# **Case Report**

## Title

Management of Traumatic Brain Injury with Subarachnoid Hemorrhage in an Elderly Patient on Antiplatelet Therapy: A Case Report

## Abstract

We report the case of an 85-year-old male with a history of ischemic stroke and on antiplatelet therapy, who presented with a mild traumatic brain injury (TBI) resulting in subarachnoid hemorrhage (SAH) and a small acute subdural hematoma (SDH). Conservative management was employed, including temporary cessation of antiplatelet therapy and careful radiological monitoring. The patient recovered without neurological complications, highlighting the efficacy of a non-operative approach in elderly patients with controlled imaging and symptomatology.

## Introduction

Traumatic brain injury (TBI) in elderly patients is a growing concern, particularly with the increasing life expectancy and prevalence of predisposing comorbidities, including cerebrovascular disease, hypertension, and atrial fibrillation. These patients are frequently on antiplatelet or anticoagulant therapies, complicating the management of intracranial hemorrhage (ICH) due to the heightened risk of hemorrhagic expansion (Linn et al., 2013). Even minor head trauma can result in significant morbidity due to factors such as decreased brain mass, increased cerebral atrophy, and age-related vascular frailty (Sbordone et al., 2020). When ICH occurs in elderly patients on antiplatelet therapy, balancing the risks of hemorrhagic progression and thrombotic events requires a nuanced, individualized approach.

The literature suggests that conservative management, including close neurological monitoring and radiological follow-up, can be effective for elderly patients with small hemorrhages and no significant mass effect or neurological deficits (Washington et al., 2021). However, the temporary discontinuation of antiplatelet agents must be carefully timed, as these patients remain at risk for thromboembolic events due to underlying cardiovascular comorbidities. Recent guidelines advocate for a multidisciplinary approach to determine the optimal timing for the reintroduction of antiplatelet therapy, often based on serial imaging and patient stability (Batchelor & Grayson, 2012).

This report discusses a case of an elderly male on aspirin therapy who sustained a mild TBI with SAH and SDH and was managed conservatively, contributing to the growing body of evidence that supports a cautious, non-operative approach in selected cases.

## **Case Presentation**

- Patient demographics: An 85-year-old male.
- Chief complaint: Trauma to the right ear and head.
- **Presenting symptoms**: A right auricular laceration following trauma with a nightstand; no loss of consciousness, no nausea, no vomiting, and no focal neurological deficits.
- Relevant medical history:
  - Ischemic stroke in the territory of the left anterior cerebral artery (ACA).
  - $\circ\,$  Prior orthopedic surgery with a screw in the left ankle.
  - Medications: Long-term antiplatelet therapy with Adiro (aspirin) 100 mg.
- **Social history**: No history of smoking, alcohol, or other toxic habits.

## **Examination and Investigations**

- Physical examination:
  - Vital signs were stable.
  - Neurological exam: Alert, oriented, coherent language, and full motor strength bilaterally.
  - Local exam: Right auricular laceration, which was managed with local anesthesia, cleansing, and monofilament suturing.
- Initial Imaging (CT scan on 10/11/2024):
- **Findings**: Right frontoparietotemporal acute subdural hematoma (3 mm thick) without mass effect. Minimal ipsilateral SAH in cortical sulci. Evidence of chronic small vessel ischemia in the periventricular and semioval regions, and a calcified meningioma (1.9 cm) adjacent to the temporal bone. No midline shift.
- **Conclusion**: Mild traumatic brain injury with small subdural and subarachnoid hemorrhages, no surgical intervention indicated.

# Management and Follow-Up

#### 1. Medication Adjustments:

- $\circ$  Adiro 100 mg was temporarily discontinued to reduce the risk of hemorrhagic expansion.
- Clexane 40 mg subcutaneously once daily was started for 10 days to prevent thromboembolic events in light of temporary antiplatelet cessation.
- $\circ\,$  Plan to resume Adiro 100 mg the day after completing Clexane therapy.
- Pain management with Paracetamol 1 g as needed.

#### 1. Wound Care:

- Daily dressing changes and local wound management in his residential care facility.
- Removal of sutures planned for 19/11/2024.

