



Review article

Spontaneous resolution of traumatic acute subdural haematomas: A systematic review

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ABSTRACT

Introduction: Traumatic subdural haematomas often require emergency surgical evacuation. Spontaneous resolution of traumatic acute subdural haematomas (TASDH) is under-reported. Two patients are described with spontaneous resolution of TASDH correlating with previous reports. A discussion is presented on the clinical, pathological and radiological features of TASDH.

Methods: A review of the literature was performed using PubMed (Medline), Embase, and Cochrane Library for similar cases.

Results: A total 21 articles were included, involving 27 cases well detailed of TASDH with spontaneous resolution or neurological and radiological improvement in less than 24 h.

Conclusions: There are two main mechanisms for the spontaneous resolution of acute subdural haematomas: dilution in subarachnoid space and redistribution of the haematoma in the subdural space. The primary radiological characteristic of these lesions is a hypodense rim on the outer surface of the clot. Spontaneous resolution of TASDH is unusual. Clinical and radiological surveillance is essential for appropriate management of these patients.

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Resolución espontánea de hematoma subdural agudo traumático: una revisión sistemática

RESUMEN

Introducción: Los hematomas subdurales agudos traumáticos (HSDAT) requieren tratamiento quirúrgico de urgencia. Muy raras veces se describen casos de resolución espontánea de HSDAT. Describimos 2 casos de resolución espontánea de HSDAT y revisamos la bibliografía pertinente. Se discuten los aspectos clínicos, patológicos y radiológicos de resolución espontánea de HSDAT.

Palabras clave:

Traumatismo craneal

Hematoma subdural

Hemorragia cerebral

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Métodos: Revisamos la literatura en Pubmed (Medline), Embase y Cochrane Library en busca de casos similares.

Resultados: Se incluyeron 21 artículos con 27 casos bien detallados de HSDAT con resolución espontánea o mejora clínica y radiológica en 24 h.

Conclusiones: Existen 2 mecanismos principales para la resolución espontánea de hematomas subdurales agudos: la dilución en el espacio subaracnoideo y la redistribución del hematoma en el espacio subdural. La principal característica radiológica de estas lesiones es una cerco hipodenso en la superficie exterior del coágulo. La resolución espontánea de HSDAT es rara. La vigilancia clínica y radiológica es esencial para el manejo adecuado de estos pacientes.

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Introduction

Traumatic acute subdural hematomas (TASDH) present high morbidity and mortality rates and require surgical intervention in almost all cases.^{1,2} Mechanism of trauma and associated brain parenchymal injuries contribute to the severity of this complex condition.³⁻⁵

Conservative treatment may be an option in patients whose neurological status is good,⁴ but rigorous clinical and radiological observation are recommended,⁵ and for patients with irreversible neurological damage who are in poor clinical condition.⁶ Because the majority of TASDH are promptly surgically drained, the spontaneous mechanisms for its resolution are possibly underestimated and its natural course is uncertain.

We herein present 2 illustrative cases of TASDH with radiological or clinical improvement in less than 24 h. All patients had a good clinical outcome. Additionally, we review the literature and discuss the possible mechanisms for spontaneous resolution of TASDH.

Methods

We performed a literature review in published case reports in English Language, describing TASDH with improvement or total resolution within 24 h. The search strategy was made using Pubmed, MEDLINE and Cochrane Library databases from January 1980 to December 2013. Keywords from the MESH database were Acute Subdural Hematoma, Resolution, Redistribution and Improvement. Full publications were obtained based on the titles or abstracts selected by at least 2 of the reviewers. All retrieved titles and abstracts were reviewed independently by 2 of the investigators (R.B.V. and P.T.H.F.). Full publications were reviewed to select the studies to be included in the review. Manual searching of reference lists of all retrieved articles completed the article searches.

The inclusion criteria for reports were: (1) patients presenting with TASDH, (2) neurological and or radiological improvement or total resolution of the hematoma within 24 h, (3) cases with documented radiological assessment, (4) conservative treatment and (5) papers published in English. All cases

with non-traumatic hematomas, like coagulopathy and others etiologies, with incomplete patient data and spinal primary hematomas were excluded.

Results

Electronic search found 76 articles. Thirty-four were not selected for non-traumatic etiology of the hematoma, or non-cranial topography or different subject. Among the 42 selected articles, twelve were excluded for missing data, three for neurological improvement or resolution of the hematoma after 24 h, five for non-English article after full review and one for non-traumatic etiology. Thus we included 21 articles involving 27 cases of acute subdural hematomas with spontaneous resolution or neurological and radiological improvement (Fig. 1).

Through the included 27 cases we found 16 (59%) to be male, 14 (52%) of the hematomas on the right side and 12 (44%) due to traffic accidents. The mean age was 36 years, GCS was 9.3 (median 8) and time for neurological or radiological improvement was 6.5 h. Complete data are presented on Table 1.

Illustrative cases

Case 1

This patient was a 21-year-old female who was a victim of a traffic accident, specifically, a motorcycle collision. The patient had a Glasgow Coma Scale (GCS) score of 12, and an initial Computed Tomography (CT) scan disclosed a left fronto-parietal TASDH that was approximately 12 mm at the largest width and a small ipsilateral temporal contusion. She was then referred to our hospital. At the time of arrival (2 h after the trauma) she had GCS score of 14 with isochoric photoreactive pupils. A new CT was performed approximately 6 h after the first, and revealed no subdural collection. The following day, the patient had no symptoms or neurological abnormalities and no TASDH was observed on a CT scan. At a six-month follow-up she remained without complaint and GOS (Glasgow Outcome Scale) 5 (Fig. 2).

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