*Case Report*

# Emergency nursing management of a patient with acute aortic intramural hematoma

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**Abstract**

**Background:** Acute aortic syndromes, including intramural hematomas, are life-threatening cardiovascular emergencies requiring rapid recognition and coordinated multidisciplinary management.

**Objective:** This case report highlights the essential role of the emergency nurse in early detection, stabilization, monitoring, patient education, and coordination of care for a patient with Stanford Type B acute aortic intramural hematoma.

**Key Words:** Acute Aortic Syndrome; Intramural Hematoma; Stanford Type B; Emergency Nursing; Hypertension Crisis; Endovascular Repair.

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## 1. Introduction

Acute Aortic Syndromes (AAS) include aortic dissection, intramural hematoma, and penetrating atherosclerotic ulcers. Among these, intramural hematoma (IMH) is rare but potentially fatal, with risk of progression to dissection, rupture, or sudden cardiac death. Hypertension is the major risk factor.

Prompt diagnosis and effective emergency nursing care can improve patient outcomes significantly.

## 2. Case Presentation

A 67-year-old male, known case of hypertension and psoriatic arthritis, presented to the Emergency Room (ER) with severe chest pain radiating to the back for 30 min, associated with shortness of breath and profuse sweating. There was no history of giddiness, syncope, or palpitation.

The patient had not taken his BP medication for 2 days.

**2.1 Initial workup**

- Echo: Mild LV dysfunction, mild mitral regurgitation, mild tricuspid regurgitation, mild pulmonary arterial hypertension.
- Troponin I: Negative.
- CT Angiogram: Revealed an acute aortic intramural hematoma from the origin of the left subclavian artery to the descending thoracic aorta (Stanford Type B).
- The patient was planned for repeat CT angiogram on 19.03.25 to check for increase in size.
- Despite IV labetalol and nitroglycerin infusion, the patient's blood pressure remained elevated.
- Lower limb arterial Doppler: No significant abnormalities.
- The patient became asymptomatic and pain-free.
- Repeat CT angiogram confirmed increase in size of the hematoma.
- The patient was advised early hybrid TEVAR (Thoracic Endovascular Aortic Repair). Risks of aortic aneurysm rupture, sudden cardiac arrest, and sudden cardiac death we explained to the patient and family.
- The patient was shifted to Heart City for further management with medications: Tab. Aztor 40 mg PO HS, Tab. Cilacar 10 mg.

**2.2 Emergency Nursing Assessment**

Primary Survey

- Airway clear, breathing labored but adequate, circulation stable but hypertensive.
- Pain score: 9/10, described as severe, tearing chest pain radiating to the back.
- Vitals: BP 190/100 mmHg, HR 110 bpm, RR 28/min, $SpO_2$ 94% on room air.

**2.3 Focused Cardiovascular Assessment**

- Monitored BP in both arms for difference.
- Observed for signs of hypotension or worsening symptoms (neurological deficits, weak pulses).
- Continuous ECG monitoring for arrhythmias.

**2.4 Pain Management**

- Position patient in semi-Fowler has to ease breathing and discomfort.
- Administer prescribed analgesics as ordered to reduce pain and stress-induced BP elevation.

**2.5 Blood Pressure Control**

- Initiate and monitor IV labetalol and nitroglycerin infusions as per physician orders.
- Monitor BP every 15 minutes until stable.
- Titrate infusion rates as per protocol under physician supervision.

**2.6 Oxygen Therapy**

- Administer oxygen at 2–4 L/min to maintain $SpO_2$ > 94%.
- Monitor respiratory status for signs of distress.

IV Access: Secure two large-bore IV cannulas for emergency medications and contrast studies.

**2.7 Pre-Diagnostic Support**

- Assist with ECG, blood sampling for cardiac markers, and bedside echo.
- Prepare patient physically and psychologically for CT angiogram.
- Ensure informed consent is they obtained.

**2.8 Psychological Support**

- Stay with the patient and provide reassurance.
- Explain procedures simply to reduce anxiety, which can aggravate BP.

**2.9 Observation and Monitoring**

- Monitor urine output hourly (renal perfusion).
- Observe for signs of new chest pain, neurological changes, or hypotension.

**2.10 Documentation**

- Document all assessments, BP trends, pain scores, medications administered, and patient response.
- Maintain clear records for handover.

**2.11 Family Education and Communication**

- Provide honest updates to family about the seriousness of the condition.
- Explain the need for repeat scans and possible surgical intervention.
- Counsel regarding risk of rupture, sudden cardiac arrest, and the need for close monitoring.

**3. Pre-Transfer Care**

- Ensure patient is stable for transfer to Heart City.
- Double-check that all documents, imaging reports, and drug charts accompany the patient.
- Provide detailed handover to the transport team and receiving ICU nurse.

**4. Discussion**

This case highlights the critical role of the emergency nurse in recognizing and managing a life-threatening cardiovascular condition like Acute Aortic Intramural Hematoma. Key nursing priorities include early detection, pain relief, BP control, continuous monitoring, emotional support and effective communication with the medical team and family. Continuous training on cardiovascular emergencies can empower ER nurses to act promptly and confidently in saving lives.

**5. Conclusion**

Early identification and prompt emergency nursing management of Acute Aortic Syndromes are crucial to prevent catastrophic complications such as rupture or sudden death. Nurses should remain vigilant for high-risk signs and maintain effective teamwork to ensure timely advanced interventions like TEVAR.

**References**

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