

Clinical Presentation of Patients with Subarachnoid Haemorrhage at a Local Emergency Department

C M Seet

ABSTRACT

Aim of Study: To assess the clinical presentation of patients with spontaneous subarachnoid haemorrhage (SAH) at a local Emergency Department (ED).

Methods: A retrospective study was conducted on the clinical presentation of patients with spontaneous SAH who presented initially to the ED of the National University Hospital, Singapore and were subsequently admitted for management over a 5-year period from January 1992 to December 1996. The cases of spontaneous SAH over the 5-year period were identified from the following sources: computer records of admitted cases of SAH, surgical intensive care unit admissions and operating theatre records.

Results: Sixty-one patients [42 females (69%) and 19 males (31%)] were reviewed. Their ages ranged from 16 to 86 years with a median of 57 years. All the 61 patients had the diagnosis of SAH confirmed by either computerised tomographic (CT) scan of the head (57 patients), lumbar puncture (3 patients) or cerebral angiogram (1 patient). Thirty patients (49%) had a history of hypertension. Common presenting symptoms were headache (70%), vomiting (61%), giddiness (30%), unconsciousness (28%), syncope (26%) and fits (20%). Physical findings at the ED included elevated blood pressure (34%), neck stiffness (21%), focal weakness (13%), fever (8%) and preretinal haemorrhages (2%).

Conclusion: Patients with spontaneous SAH often present with classical symptoms such as headache or vomiting at the ED locally. Neck stiffness, however, is often not present at the ED.

Keywords: spontaneous, retrospective, hypertension, headache, neck stiffness

INTRODUCTION

Spontaneous subarachnoid haemorrhage (SAH) is a serious condition with a significant rate of mortality and morbidity⁽¹⁾. Patients with this condition often present initially to the Emergency Department (ED) and failure to recognise this condition at the ED can have serious consequences.

A retrospective study was conducted on the clinical presentation of patients with spontaneous SAH who presented initially to the ED of the National

University Hospital, Singapore and were subsequently admitted for management over a 5-year period from January 1992 to December 1996.

MATERIALS AND METHODS

The cases of spontaneous SAH over the 5-year period were identified from the following sources: computer records on admitted cases of SAH, surgical intensive care unit admissions and operating theatre records. Records of the cases identified were traced and reviewed.

RESULTS

Sixty-one patients consisting of 42 females (69%) and 19 males (31%) were reviewed. Their ages ranged from 16 to 86 years with a median of 57 years. Nineteen patients (31%) were less than 50 years of age (Fig 1).

Among the 61 patients, the diagnosis of SAH was confirmed by computerised tomographic (CT) scan of the head in 57 patients, lumbar puncture in 3 patients and cerebral angiogram in 1 patient.

Forty-nine of the 61 patients underwent cerebral angiograms to determine the cause of SAH. The remaining 12 patients did not undergo the procedure as they were either in very poor neurological state or were haemodynamically unstable. The causes of SAH in the 49 patients were: intracranial aneurysm in 43 patients (88%), cerebellar arteriovenous malformation (AVM) in 1 patient (2%) and in 5 patients (10%), no underlying cause was found.

Thirty of the 61 patients (49%) with SAH had a history of hypertension. One had polycystic kidney disease. Other associated medical problems were diabetes mellitus (5 patients), asthma or chronic obstructive lung disease (3 patients), migraine (2 patients), previous cerebrovascular accident (2 patients), previous malignancy (2 patients), Parkinson's disease (2 patients) and systemic lupus erythematosus (1 patient).

Most of the 61 patients had multiple complaints. In 47 patients (77%), the symptoms had developed suddenly. In 6 patients (10%), the symptoms developed over a few hours and in 8 patients (13%), the symptoms developed over a few days.

Among the 47 patients where the symptoms of SAH had developed suddenly, there was a definite stressful or emotional event preceding the SAH in 4

Department of
Emergency Medicine
National University Hospital
5 Lower Kent Ridge Road
Singapore 119074

