

# Post-Operative Case of a 55 Year Old Female, with CT Documented Epidural Hematoma Following Fall from Height with Aspiration

Sana Khan<sup>1\*</sup>, Mudasir Amin<sup>2</sup> and Rukhsana Najeeb<sup>1</sup>

<sup>1</sup>Department of Anaesthesiology and Critical Care, The Government Medical College, Srinagar, India

<sup>2</sup>Department of Neurosurgery, Sher-i-Kashmir Institute of Medical Sciences, Srinagar, India

## Corresponding Author\*

Sana Khan  
Department of Anaesthesiology and Critical Care,  
The Government Medical College,  
Srinagar, India  
E-mail: sanaihsan7@gmail.com

**Copyright:** © 2025 Khan S, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

**Received:** August 08, 2023, Manuscript No. MRCS-23-109873; **Editor assigned:** August 10, 2023, PreQC No. MRCS-23-109873 (PQ); **Reviewed:** August 31, 2023, QC No. MRCS-23-109873; **Revised:** January 03, 2025, Manuscript No. MRCS-23-109873 (R); **Published:** January 10, 2025, DOI: 10.35248/2572-5130.25.10(1).1000275

## Abstract

An Epidural Hematoma (EDH) is an extra-axial collection of blood within the potential space between the outer layer of the dura mater and the inner table of the skull. It is confined by the lateral sutures (especially the coronal sutures) where the dura inserts. It is a life-threatening condition, which may require immediate intervention and can be associated with significant morbidity and mortality if left untreated. Rapid diagnosis and evacuation are important for a good outcome. The following case illustrates our own experience in the peri operative and post-operative management of a patient who had fall from 12 feet height, following which she developed EDH. The patient was operated and shifted to ICU for further management.

**Keywords:** EDH • GCS • Aspiration • Intubation • ICU • Tracheostomy • Bronchoscopy

## Introduction

Epidural Hemorrhage (EDH) is an event characterized by bleeding into the epidural space between the dural layers of the meninges and the skull. The primary mechanism triggering bleeding is trauma (i.e., closed head injury), which causes arterial injury, most commonly middle meningeal artery injury. Epidural hemorrhage presents acutely, usually immediately (seconds to hours) following head trauma, with an altered level of consciousness that may span from a momentary loss of consciousness to coma.

## Aetiology

An extradural haematoma is commonly caused by skull trauma in the temporoparietal region, typically following a fall, assault or sporting injury. An EDH is associated with a skull fracture in 75% of cases. The pterion is an anatomical landmark where the parietal, frontal, sphenoid and temporal bones fuse.

The pterion is particularly vulnerable to fracture as the bone at this location is relatively thin. The Middle Meningeal Artery (MMA) also lies underneath the pterion and therefore fracture at this location can result in rupture of the MMA. As a result, the middle meningeal artery is involved in 75% of extradural haematomas.

EDH can also occur secondary to the rupture of a vein, particularly if the middle meningeal vein or dural sinuses are involved. Rarely, EDH can occur secondary to arteriovenous abnormalities or bleeding disorders [1].

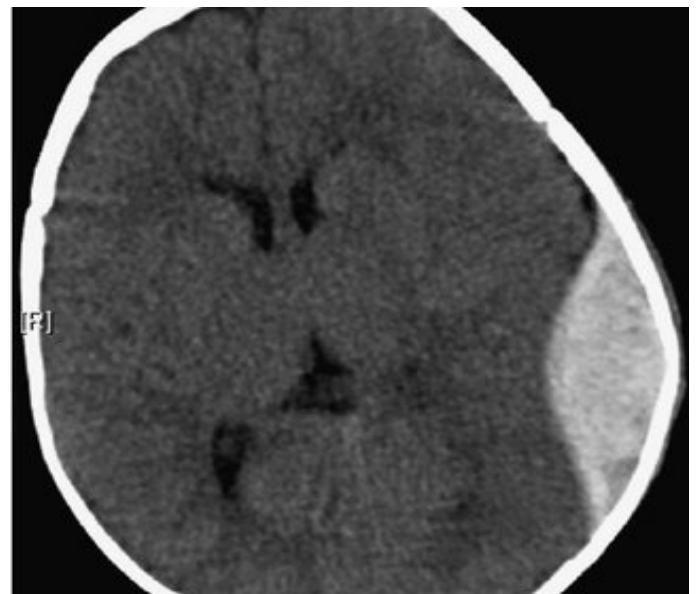
An Epidural Hematoma (EDH) can be a life-threatening condition. It usually requires immediate treatment or can cause brain damage or possibly death if left untreated. An EDH results in death in up to 15% of cases [2].

Diagnosis is based on clinical suspicion following head trauma and is confirmed with neuroimaging (i.e., non-contrast head CT). Management includes stabilization, monitoring in a neurologic ICU, and neurosurgical intervention

## Case Presentation

55 year old patient with underlying hypertension (on tablet telmisartan+chlorthiazide 40 mg 24 hourly) got admitted in neurosurgical emergency of SMHS hospital on 22<sup>nd</sup> June 2022 as a case of fall from 12 feet height [3].