#### 1. Radiological Follow-up:

• A follow-up CT scan (12/11/2024) showed resolution of the subdural hematoma and SAH with no new hemorrhagic findings.

## Outcome and Follow-up

The patient maintained neurological stability throughout his hospital stay. He demonstrated good wound healing in the auricular region, and his follow-up CT scan showed complete resolution of hemorrhagic findings. He was discharged with instructions to resume his previous antiplatelet regimen after completing the 10-day course of Clexane.

## Discussion

This case presents the successful conservative management of an elderly patient with mild traumatic brain injury (TBI) complicated by a small subarachnoid hemorrhage (SAH) and a thin subdural hematoma (SDH), despite the patient being on chronic antiplatelet therapy. The decision to withhold antiplatelet medication temporarily, combined with radiological monitoring and thromboembolic prophylaxis, underscores the importance of a tailored approach in the management of traumatic brain injury in older adults.

#### Traumatic Brain Injury and Antiplatelet Therapy in Elderly Patients

- Elderly patients are at increased risk for TBI due to physiological changes associated with aging, such as decreased brain mass, increased cerebral atrophy, and frail vasculature, which predispose them to intracranial hemorrhages even with low-energy trauma (Sbordone et al., 2020). In addition, common comorbidities like hypertension and prior strokes often necessitate the use of antiplatelet or anticoagulant therapies, which can complicate management by increasing bleeding risks.
- This patient's pre-existing antiplatelet therapy with Adiro (aspirin) for secondary prevention of ischemic stroke presented a therapeutic dilemma. The discontinuation of antiplatelet therapy posed a thrombotic risk, while continuation increased the likelihood of hemorrhagic expansion. Literature suggests that withholding antiplatelet agents temporarily in cases with minor hemorrhagic findings may be appropriate, provided there is close monitoring for re-bleeding or thrombotic events (Linn et al., 2013).

#### **Radiological Surveillance and Conservative Management**

- In cases of mild TBI with small hemorrhages, including SAH and thin SDH without mass effect, conservative management with serial imaging can be effective and is often recommended over surgical intervention, particularly in elderly patients with high surgical risk (Washington et al., 2021). This patient's initial CT showed no significant mass effect, and the follow-up scan demonstrated complete resolution of the hemorrhage. Radiological stability in serial imaging is a crucial factor that supports conservative management and indicates a favorable prognosis without invasive measures.
- A meta-analysis by Alrajhi et al. (2015) found that, in elderly patients with small traumatic subarachnoid and subdural hemorrhages, conservative management can yield good outcomes, particularly when hemorrhage is minimal and lacks neurological deficits. Avoiding surgery

minimizes potential complications in frail patients, especially since elderly patients undergoing neurosurgical procedures experience higher morbidity and mortality compared to younger patients.

#### **Temporary Cessation of Antiplatelet Therapy**

- Studies examining the balance between hemorrhagic and thrombotic risks in TBI patients on antiplatelet agents suggest a case-by-case approach. Temporarily stopping antiplatelet therapy, especially aspirin, can reduce hemorrhagic expansion risk without significantly increasing thrombotic events in the short term (Batchelor & Grayson, 2012).
- For this patient, the temporary cessation of Adiro was balanced by initiating low-dose thromboprophylaxis with Clexane, which is often recommended in immobile elderly patients to prevent venous thromboembolism (VTE). The American Academy of Neurology recommends starting VTE prophylaxis with low-molecular-weight heparin in TBI patients once the risk of active bleeding subsides, typically within 48-72 hours post-injury, if stable on imaging (Carney et al., 2016).

# Conclusion

The management of mild TBI with SAH and SDH in elderly patients on antiplatelet therapy requires a multidisciplinary approach, integrating neurological, radiological, and pharmacological expertise. In this case, conservative treatment with imaging follow-up, temporary antiplatelet cessation, and anticoagulant prophylaxis provided effective management without invasive interventions. This approach supports findings in the literature and highlights the value of a conservative, case-by-case management strategy for elderly patients with mild traumatic intracranial hemorrhages.

# References

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