C M Seet, MBBS, MRCP (UK),
FRCS (Edin) (A&E)
Senior Registrar

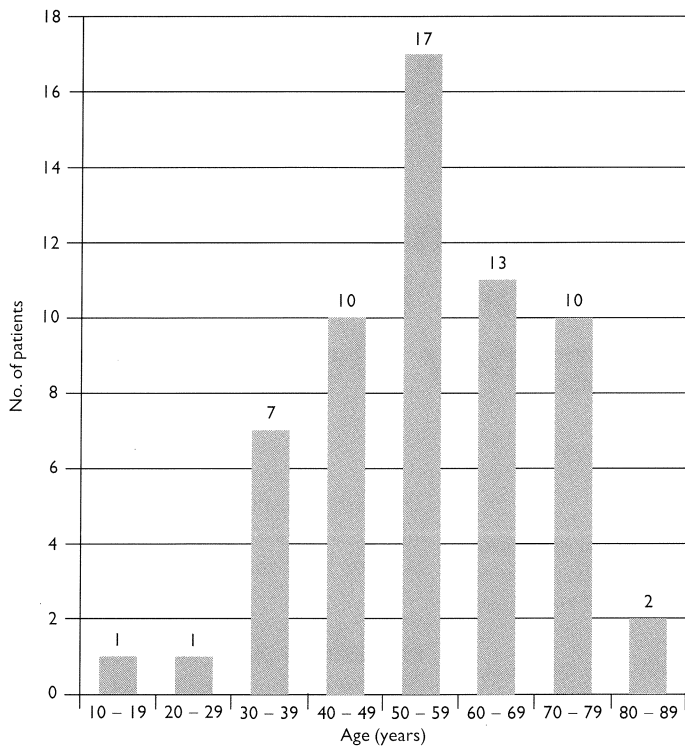


Fig 1 – Age distribution of patients (61 patients).

patients. These included a woman involved in an argument in the market, a teacher scolding her pupils, a woman scolding her aged mother and a woman playing *mahjong*. In 2 patients, the SAH occurred while they were sleeping. They were noted to be unarousable. Eight patients were involved in physical activities such as walking along the road, cooking and in the bathroom when SAH occurred. Three patients were involved in sedentary activities such as watching television and having dinner when SAH occurred. In the remaining 30 patients, their actual activity when the SAH occurred were uncertain although in 8 of them, SAH occurred while they were at work and in 10 of them, it occurred while they were at home.

The most common complaint was headache (Table I) which was present in 43 patients (70%). This was followed by vomiting (37 patients or 61%). Four patients (7%) had nausea without any associated vomiting. Giddiness was present in 18 patients (30%). Seventeen patients (28%) had become unconscious or were found unconscious by relatives or friends. Some of them had complained of symptoms such as headache or vomiting before they became unconscious. Sixteen patient (26%) had syncope and fits were present in 12 patients (20%). Other symptoms included fever (7 patients or 11%), neck pain (6 patients or 10%), confusion (6 patients or 10%), drowsiness (5 patients or 8%), vertigo (3 patients or 5%), chest pain (2 patients or 3%), photophobia (2 patients or 3%), blurred vision (1 patient or 2%), unsteadiness (1 patient or 2%), bilateral hamstring pain (1 patient or 2%) and cough (1 patient or 2%).

The conscious level of the 61 patients on presentation to the ED were as follows: 17 patients (28%) were alert and orientated, 20 patients (33%) were confused or slightly drowsy (responding to verbal stimuli), 15 patients (24%) were more drowsy

(responding to painful stimuli) while 9 patients (15%) were unresponsive.

Twenty-one patients (34%) had elevated blood pressure (systolic BP of more than 180 mmHg or diastolic BP of more than 100 mmHg) at the ED (Table I). Thirteen patients (21%) had neck stiffness and focal weakness was present in 8 patients (13%) at the ED. Five patients (8%) were febrile (temperature of more than 37.5°C) and preretinal haemorrhages were noted to be present in 1 patient (2%) at the ED.

Five of the 61 patients (8%) had sought consultation at the ED previously for their complaints. All were discharged after consultation at the ED. Four of them were discharged with a diagnosis of migraine attack (3 patients) and non-specific headache (1 patient). The records of the consultation of the fifth patient was not available.

In 26 of the 61 patients (43%), the diagnosis of SAH was suspected at the ED. These patients were sent for an urgent CT scan of the head directly from the ED (after appropriate stabilisation at the ED) where the diagnosis of SAH was confirmed. The remaining 35 patients (57%) were admitted to the hospital with various other diagnoses. These included cerebrovascular accidents (9 patients), migraine attacks (3 patients), hypertension (3 patients), meningitis (3 patients), fits (3 patients), head injury (2 patients), myocardial infarction (2 patients), headache for investigation (2 patients), vomiting for investigation (2 patients), unstable angina (1 patient), tension headache (1 patient), viral fever (1 patient), vestibular neuronitis (1 patient), acute confusional state (1 patient) and chest infection (1 patient). The diagnosis of SAH in these 35 patients was eventually made in the wards.

