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Emergency Decompressive Craniectomy for Acute Subdural Hematoma in a Patient Receiving Duel Antiplatelet Therapy Following Recent Percutaneous Coronary Intervention With Previous Coronary Artery Bypass Grafting: A Case Report

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Abstract

Background: Acute subdural hematoma (ASDH) requiring emergency surgery in a patient who has recently undergone percutaneous coronary intervention (PCI) presents a difficult balance between preventing neurological deterioration and minimizing coronary stent thrombosis risk when antiplatelet therapy must be interrupted. Previous coronary artery bypass grafting (CABG) adds to the complexity of perioperative cardiac risk.

Case Presentation: A 67-year-old female with a history of CABG in 2011 underwent PCI with stenting to the distal right coronary artery (RCA) to posterior lateral ventricular branch (PLV) five days before presenting with recurrent vomiting, severe headache, and acute right frontoparietal-temporal intracranial hemorrhage (ASDH) causing significant mass effect and midline shift. The patient's initial Glasgow Coma Scale (GCS) score was 10/15 (E2V3M5), which sharply deteriorated to 8/15 (E2V2M4) in the Surgical ICU, requiring immediate intubation. Emergency decompressive craniectomy with hematoma evacuation was performed. Postoperatively, non-contrast CT confirmed complete hematoma clearance and mass effect resolution. By the 4th postoperative day (POD-4), the patient achieved a GCS of 15/15 (E4V5M6 on transfer evaluation) and was stepped down to the CCU with stable vitals.

Conclusion: This case illustrates the need for rapid multidisciplinary decision-making in life-threatening intracranial hemorrhage shortly after PCI. Urgent neurosurgical treatment may be necessary when significant mass effect is present, while perioperative antiplatelet decisions require individualized coordination among neurosurgery, cardiology, anesthesia, and critical care.

Keywords

Acute subdural hematoma; Decompressive craniectomy; Percutaneous coronary intervention; Coronary artery bypass grafting; Antiplatelet therapy; Case report

Introduction

Acute subdural hematoma (ASDH) is a time-critical neurosurgical emergency when associated with rapid neurological deterioration or substantial brain mass effect. Surgical guidelines strongly recommend prompt evacuation when clinical or radiological threshold criteria are met. However, managing ASDH in patients who have recently undergone percutaneous coronary intervention (PCI) presents a clinical dilemma. Interruption of dual antiplatelet therapy (DAPT) poses a grave risk of acute stent thrombosis, whereas continuing antiplatelet therapy exacerbates active intracranial bleeding and perioperative hemorrhage.

A prior history of coronary artery bypass grafting (CABG) further elevates perioperative cardiac risk and surgical complexity. Published literature emphasizes that early recognition and coordinated multidisciplinary management are essential when managing intracranial hemorrhage following PCI. Here, we report the successful emergency decompressive craniectomy and short-term neurological recovery of a 67-year-old female with a history of CABG and recent PCI with stenting who developed an acute right frontoparietal-temporal extra-axial hematoma.

Case Presentation

A 67-year-old female with a known history of severe Coronary Artery Disease (CAD) status-post Coronary Artery Bypass Grafting (CABG) in 2011 presented to the Emergency Department of United Medical College Hospital on October 22, 2026. Five days prior to admission (October 17, 2026), she underwent Coronary Angiogram (CAG) and Percutaneous Coronary Intervention (PCI) with stenting to the distal Right Coronary Artery (RCA) extending to the Posterior Lateral Ventricular branch (PLV). She was maintained on standard Dual Antiplatelet and Anticoagulant Therapy consisting of Ecosprin (Aspirin) and Ticagrelor (Tica). Her co-morbidities included Diabetes Mellitus and Hypertension.

On admission, the patient presented with five episodes of recurrent vomiting, severe headache, and fluctuating consciousness with transient drowsiness. There was no documented history of acute head trauma. Initial vital signs demonstrated a Blood Pressure of 150/90 mmHg (later 140/80 mmHg), Pulse Rate of 72 beats/min, Respiratory Rate of 24 breaths/min, and SpO2 of 97% on room air. Initial neurological assessment revealed a Glasgow Coma Scale (GCS) score of 10/15 (E2V3M5), with equal and light-reactive bilateral pupils.

Emergency non-contrast cranial Computed Tomography (CT) revealed a large acute right frontoparietal-temporal extra-axial hemorrhage (ASDH with severe hemispheric cerebral edema, compression/effacement of the right lateral ventricle, and marked leftward midline shift.

