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A prospective study of chronic subdural haematomas in elderly patients

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Abstract

Objective: to study clinical features and prognosis of older people with chronic subdural haematoma who present to an elderly medicine department rather than a neurosurgical unit.
Design: prospective descriptive study with immediate and 6-month follow-up.
Subjects: patients aged 75 and over with chronic subdural haematoma presenting to an elderly medicine service, selected on the basis of age alone.
Methods: information was taken from inpatient notes and computerized tomographs and, for 6-month follow-up, from outpatient clinics, inpatient notes or via the general practitioner.
Results: the most common presenting features were falls and progressive neurological deficit. 42% of patients were known to be confused before their chronic subdural haematoma. Only 37% of the patients were treated by neurosurgeons. The others were managed conservatively either because they were unfit for surgery or the haematoma was small. There was only one death related to surgery but 31% of patients died within 6 months of diagnosis.
Conclusion: Elderly patients in neurosurgical series are a selected subgroup of older patients with subdural haematoma.

Keywords: *neurosurgery, subdural haematoma*

Introduction

Most studies of chronic subdural haematoma (CSDH) have involved selected neurosurgical patients [1–3]. There are few prospective studies on unselected older medical patients admitted with CSDH, although a recent large retrospective study of older patients in an elderly medicine setting has been published [4].

Subdural haematomata become more common with age [5]. The aim of this study was to investigate risk factors, treatment and prognosis of subdural haematomas in unselected older medical patients.

Method

We prospectively studied patients with the diagnosis of subdural haematoma who presented to the department of medicine for elderly people at Whipps Cross Hospital. This department admits all medical patients aged 75 and over [6]. The hospital serves about 25 000 people aged 75 and over and there are about 4500 admissions per year.

Data were collected at the time of diagnosis, in the fortnight after surgery or start of conservative treatment and 6 months after diagnosis. We collected information at time of diagnosis and on immediate outcome from patient notes. Six-month follow-up was either in the outpatient clinic, from inpatient notes or via the general practitioner. For patients who had died, the cause of death was obtained either from the hospital notes or the general practitioner.

We collected information on the mode of presentation, possible predisposing factors to CSDH and other concomitant illnesses. This included a history of dementia or history of chronic confusion suggestive of dementia. Where possible, we obtained the computerized tomography (CT) request form. We logged details of the CT. Treatment was recorded as either surgery or conservative management. We noted whether steroids were given.

Information on outcome mainly related to functional abilities, residence and clinical recurrence.

Results

Forty-three patients presented over 3 years and 3 months, representing 1.7% of admissions to the department. Seventeen patients were women. No CT was

Table 1. Presenting features of 43 patients with chronic subdural haematoma.

Feature	Number (%)
Falls	32 (74)
Progressive neurological deficit	30 (70)
Head trauma	16 (37)
Transient neurological deficit	9 (21)
Fits	6 (14)
Headaches	6 (14)

reported to show an acute subdural haematoma, although some reports were of fresh bleeding into a CSDH.

The mean age of these patients was 83.8 years. The presenting features are shown in Table 1. All nine of the patients on anti-platelet medication were taking aspirin. One patient had had a ventriculo-peritoneal shunt inserted previously. Twenty-nine CT request forms were available. Eleven of these (38%) recorded '?CSDH' or '?space occupying lesion'.

Sixteen patients (37%) were treated surgically. There was one death related to surgery. Reasons for conservative management included 'thin rim' or small subdural (10 patients) and a neurosurgical or medical decision that the patient was too ill for operation (four).

One patient died soon after the CT scan and one patient had an inaccessible lesion in the tentorial region. All the other patients treated conservatively showed spontaneous improvement at the time of the scan or little change from baseline state. In only one case was spontaneous improvement at the time of CT scan associated with midline shift.

Steroids were used in two cases. In these cases, steroids were used before the CT scan as the initial clinical diagnosis was cerebral metastases. Steroids were withdrawn after the CT diagnosis of CSDH.

Ten patients (23%) had bilateral CSDH. Two had had previous CSDH: one was 10 years previously while the other's had been on the opposite side. Two patients developed recurrences. One of these required surgery.