The time of injury was 8:30 am and the time of arrival to the hospital was 10:00 am. On the way to the hospital patient had no episode of vomiting, bleed from ear or nose, no episode of seizures (Figure 1).



**Figure 1.** CT documented epidural hematoma.

As the patient reached to the neurosurgical emergency, the patient was examined:

**GCS:** E<sub>1</sub>V<sub>2</sub>M<sub>4</sub> (7/15)

**Pupils:** Normal size bilaterally

**Reaction to light:** Normal

**CVS:** Heart sounds normally heard

**RS:** Bilaterally air entry present Aspiration +

**P/A:** Soft, non-distended, non-tender

**ENT:** No bleed present

#### Vitals

**HR:** 68 b/m

**BP:** 100/64 mmhg

**SpO<sub>2</sub>:** 83% on room air

**RR:** 22/min

**Temp:** Afebrile

Immediately anaesthesiologist and radiologist were called.

After securing 2 IV lines with 18G and 16G IV cannula, the patient was resuscitated with normal saline and simultaneously intubated. Rapid Sequence Induction (RSI) along with Manual In-Line Neck Stabilization (MILS) was done. E-fast was done which came negative [4-6].

The base line investigations were sent and the patient was shifted to CT-scan unit for evaluation on transport ventilator accompanied by us. CT chest and abdomen were normal. The CT of spine was normal.

CT head revealed 40 mm EDH in the temporal region with 8 mm midline shift. Small contusions were present over the frontal region.

#### The blood investigations revealed:

**Hb:** 9 g/dl

**WBC:** 2300/mm<sup>3</sup>

**Plt:** 180000

**LFT:** Normal

**Kft:** Normal

**ECG:** Normal

**Triple serology:** Negative

**Coagulogram:** Normal

The patient was immediately shifted to the emergency theatre at 11:30 am for evacuation of EDH. The patient was coupled to mechanical ventilation with Vt-450 ml and RR-14/min. Standard ASA monitors were connected.

Arterial line was secured in right radial artery and transducer was connected for invasive BP monitoring. Central venous line of 7 Fr size was secured in right internal jugular vein under USG guidance using seldingers technique.

Craniotomy with evacuation of EDH was done. Intra operatively the patient got hemodynamically unstable and infusion noradrenaline was started at 3 ml/hr and titrated according to the BP. She received 2.5 L of crystalloids and 1 unit of PRBC. The urine output was 1.8 L. The ABGs done intra operatively were normal. The surgery took 2.5 hours and the patient was shifted to surgical-ICU on transport ventilator (intubated and sedated) with infusion of noradrenaline going on at 2:15 pm [7,8].

**On arrival to SICU:** Patient was put on PSIMV mode of mechanical ventilation, monitors were connected. Arterial line was transduced for IBP.

**GCS:** Sedated

**Pupils:** B/l normal size and reacting to light

**CVS:** Heart sounds normally heard

**RS:** Bilaterally air entry present Aspiration +

**P/A:** Soft, non-distended, non-tender

**Renal:** Urinary catheter *in-situ*

#### Vitals

**HR:** 68 b/m

**BP:** 100/64 mmhg on inotropic support

**SpO<sub>2</sub>:** 95 % on FiO<sub>2</sub> of 100%, Vt - 450 ml

**RR:** 12 / min

Infusion fentanyl was started at 5 ml/hour.

FiO<sub>2</sub> was reduced according to the ABG values of the patient.

Inj clindamycin 600 mg IV 12 hourly was started for aspiration.

Inj meropenem 1 g IV 8 hourly was started.

Inj pantoprazole 40 mg IV 24 hourly was started.

Inj paracetamol 1 g IV 8 hourly was started.

Hypertonic saline 100 ml was given over 6 hours IV 12 hourly.

Inj levetiracetam 500 mg IV 24 hourly was started.

Inj phenytoin 200 mg IV 24 hourly was started.

## Discussion

Methyl cellulose eye drops were added to the treatment, along with chlorhexidine mouth wash.

Regular oral and endotracheal suctioning was done. The head end of the patient was kept at 30 degrees, ABG, input/output, blood glucose and temperature monitoring was done 4 hourly.

The EtCO<sub>2</sub> of the patient was kept between 30-35 mmhg, normothermia was maintained. Base line investigations were sent every day. The patient was put on air mattress and position of the patient was regularly changed. Central Venous Pressure (CVP) was checked regularly.

On 24<sup>th</sup> June 2022, the inotropic support to the patient was stopped and patient was hemodynamically stable. Ryles tube was inserted and NG feeding was started at 100 ml/hour.

The patient was taken for a check CT scan of head on 25<sup>th</sup> June 2022 at 10:00 am. There was no fresh bleed. Sedation was stopped and GCS of the patient was assessed.

GCS-E<sub>3</sub>VTM<sub>4</sub> (8/15)

Deep Vein Thrombosis (DVT) prophylaxis was started (Inj enoxaparin 0.4 ml S/C 24 hourly).

