

ORIGINAL RESEARCH

Assessment of Pattern of Presentation of Patients of Chronic Subdural Hematoma at Civil Hospital in Gujarat: A Clinical Study

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Abstract:

Introduction: A large volume of neurosurgical patients are referred from all over Gujarat to our department of Neurosurgery for the management and surgical intervention of patients of chronic subdural hematoma. Hence, the present study was undertaken to assess the pattern of presentation of patients of chronic subdural hematoma at civil hospital in Gujarat.

Materials and Methods: Medical records of all the cases of subacute and chronic subdural hematoma are reviewed and relevant data such as age, sex, location of chronic subdural hematoma, size of lesion, clinical features, previous medical history were analysed over a period of 3 years.

Results: Total number of males in study was 84 and of females was 56. Forty three percent of the patients referred a head trauma in the weeks or months before admission. The commonest antecedents were hypertension, type 2 diabetes, cardiomyopathy and anticoagulation medication intake. Patients presented with headache and instability in the majority of cases. Neurological defects included confusion, motor disturbance and depressed level of consciousness. 75% of the chronic subdural hematoma were able to produce midline shift of some degree and 25% there was no midline shift.

Conclusion: The present study found that majority of patients (68.57%) patients were included in age group 50-60 years followed by 8.57% patients who belonged to age group 60-70 years and 12.85% patients were included in age group 70-80 years. 50% patients presented with headache followed by instability, dizziness, nausea, vomiting and seizures.

Keywords: Chronic Subdural Haematoma; Confusion; Headache.

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INTRODUCTION

Chronic subdural haematoma (CSDH) is an encapsulated collection of fluid, blood and blood degradation products layered between the arachnoid and dura mater coverings on the brain's surface. An early theory about the formation of CSDH was of a traumatic injury causing tearing of the bridging veins traversing from the brain to the draining dural-venous sinuses.^{1,2}

The first description of a chronic subdural hematoma was made in 1658 by J.J. Wepfer, followed in 1761 by Morgagni. A possible case was described by Honore de

Balzac in 1840 including its traumatic origin and surgical treatment. Rudolf Virchow, who detected an inflammatory element and in 1856 named this condition pachymeningitis haemorrhagica interna. The formation of new membranes and the extravasation of fluid in the cavity between these membranes and layers was seen by Virchow as typical of this disease.³

The traumatic etiology of chronic subdural hematoma was recognized in the 20th century; especially by Trotter in 1914.³ It is diagnosed in one or two persons in every 100,000 in the general population per year.^{4,5} The incidence is higher in the elderly (up to 58 per 100,000

in people older than seventy), and in patients with a history of alcohol abuse or coagulation disturbance. Minor head trauma a few weeks before presentation is a common antecedent.^{6,7}

A large volume of neurosurgical patients are referred from all over Gujarat to our department of Neurosurgery for the management and surgical intervention of patients of chronic subdural hematoma. Hence, the present study was undertaken to assess the pattern of presentation of patients of chronic subdural hematoma at civil hospital in Gujarat.

MATERIALS AND METHODS

For the present cross sectional prospective analysis, data from the medical records of 140 patients treated in Department of Neurosurgery, B J Medical Collage and Civil Hospital, Ahmedabad, Gujarat (India) was reviewed and analysed over a period of 3 years. Inclusion criteria comprised of patients aged above 18 years, patients with chronic or subacute; uni or bilateral subdural hematomas; confirmed by cerebral computed tomography scan without contrast enhancement (and addition CT scan is mandatory for patients with chronic subdural hematoma diagnosed using another imaging modality eg. MRI), Markwalder grading scale 1 and 2 for dexamethasone protocol and Markwalder grading scale 3 and 4 for surgical protocol and patients who provided written informed consent from patients or their next of kin according to patient's cognitive status. Exclusion criteria comprised of cases with clinical [GCS \leq 12, motor deficits $<$ 4/5] and radiological signs of severity [midline shift $>$ 5mm, uncal transtentorial herniation, patients with uncontrolled diabetes mellitus, contraindications to dexamethasone, hypersensitivity to dexamethasone, pregnant and nursing women, known peptic ulcer, acute systemic infection, glaucoma, parasitic infection, current or previous history of severe affective disorder and patients unlikely to comply the protocol.

Medical records of all the cases of subacute and chronic subdural hematoma are reviewed and relevant data such as age, sex, location of chronic subdural hematoma, size of lesion, clinical features, previous medical history, method of treatment and complications were recorded for analysis. Upon approval by the Ethical and Research committee of B.J.M.C Medical college and Civil hospital, Ahmedabad Gujarat, the case notes were retrieved from the medical records department of Civil hospital and the research carried out in strict confidence by the author.