Table I – Symptoms and signs of patients with SAH at the Emergency Department (61 patients)

Symptoms	No. of Patients (%)
Headache	43 (70%)
Vomiting	37 (61%)
Giddiness	18 (30%)
Unconsciousness	17 (28%)
Syncope	16 (26%)
Fits	12 (20%)
Fever	7 (11%)
Neck pain	6 (10%)
Confusion	6 (10%)
Drowsiness	5 (8%)
Nausea (without associated vomiting)	4 (7%)
Vertigo	3 (5%)
Chest pain	2 (3%)
Photophobia	2 (3%)
Blurred vision	1 (2%)
Unsteadiness	1 (2%)
Bilateral hamstring pain	1 (2%)
Cough	1 (2%)
Signs	No. of Patients (%)
Elevated blood pressure	21 (34%)
Neck stiffness	13 (21%)
Focal weakness	8 (13%)
Fever (temperature > 37.5°C)	5 (8%)
Preretinal haemorrhages	1 (2%)

DISCUSSION

Spontaneous SAH is classically described as the occurrence of a sudden, severe headache often associated with vomiting and a short period of unconsciousness. Neck stiffness and the absence of focal signs are frequently described in this condition.

Spontaneous SAH affects females more frequently than males⁽²⁾ and it often affects younger patients⁽¹⁾. In this study, 69% of the patients were females and 31% of the patients were less than 50 years of age.

The 2 most common symptoms in patients with spontaneous SAH in this study were headache (70%) and vomiting (61%). These were consistent with the classical description of spontaneous SAH.

Giddiness was the third most common symptom in this study with complaints from 30% of the patients. This symptom is, however, often non-specific and in the local context, it may refer to anything ranging from dizziness, heaviness of head, unsteadiness, nausea or just a generalised feeling of being unwell.

Twenty-eight percent of the patients were described by relatives or friends as having become unconscious, or, were found unconscious. At the ED, they were either unresponsive or responded only to painful stimuli. Such patients usually have a poor outcome as the neurological status of the patient on presentation is one of the most important prognostic signs in SAH^(1,3).

In contrast, patients with syncope or only a short period of unconsciousness are often conscious by the time they arrive in hospital. Syncope was present in 26% of the patients in this study. It is thought to be due to intracranial pressure approaching mean arterial pressure leading to a fall in cerebral perfusion pressure at the time of rupture and haemorrhage⁽⁴⁾.

SAH is associated with a history of hypertension⁽²⁾. It may also occur with sudden blood pressure surges following events such as sudden emotional stress or strenuous activity^(1,5). SAH is also known to occur during sleep^(1,6) although often, it occurs during normal daily activities⁽⁶⁾. In this study, 30 patients (49%) had a history of hypertension. In 4 patients, there was a definite stressful or emotional event preceding SAH while in 2 patients, SAH occurred while they were sleeping. Many patients in this study, however, were involved in normal daily activities such as walking along the road, cooking, in the bathroom, watching television or having dinner when the SAH occurred.

Although sudden elevation in blood pressure may contribute to SAH, SAH itself may cause a rise in blood pressure^(1,5). In this study, 34% of the patients had elevated blood pressure at the ED. Together with complaints of headache and vomiting, it is not surprising that hypertensive crisis is one of the common misdiagnoses of SAH^(7,8).

Neck stiffness is often described as one of the classical signs of SAH but it was only present in 21% of the patients at the ED in this study. This may be because neck stiffness in SAH may take 3 to 12 hours to develop⁽¹⁾ and in patients presenting

to the ED soon after the event, neck stiffness may not have developed yet. This is a point which doctors working in the ED should note.

Focal signs are uncommon in SAH but they can occur in certain situations such as when the SAH extends to involve the brain substance, when there is compression of brain structures by an intracranial aneurysm or when cerebral infarcts develop due to cerebral vasospasm. In this study, focal weakness was present in 13% of the patients at the ED.

Eleven percent of the patients in this study complained of fever. SAH is associated with fever due to meningeal irritation^(1,5). In this study, 5 patients (8%) were febrile at the ED. The presence of fever and neck stiffness may result in cases of SAH misdiagnosed as meningitis^(7,8).

Preretinal or subhyaloid haemorrhages in the fundus is a sign thought to be almost pathognomonic of SAH^(1,9). They are quoted as occurring in 20% to 30% of SAH⁽⁵⁾. However, in this study, they were noted to be present in only 1 patient (2%) at the ED. This could be because fundoscopic examination of patients at the ED is often not properly or adequately done.

In summary, this study showed that patients with spontaneous SAH often present with classical symptoms such as headache or vomiting at the ED locally. Neck stiffness, however, is often not present at the ED as it takes a few hours to develop.

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