Parameter / Phase	Admission (ED)	S-ICU Transfer	POD-4 (Step Down)
GCS Score	10/15 (E2V3M5)	8/15 (E2V2M4)	15/15 (E4V5M6)
Blood Pressure	150/90 mmHg	140/80 mmHg	130/80 mmHg
Heart / Pulse Rate	72 bpm	74bpm	68 bpm
Airway / Support	Room Air (97%)	Intubated / Mechanical Vent.	2L O2 Face Mask (98%)

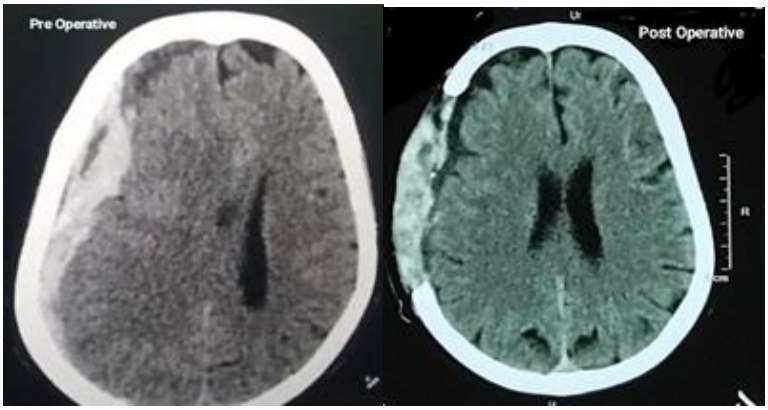
Table 1: Clinical Timeline and Vital Signs Summary.

The patient underwent an Emergency Decompressive Craniectomy (DCRA) RT with evacuation of hematoma (ASDH right) to relieve severe hemispheric mass effect and intracranial pressure. Intraoperatively, the hematoma was successfully cleared and meticulous hemostasis achieved.

Following surgery, intensive S-ICU neurocritical management was instituted, including antibiotic prophylaxis (Inj. Cefuroxime 750 mg IV 12h, Inj. Flucloxacillin 500 mg IV 6h, and Inj. Clindamycin 400 mg IV 6h), head end elevation at 30 degrees, chest physiotherapy, regular suctioning, and osmotic therapy titration (targeting serum sodium at 150-155 mEq/L and SBP < 140 mmHg). Antiplatelet therapy was temporarily held perioperatively with planned joint neurosurgical-cardiology monitoring.

Postoperative non-contrast cranial CT performed on October 30, 2026, demonstrated total evacuation of the right-sided extra-axial hematoma, complete resolution of the midline shift, re-expansion of the right lateral ventricle, and satisfactory decompression. By the 4th postoperative day (POD-4), the patient demonstrated remarkable recovery, reaching a GCS score of 15/15 (E4V5M6 on transfer evaluation). The surgical drain tube was removed, dressing remained clean and intact, and she was successfully stepped down to the CCU for cardiovascular and neurological monitoring.After successful monitoring upto 15 th pod patient was discharged with adviced (GCS 15/15, no focal deficit).

Radiological Imaging



[Pre-operative CT Image] [Post-operative CT Image]

Figure 1: Pre-operative and Post-operative Cranial CT Comparison

Discussion

Managing intracranial hemorrhage in patients with recent coronary stenting is one of the most high-stakes clinical scenarios in critical care. Dual antiplatelet therapy (DAPT) with aspirin and potent P2Y12 inhibitors (such as Ticagrelor) is essential to prevent catastrophic acute coronary stent thrombosis. However, when life-threatening intracranial mass effect occurs, temporary interruption of antiplatelet therapy and emergency surgical evacuation become imperative.

Surgical guidelines dictate prompt decompressive surgery when an ASDH exceeds 10 mm in thickness or causes a midline shift greater than 5 mm, especially when accompanied by GCS deterioration. In our patient, rapid clinical drop to GCS 8/15 necessitated immediate decompressive craniectomy. Decompressive craniectomy provides swift relief of refractory intracranial hypertension and prevents secondary brain stem herniation when brain edema is substantial.

Conclusion

Emergency decompressive craniectomy and hematoma evacuation can be lifesaving in acute subdural with significant mass effect and neurological deterioration, even shortly after PCI. Swift multidisciplinary action among neurosurgery, cardiology, anesthesiology, and critical care is mandatory to strike a balance between mitigating intracranial bleeding and minimizing cardiac stent thrombosis risk.

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