The patients were evaluated by non-contrast CT scan, Markwalder Grading scale and Glassgow coma scale and accordingly subjected to specified mode of management.

The subjects were identified since admission, ward notes of patient and the main operation theatre register and their case notes were retrieved from the medical records department and patients with follow up in routine visits. A proforma questionnaire was used to record all the required information. A specimen of which is annexed as appendix.

Upon admission, all patients were graded according to their functional neurological condition. The Markwalder Grading Score is a well-recognized scale that takes into account the presence or absence of neurological symptoms, focal defects and the level of consciousness.⁸

The data collected was entered into the SPSS-version 9 computer software program for processing. Data analysis does not include p-values for statistical parameters since the design of this study and sample size (small N values in subsets) do not allow direct comparisons among the different treatment groups.

RESULTS

In the time period above mentioned 120 consecutive patients with the diagnosis of chronic subdural hematoma were treated in our department.

Total number of males in study was 84 and of females was 56 (table 1).

18 patients were older than 70 years and 26 patients were in age group between 60-70 years. 96 patients were in age group between 50-60 years (table 2).

Forty three percent of the patients referred a head trauma in the weeks or months before admission. The commonest antecedents were hypertension, type 2 diabetes, cardiomyopathy and anticoagulation medication intake. Patients presented with headache and instability in the majority of cases. Neurological defects included confusion, motor disturbance and depressed level of consciousness (table 3 and figure1).

Cranial CT findings were recorded according to laterality and midline shift, thus 120 patients harboured a unilateral chronic subdural hematoma (85.71%) and 20 patients were bilateral (14.28%). 75% of the chronic subdural hematoma were able to produce midline shift of some degree and 25% there was no midline shift.

Table 1: Gender distribution at the time of presentation.

Gender	No.	Percentage (%)
Male	84	60%
Female	56	40%

Table 2: Distribution of Age at the time of presentation.

Age (Years)	No	Percentage (%)
50-60 Years	96	68.57%
60-70 Years	26	18.57%
70-80 Years	18	12.85%

Table 3: Previous history, symptoms and signs at presentation.

Previous History	Symptoms	Signs
60 Previous head trauma	84 Headache	52 Hemiparesis
40 Hypertension	56 Instability	39 Disoriented
17 Anticoagulated	26 Dizziness, nausea, vomiting	39 Depressed level of consciousness
18 Cardiopathy ,valvulopathy	23 Seizures	31 Speech impairment
29 Type 2 diabetes	52 weakness	17 Cognitive impairment
17 Atrial Fibrillation	40 Altered sensorium	5 comatose
20 Previous Stroke	31 Difficulty in speech	
6 Shunt related		
7 Chronic alcohol Abuse		

Figure 1: Symptoms

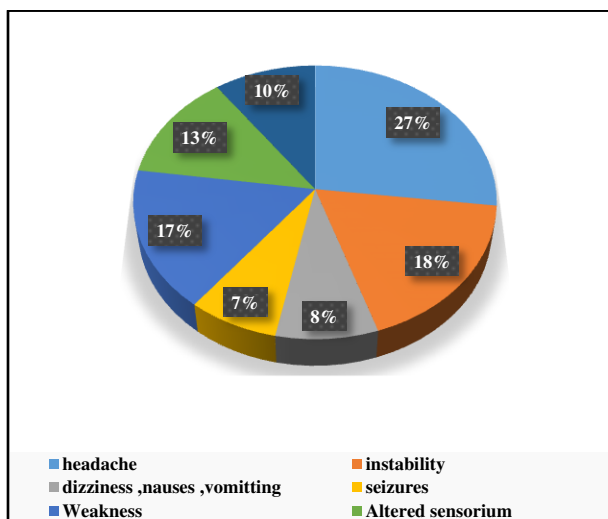


Table 4: MarkWalder grading scale at admission.

Grade	No	Percentage (%)
Grade 0	20	14.28%
Grade 1	20	14.28%
Grade 2	42	30%
Grade 3	48	34.28%
Grade 4	10	7.14%

Table 5: CT Findings.

CT Findings according to Laterality.		
Laterality	No	Percentage (%)
Unilateral	120	85.71%
Bilateral	20	14.28%
CT Findings according to midline shift.		
Midline Shift	No	Percentage (%)
Yes	105	75%
No	35	25%

[Markwalder grading scale: Grade 0: neurologically normal; Grade 1: Alert and oriented, absence of mild symptoms such as headache or mild neurological deficit such as reflex asymmetry; Grade 2: Drowsy or disoriented or variable neurological deficit such as hemiparesis; Grade 3: Stuporous, but responding appropriately to noxious stimuli; several focal signs such as hemiplegia; Grade 4: Comatose with absent motor responses to painful stimuli, decerebrate or decorticate posturing.]

