

Selected Topics: Neurological Emergencies



FALCINE AND TENTORIAL SUBDURAL HEMATOMAS MAY NOT ROUTINELY REQUIRE TRANSFER TO A TERTIARY CARE CENTER

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Abstract—Background: Patients with subdural hematomas (SDH) are frequently transferred to tertiary care centers. Although many prognostic factors, treatment strategies, and outcomes for convexity SDH have been reported, little is known about falcine and tentorial SDH. **Objectives:** To describe features and outcomes of isolated falcine and tentorial SDH. **Methods:** We reviewed clinical/radiographic findings, treatment, length of stay (LOS), and outcome of adult patients transferred to a tertiary care center for acute SDH. Characteristics of patients with isolated falcine/tentorial SDH and outcomes (favorable [discharge to home/acute rehabilitation] vs. unfavorable [death/hospice/skilled nursing facility/long term care]) were assessed with univariate analyses. **Results:** Of 210 patients with SDH, mean age was 69.5 years; 117 were male; 98 (47%) underwent surgical SDH evacuation. Twenty-seven patients had isolated falcine or tentorial SDH, with known traumatic etiology in 23. None of the falcine/tentorial SDH patients required surgery or intubation. Compared with convexity SDH, patients with falcine/tentorial SDH were younger (59.7 vs. 70.9 years, $p = 0.01$), had higher admission Glasgow Coma Scale scores at the referring ($p = 0.01$) and receiving facility ($p = 0.004$), and shorter median intensive care unit LOS (1 vs. 3, $p < 0.0001$). All patients (100%) with falcine/tentorial SDH had favorable outcome vs. 68% with convexity SDH ($p = 0.0005$). **Conclusion:** Isolated tentorial/falcine SDH without associated neurological deficits represent a benign entity among acute SDH, with no need for surgical

intervention, short LOS, and favorable outcome. Our data indicate that for these patients, in the absence of complicating factors, transfer to a tertiary care center may not be routinely indicated. © 2015 Elsevier Inc.

Keywords—subdural hematoma; falcine and tentorial subdural hematoma; triage; transfer; neurocritical care; tertiary care center

INTRODUCTION

Acute subdural hematomas (SDH) are a common consequence of head trauma. Infrequently, SDH can occur without preceding trauma, due to nontraumatic causes such as vascular abnormalities or coagulopathies (1). Most SDH are located over part or the entire convexity of the brain, but they may also occur solely along the falx cerebri (falcine or interhemispheric SDH) or along the tentorium cerebelli (tentorial SDH). Although many prognostic factors, treatment strategies, and outcomes for convexity SDH have been reported, little is known about tentorial and falcine SDH. Falcine SDH have been reported in the literature as rare, with the largest case series reviewing 67 cases of falcine SDH (2). A “falx syndrome” with leg weakness and alteration of consciousness has been described for severe falcine SDH

with usually more than 10 mm thickness (3). For these falcine SDH, the mortality rate has been found to be 10–35% (2,4). However, in neurosurgical and neurocritical care practice, tentorial and falcine SDH seem to be more prevalent than previously thought, a notion that has been suggested by advances in imaging and lower diagnostic threshold by imaging. Published data on clinical characteristics and outcomes of these SDH are scarce.

Due to the anticipated need for neurosurgical treatment, patients with SDH are frequently transferred to tertiary care centers with dedicated neurosurgical specialty teams and neurocritical care units. In general, urgent need for surgical evacuation of an SDH is largely influenced by neurological examination or deteriorating neurological condition, acuity of the hemorrhage, imaging characteristics, and presence of mass effect or elevated intracranial pressure (5). Although surgical treatment for acute SDH is generally recommended for large SDH with midline shift, patients with isolated SDH whose examination is stable and without neurological findings can be managed nonoperatively (1). In the absence of specific guidelines and data on falcine and tentorial SDH, these patients are similarly often transferred to tertiary care centers.

In this study, we describe features and outcomes of isolated falcine and tentorial SDH based on an experience of a tertiary care center. We hypothesize that small isolated tentorial and falcine SDH are associated with favorable outcomes and may not routinely require transfer to a tertiary care center.

PATIENTS AND METHODS

Participants

We conducted a retrospective review of prospectively collected data on all consecutive adult patients admitted to our tertiary care center between January 2009 and March 2012 with a diagnosis of subdural hematoma. All adult patients with isolated, acute SDH were included in the analysis.

Clinical Measures

Baseline demographics, past medical history, comorbidities, clinical and radiographic findings, treatment, discharge disposition, and hospital length of stay (LOS) were abstracted from chart review. All patients received a Glasgow Coma Scale (GCS) score on admission to our hospital, and on presentation to the outside hospital, if applicable. Coagulopathy was defined as admission international normalized ratio (INR) > 1.5. We defined thrombocytopenia as a platelet count < $1.0 \times 10^5/\text{mm}^3$,

and seizure disorder as a past history of seizures with or without seizures as presenting symptom. We measured the degree of midline shift (MLS) in mm at the level of the pineal gland as determined on axial computed tomography (CT) images of the head. The largest diameter of the SDH was determined on axial CT images of the head. In-hospital mortality was reviewed. Outcome parameters included discharge destination, defined as favorable (home or rehabilitation) vs. unfavorable (nursing home, skilled nursing facility, or long-term-acute care facility), hospice, or death.

Statistical Analysis

Univariate analyses were performed to identify distinguishing characteristics of patients with isolated tentorial or falcine SDH. Chi-squared or Fisher's exact test were applied with for categorical variables and Wilcoxon rank-sum test for continuous variables.

All statistical analyses were performed with SAS 9.2 (SAS Institute Inc., Cary, NC). A *p*-value < 0.05 was considered significant.

The study was approved by the local Institutional Review Board, including a waiver for obtaining informed consent to collect and publish data.

RESULTS

Study Population

Between January 2009 and March 2012, 324 patients were admitted to our tertiary care center with SDH. Of these, 210 patients had an isolated, acute SDH and were included in the analysis (see Figure 1). Mean age was 69.5 years (SD 16.2); 117 (56%) were male. Thirty patients (14%) required intubation, and 98 (47%) underwent surgical SDH evacuation. Table 1 outlines the

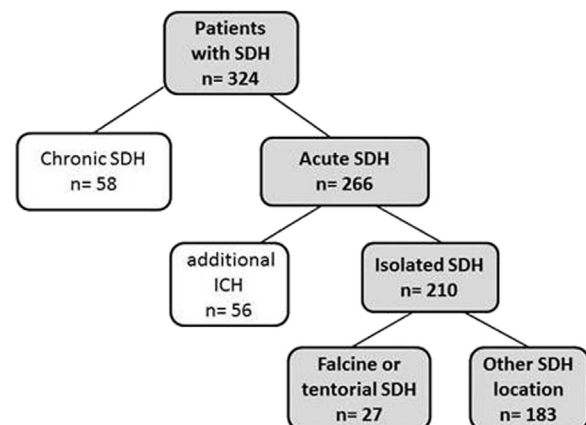


Figure 1. Flow diagram of patients with subdural hematoma (SDH) included in analysis. ICH = intracerebral hemorrhage.

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