Sedation was started again, patient was put on infusion fentanyl at 5 ml/hr.

Following this the GCS of the patient was assessed every day. The best GCS score was: E<sub>4</sub>VTM<sub>4</sub> (9/15) on 29<sup>th</sup> June 2022.

On 1<sup>st</sup> July 2022, we did percutaneous tracheostomy as a part of weaning the patient off from the ventilator and to limit the need for sedation and make oral toileting easy.

Following tracheostomy the oxygen requirements of the patient got decreased. The patient was regularly checked for presence of any bedsores.

On 5<sup>th</sup> July 2022, the patient was put on T piece with 6 L/min of oxygen flow and maintained a SpO<sub>2</sub> of 95% with

GCS-E<sub>4</sub>V<sub>2</sub>M<sub>6</sub> (12/15)

On 9<sup>th</sup> July there was sudden drop in SpO<sub>2</sub> with decreased chest rise on the left side. Portable chest X-ray was done which revealed collapse of left lung. The patient was coupled back to ventilator which revealed high peak and plateau airway pressures.

Physiotherapist was called and chest physiotherapy was done. Suctioning was regularly done along with nebulization with normal saline 6 hourly and salbutamol and budesonide 24 hourly. ABG sampling was done 4 hourly.

On 11<sup>th</sup> July 2022, we did bed side bronchoscopy of the patient that revealed a mucus plug present in left upper main stem bronchus.

The mucus plug was removed immediately. The lung protective measures were followed.

On 13<sup>th</sup> July 2022, the patient was put back on spontaneous mode of mechanical ventilation and maintained a SpO<sub>2</sub> of 98% of FiO<sub>2</sub> 40%.

On 15<sup>th</sup> July 2022, T piece trail was again given on and patient could breathe comfortably on 8-10 L oxygen and.

On 18<sup>th</sup> July 2022, chest X-ray was repeated which showed improvement. The oxygen requirement of the patient also came down to 5 L/min.

GCS - E<sub>4</sub>V<sub>4</sub>M<sub>6</sub> (14/15)

From 20<sup>th</sup> July 2022, decannulation of the tracheostomy tube was started (SpO<sub>2</sub> - 97% on 3 L/min Oxygen)

On 29<sup>th</sup> July 2022, patient was completely de-cannulated and tracheostomy tube was removed. Sutures were applied and patient was spontaneously breathing on room air and maintaining a SpO<sub>2</sub> of 97-98%.

The patient was fully conscious and oriented to time, place and person. The patient had no neurological deficit.

The power in all the four limbs was normal (5/5).

The cranial nerves examination was done and was found to be bilaterally intact.

**CVS:** Heart sounds normally heard

**RS:** Bilaterally air entry present

**P/A:** Soft, non-distended, non-tender

**Vitals**

**HR:** 78 b/m

**BP:** 133/74 mmhg

**Temp:** Normal

On 30<sup>th</sup> July 2022, patient was shifted to ward and on 31<sup>st</sup> July 2022, the patient was discharged.

## Summary

The patient got admitted in our hospital as a case of traumatic brain injury. She was immediately operated and shifted to SICU where she stayed for 38 days. During this course she was mechanically ventilated and tracheostomized. Neuro and lung protective measures were followed and supportive treatment was given simultaneously.

## Conclusion

The management of the patient with severe TBI is often complex and requires a multidisciplinary approach. Anesthesiologists are involved in the care of patients with TBI in various situations, including (but not limited to) resuscitation and stabilization in the Emergency Department (ED), sedation and anesthesia for diagnostic imaging, craniotomy or decompressive craniectomy, extra cranial surgery, and intensive care management.

## References

1. Richards, C. "Extradural Haematoma (EDH)." *Geeky Medics* (2018).
2. Cleveland, Clinic. "Epidural Hematoma." *Cleveland Clinic*. (2018).
3. Bullock, M. R., et al. "Surgical management of acute epidural hematomas." *Neurosurgery*. 58 (2006): 2-7.
4. Figueroa, B. E., & Thompson, E. "Epidural hematoma: A review." *J Clin Neurosci*. 13.7 (2006): 799-803.
5. Marik, P. E. "Aspiration pneumonitis and aspiration pneumonia." *N Engl J Med*. 344. 9 (2001): 665-671.
6. Metheny, N. A., & Clouse, R. E. "Complications related to feeding tube placement." *Curr Opin Gastroenterol*. 15.3 (1999): 230-234.
7. Zhang, J., et al. "Traumatic brain injury: Developments in clinical and experimental research." *J Surg Res*. 183.1 (2013): 31-41.
8. Bohman, L. E., & Schuster, J. M. "Post-traumatic seizures." *J Intensive Care Med*. 28. 5 (2013): 265-277.

**Cite this article:** Khan S, et al. "Post-Operative Case of a 55 Year Old Female, with CT Documented Epidural Hematoma Following Fall from Height with Aspiration". *Med Rep Case Stud*, 2025, 10(1), 1-3.