DISCUSSION

In our study the distribution by gender was 84 males (60%) and 56 women (40%) corresponding to 1.5:1 ratio male: female. Cheng SY et al⁹ conducted a retrospective study regarding chronic subdural hematoma in elderly Taiwan patients. The study showed a gradual increase in incidence for each decade with the peak in 8th decade and a male predominance. In this study the distribution by gender was 235 males (68.7%) and 107 females (31.3%). Male: female ratio was 2.2:1.⁹ Faupel G et al conducted double blind study on the effects of steroids on severe closed head injury. Out of 95 patients in this study 73 (81%) were men and 22 (23.1%) were women.¹⁰ Giuffrè et al¹¹ observed a higher incidence of estrogen receptors and progesterone receptors in men rather than in women in their study on hematoma external membrane.¹¹

In our study 68.57% patients were included in age group 50-60 years, 18.57% patients belonged to age group 60-70 years and 12.85% patients were included in age group 70-80 years.

It is well known in chronic subdural haematoma, incidences increase with increasing with age. The atrophy of brain increases with the age and there will be more space available in the cranial cavity to accommodate more blood without much symptoms. Parlato C et al concluded in their study that age more than 70 years, brain atrophy, and absence of increase of intracranial pressure are clinical and radiological signs that allow one to choose conservative treatment.¹²

In our study, 46% percent of the patients referred a head trauma in the weeks or months before admission. The commonest antecedents were hypertension, type 2 diabetes, cardiomyopathy, shunt related complication and anticoagulation medication intake followed by other causes.

Park SH et al conducted a study chronic subdural hematoma preceded by traumatic subdural hematoma preceded by traumatic subdural hygroma. They concluded definite history of trauma could be obtained in majority of the cases. Majority of these cases have mild head injury, although moderate to severe injury could be the causative factor in some cases. Chronic subdural haematoma can evolve from acute SDH or

subdural effusion.¹³

Vuk A et al presented a case report nontraumatic bilateral subdural haematoma caused by antiaggregation therapy. They concluded Chronic subdural haematoma could develop in patients receiving antiplatelet and anticoagulation therapy.¹⁴

Gaslander J et al presented case studies of shunt related complication in NPH and IIIH with VP and LP shunt in male sex, antiplatelet medication, and a lower opening pressure and low pressure shunt at surgery were risk factors for SDH. Physical status and comorbidity were not.¹⁵

In our study, 50% patients presented with headache followed by instability, dizziness, nausea, vomiting and seizures. Patient presented with hemiparesis, disorientation, depressed level of consciousness, speech impairment and cognitive impairment and coma. Bartek Jr J et al conducted a multicenter study and meta-analysis in chronic subdural hematoma patients aged 18-49 compared to patients 50 years and above. Younger patients presented more often with headache (86.5% Vs 37.9%, $p < 0.001$) and vomiting (25% Vs 5.2%, $p < 0.001$), while the patients > 50 years more often presented with limb weakness (17.3% vs 44.8%, $p < 0.001$), speech impairment (5.8% Vs 26.2%, $p = 0.001$) and gait disturbance or falls (23.1% Vs 50.7%, $p < 0.001$). No difference between groups was seen with respect to cognitive deterioration, acute confusion, drowsiness or coma, seizures, incontinence and/or visual disturbances.¹⁶

Cheng SY et al conducted a retrospective analysis of 342 surgical cases Chronic Subdural Haematoma in Elderly Taiwan Patients. These patients were divided into 3 groups according to age Group A- 65-74 years, Group B- 75-84 years and Group C- 85-97 years. The leading clinical symptom was headache in group A (34.8%) and hemiparesis in group B (38.6%) and group C (34.5%). The use of anticoagulant or thrombolytic agents at admission was 17.1% in group A, 10.7% in group B and 21.8% in group C, but the differences were not significant. The most frequent concomitant disease was hypertension with 58.9% in group A, 67.7% in group B and 83.6% in group C followed by coronary artery disease and atrial fibrillation.⁹

CONCLUSION

The present study found that majority of patients (68.57%) patients were included in age group 50-60 years followed by 8.57% patients who belonged to age group 60-70 years and 12.85% patients were included in age group 70-80 years. 50% patients presented with headache followed by instability, dizziness, nausea, vomiting and seizures.

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