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# Clinical Communications: Adults

## ACUTE SUBDURAL HEMATOMA WITHOUT SUBARACHNOID HEMORRHAGE OR INTRAPARENCHYMAL HEMATOMA CAUSED BY RUPTURE OF A POSTERIOR COMMUNICATING ARTERY ANEURYSM: CASE REPORT AND REVIEW OF THE LITERATURE

Manuel Mrfka, MD, PHD,* Karin Pistracher, MD,* Michael Augustin, MD,† Senta Kurschel-Lackner, MD,* and Michael Mokry, MD*

*Department of Neurosurgery and †Radiology, Medical University Graz, Austria
*Reprint Address:* Manuel Mrfka, MD, PHD, Department of Neurosurgery, Medical University Graz, Auenbruggerplatz 29, A-8010 Graz, Austria

□ **Abstract—Background: Acute subdural hematoma without subarachnoid hemorrhage or intraparenchymal hematoma is rare. Case Report: We report on a 47-year-old women without previous trauma who presented with an acute subdural hematoma without subarachnoid hemorrhage. The hematoma was evacuated immediately. Further evaluation with a cerebral four-vessel angiography revealed a left-sided posterior communicating artery aneurysm that was occluded by endovascular embolization. The patient recovered without neurological deficit. Conclusions: Ruptured intracranial aneurysm should be considered as a cause of nontraumatic subdural hematoma. Immediate subdural hematoma removal after aneurysm coiling can be performed in such patients, even those in poor neurological condition.** © 2013 Elsevier Inc.

□ **Keywords—acute subdural hematoma; cerebral aneurysm**

### INTRODUCTION

Only 27 cases, including the present case, of acute subdural hematoma (aSDH) without subarachnoid hemorrhage or intraparenchymal hematoma due to ruptured intracranial aneurysms are reported in our review of the literature (Table 1) (1–22).

In general, aSDHs are caused by head trauma due to disruption of vessels, ruptured arteriovenous malformations, coagulopathy, and meningiomas. Occasionally, they are related to metastasis or cocaine abuse (23–27).

Ruptured aneurysms are usually associated with subarachnoid hemorrhage or intracerebral hemorrhage. Pure aSDH due to ruptured intracranial aneurysm is rare; however, knowledge of this uncommon presentation is important because it requires immediate diagnostic procedures and treatment.

We report on a case of a pure aSDH caused by a ruptured posterior communicating artery aneurysm and review the literature for this rare event.

### CASE REPORT

A 47-year-old woman presented with a severe, burning, left-sided headache. She was fully conscious (Glasgow Coma Scale total score 15) at an outside hospital. History revealed a single sudden attack of headache 6 days before admission. Further examination excluded any previous trauma as well as the absence of the consumption of any regular medication; family history disclosed that her mother had died of a ruptured aneurysm. Computed tomography (CT) scan demonstrated an aSDH over the left convexity with a midline shift of 4 mm (Figure 1). Laboratory data including coagulopathy showed no abnormalities.

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**Table 1. Cases of Pure Acute Subdural Hematoma: Results of PubMed Data Synthesis from 1980 to 2011**

| First Author, Year | Age/Sex | Symptoms | Location of Aneurysm | Location of Subdural Hematoma | Treatment | Outcomes |
|---|---|---|---|---|---|---|
| Rengachary, 1982 (17) | 49/M | Confusion, dysphasia | MCA | Convexity | Hematoma evacuation and clipping | Good |
| Eggers, 1982 (3) | 34/F | Headache | PcoA | Convexity | Hematoma evacuation | Good |
| Williams, 1983 (13) | 18/F | Coma | PcoA | Convexity | Hematoma evacuation and clipping | Disabled |
| Friedman, 1983 (4) | 55/F | Headache | PcoA | Tentorium and interhemispheric | Only clipping | Good |
| O'Leary, 1986 (15) | 28/F | Coma | MCA | Convexity | None | Dead |
| Kondziolka, 1988 (12) | 43/M | Coma | PcoA | Tentorium and convexity | Hematoma evacuation and clipping | Good |
| Kondziolka, 1988 (12) | 38/F | Coma | PcoA | Tentorium and convexity | Hematoma evacuation and clipping | Disabled |
| Shinmura, 1989 (20) | 53/F | Coma | MCA | Convexity | Hematoma evacuation and clipping | Disabled |
| Onda, 1989 (16) | 44/F | Semicoma | PcoA | Convexity | Hematoma evacuation and clipping | Disabled |
| Watanabe, 1991 (21) | 51/M | Semicoma | Distal ACA | Interhemispheric and convexity | Hematoma evacuation and clipping | Dead |
| Ragland, 1993 (10) | 27/M | Coma | AcomA | Convexity | Hematoma evacuation | Dead |
| Hatayama, 1994 (6) | 55/M | Semicoma | Distal ACA | Interhemispheric and convexity | Hematoma evacuation and clipping | Good |
| Hatayama, 1994 (6) | 66/F | Semicoma | Distal ACA | Interhemispheric, convexity, and tentorium | Hematoma evacuation and clipping | Disabled |
| Ishibashi, 1997 (8) | 54/F | Headache | PcoA | Tentorium and convexity | Hematoma evacuation and clipping | Good |
| Satho, 1999 (19) | 58/F | Semicoma | PcoA | Convexity | Hematoma evacuation and clipping | Good |
| Satho, 1999 (19) | 25/F | Headache | PcoA | Convexity | Hematoma evacuation and clipping | Good |
| Satho, 1999 (19) | 22/F | Coma | PcoA | Convexity | Hematoma evacuation and clipping | Good |
| Nonaka, 2000 (14) | 52/F | Coma | PcoA | Tentorium and convexity | Hematoma evacuation and clipping | Good |
| Ishikawa, 2000 (9) | 62/M | Headache, ptosis | PcoA | Tentorium and interhemispheric | Only clipping | Good |
| Inamasu, 2002 (7) | 28/F | Coma | PcoA | Convexity | Hematoma evacuation | Dead |
| Araki, 2002 (1) | 55/F | Headache, ptosis, semicoma | PcoA | Convexity | Hematoma evacuation and clipping | Good |
| Blake, 2003 (2) | 35/F | Coma | PcoA | Convexity | None | Dead |
| Katsuno, 2003 (18) | 63/F | Headache, nausea, dizziness | Distal ACA | Interhemispheric and convexity | Hematoma evacuation and clipping | Good |
| Koerbel, 2005 (11) | 62/F | Headache, semicoma | Bifurcation of ICA | Convexity | Hematoma evacuation and coiling | Good |
| Gilad, 2007 (5) | 47/M | Nausea, vomiting | AcomA | Sella migrating to spinal canal | Only coiling | Good |
| Weil, 2010 (22) | 51/F | Coma | MCA | Convexity | Hematoma evacuation and coiling | Disabled |
| Present case | 40/F | Headache, nausea, vomiting | PcoA | Convexity | Hematoma evacuation and coiling | Good |

ACA = anterior cerebral artery; AcomA = anterior communicans anterior; ICA = internal carotid artery; MCA = middle cerebral artery; PcoA = posterior communicating artery.
Table is modified from (11).