdomen indicating bleeding.
- Pelvic X-ray: The initial imaging modality to visualize fractures.
- Computed Tomography (CT) scan: Provides detailed anatomy and detects associated injuries, including organ damage or vascular injury.

Laboratory Tests

Laboratory assessments support diagnosis and guide therapy:

- Complete blood count (CBC): Monitor hemoglobin and hematocrit.
- Blood type and crossmatch: Prepare for transfusion.
- Coagulation profile: Assess clotting status.
- Urinalysis: Detect hematuria or other urinary injuries.
- Serum lactate and base deficit: Indicators of tissue perfusion and shock severity.

Ongoing Management and Multidisciplinary Approach

Multimodal Pain Management

Pain control is essential for patient comfort and to facilitate immobilization and cooperation. Options include:

- Opioids administered cautiously, considering respiratory status.
- Adjuncts such as NSAIDs or regional anesthesia, as appropriate.

Prevention of Complications

Nurses play a vital role in preventing secondary complications:

- Thromboembolism prophylaxis: Early mobilization, compression devices, or pharmacologic agents.
- Skin integrity: Regular repositioning, especially if immobilized.
- Urinary and bowel management: Catheterization if necessary; monitor for retention or injury.

Surgical and Interventional Management

While the ED nurse doesn't perform definitive surgical procedures, they coordinate care with orthopedic surgeons and trauma specialists:

- External fixation: Often used emergently to stabilize unstable fractures.
- Pelvic ring stabilization: May involve surgical fixation depending on injury severity.
- Vascular embolization: Interventional radiology may control ongoing bleeding.

Patient Education and Psychological Support

Trauma patients with pelvic fractures often experience anxiety, fear, and pain. Nurses should:

- Provide clear explanations of procedures and interventions.
- Offer emotional support and reassurance.
- Educate about activity restrictions and rehabilitation plans.

The Role of the Emergency Department Nurse in Outcomes Optimization

The nurse's rapid recognition, stabilization, and collaborative coordination significantly influence patient survival and recovery. Key responsibilities include:

- Ensuring timely application of pelvic binders.
- Monitoring for signs of ongoing hemorrhage.
- Facilitating rapid diagnostic workups.
- Administering fluids and blood products.
- Preventing secondary injuries and complications.
- Supporting the multidisciplinary team in decision-making.

Conclusion

Managing a pelvic fracture resulting from a motor vehicle accident is a complex, multifaceted process that hinges on prompt, informed nursing interventions. The ED nurse's role extends beyond initial stabilization to encompass ongoing assessment, communication, and support, all of which are vital to improving patient outcomes. As trauma care continues advancing, the importance of swift, evidence-based nursing practices remains paramount in navigating the challenges posed by severe pelvic injuries in the emergency setting.

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Note: For healthcare professionals, staying current with trauma management protocols and participating in ongoing education ensures the best possible care for patients with complex injuries such as pelvic fractures.

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