At 6-month follow-up one patient had moved out of the area and was lost to follow-up. Thirteen (31%) died within 6 months of diagnosis. Only one death, from a chest infection, was related to surgery. In six deaths, chest infection was at least partially causal. In five, the CSDH contributed to death. Twenty-one patients (49%) had either died or had a reduced level of functioning (manifested by needing residential accommodation for the first time or by needing increased help at home). The remaining 21 patients for whom information was available had returned to their premorbid level of function.

Discussion

Most studies of CSDH in elderly patients have looked retrospectively at selected groups, such as those presenting to neurosurgical units [1–3]. These studies do not indicate the basis of selection by neurosurgeons. The only study of an unselected group was retrospective [4]. Our study was selective only in that patients presenting with obvious acute head trauma are admitted to surgical wards. We therefore included patients who did not reach the neurosurgeons because they were not fit for surgery or who died before they could be sent to a neurosurgical centre.

In the studies from neurosurgical centres, all patients received surgical treatment [1–3] and there is no indication of which patients were accepted for surgery. Rozelle and co-workers' retrospective study was of elderly patients in hospital in North Carolina because of CSDH [4]: 22.3% of their subjects did not have surgery but they give no data comparing patients in this group with those who did have surgery. It is possible that we missed patients with CSDH particularly those who presented with features suggestive of an acute severe stroke and no history of head injury who were not well enough for CT scanning. Patients may also have been referred directly by general practitioners to the neurology or neurosurgical service.

In this study, patients with midline shift did badly if they did not have surgical intervention. Four of these patients died of their subdural haematoma and one required long-term rehabilitation before discharge with full care. One patient did well with conservative treatment, returning to his normal level of function, with CT scans showing improvement. Two of those patients with midline shift were amongst those considered unfit for surgery. Most patients with large CSDHs and no midline shift did well without surgery. The North Carolina study [4] did not show that midline shift adversely affected outcome, although it is not clear how these patients were treated. It may be that patients with more premorbid brain atrophy are predisposed to large CSDHs and that patients with smaller CSDH have less atrophy and possibly better function. Patients with smaller subdural haematomas gained no clear advantage from surgery.

Mortality in our study was 31% over 6 months. Six deaths were related to the subdural haematoma itself and the rest to underlying disease. The only comparable study [4] had a mortality of 30.6% during the index admission. This study illustrates the difficulties of studying an uncommon condition. Any study involving randomization of treatment would need to be multicentred and involve collaboration of geriatricians and neurosurgeons. There might also be ethical difficulties in treating patients with midline shift conservatively.

Few CSDHs were suspected clinically. This department is particularly interested in CSDH, but most CT

requests were for possible stroke or rapidly increasing confusion.

Twenty-four percent of our patients were on either anti-coagulants or anti-platelet agents (compared with 26% in the retrospective study in North Carolina [4]). Aspirin may be a risk factor for developing CSDH [7]. We did not have a control group. Whilst this would have provided useful risk factor comparisons, it would have required CT scans of our controls to exclude CSDH. In our group, 42% had pre-existing chronic confusion. This is likely to be an under-estimate, as dementia is sometimes overlooked. No patients had CSDH discovered as a result of investigations of dementia. In no patient, even on retrospective analysis, was a dementing illness of greater than 6 months reversed.

The mean age of the CSDH group was no different from that of other patients admitted to this department (83.8 years in 1996–97). Our group showed a preponderance of men. In younger groups with CSDH there are more men than women, but other studies have showed this male preponderance to diminish with age [1].

We have shown that many older patients with CSDH are not seen in neurosurgical centres. Patients not referred for surgery have smaller CSDH and no midline shift or are considered unfit for surgery.

Key points

- In this study, most elderly patients with chronic subdural haematomas who had midline shift had a poor outcome without surgery.
- Six-month mortality is high in this frail group of patients but only one death was related to surgery.
- In this small group of patients, patients with midline shift seemed to benefit from surgery while those with large subdural haematomas and no midline shift did not.
- Many older patients with chronic subdural haematomas do not reach the neurosurgeons because of their underlying medical conditions or having small haematomas with no midline shift.

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