



A STUDY OF CLINICAL FEATURES AND SURGICAL OUTCOME OF CHRONIC SUBDURAL HAEMATOMA: A CASE SERIES STUDY

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ABSTRACT

Chronic subdural haematoma (CSDH) is a common condition in late stages of life. Most of the patients are subjected to minor trivial trauma which will end up with a collection of altered blood in the subdural space. This necessitates immediate surgical drainage, with the aim to reduce the mass effect on the brain to alleviate the symptoms and to reverse the condition. Objective to study the clinical profile and radiological profile of patients with chronic subdural haematoma and to study the surgical outcome of the cases. A case series study of twenty patients with chronic subdural haematoma was studied in setting of tertiary hospital in the department of Neurosurgery at Vijayanagara Institute of Medical Sciences, Ballari, Karnataka during the period of June 2014 to May 2015. Among the selected patients the socio-demographic profile, clinical profile, radiological profile and the surgical interventions undertaken and the outcome were noted. The haematoma was removed surgically by burr-holes craniotomy, irrigation and close system drainage. Appropriate descriptive statistics were used to analyse the findings and to draw the inferences. The study included 20 patients, 18 males and 2 females. The mean age was 56.4 years. Computed tomography scan, showed unilateral collection in 85% of patients and bilateral in 15%, only one case showed conning of the brain. The predominant symptoms were headache (80%), Hemiparesis (50%), gait ataxia (25%) followed by seizures, visual disturbances, vomiting. Unilateral burr-hole craniotomy was performed in 85% of the patients, while bilateral was done in 15% of the cases. In the postoperative follow up 95% of the patients showed uneventful recovery. One patient developed complications in the form of postoperative recurrence. Burr holes craniotomy, irrigation and close system drainage, is effective and favor rapid regression of residual subdural collection and associated with fewer recurrences.

INTRODUCTION

A subdural haematoma is a collection of blood below the inner layer of the dura but external to the brain and arachnoid membrane. Subdural haematoma is the most common type of traumatic intracranial mass lesion. A chronic subdural hematoma (CSDH) is a slowly growing encapsulated collection of blood and its breakdown products located between the duramater and the arachnoid. A CSDH is the result of tearing in the bridging veins, usually caused by minor trauma, and its risk factors include atrophy and coagulopathy in the brain [1,2].

Radiologically, a CSDH has been defined, based on the density discovered in the computed tomography (CT) scan, as a hypodense subdural hematoma, compared with parenchyma, and it presents 21 days after trauma [1]. The common occurrence of CSDH in older patients causes a variety of diagnostic and therapeutic challenges because of frequently described nonspecific symptoms and accompanying diseases [1]. The incidence of CSDH increases greatly with age, and its occurrence ranges from approximately 3.4 per 100,000 in patients younger than 65

years of age to 8–58 per 100,000 in those older than 65 years [2,3]. Several surgical techniques were used for its treatment including simple burr-hole drainage with or without close system drainage with variable results. This study was done with objectives of reporting the experience of burr hole craniotomy in treating patients with CSDH and to evaluate the outcome.

METHODOLOGY

A case series study of twenty patients with chronic subdural haematoma was studied in setting of tertiary care hospital in the department of Neurosurgery at Vijayanagara Institute of Medical Sciences, Ballari, Karnataka during the period of June 2014 to May 2015. Ethical approval for the study was obtained from the Vijayanagara Institute of Medical College Ethical Review Committee (ERC). Departmental clearances were obtained and informed consent of the patient’s immediate relatives was obtained. Among the selected patients the socio-demographic profile, clinical profile, radiological profile and the surgical interventions undertaken and the outcome were noted. CT scan confirmed diagnosed cases of CSDH irrespective of their age and sex were included in the study and those cases that got discharged against medical advice were excluded from the study.

Operative technique: Informed consent was obtained from all patients. Surgery was performed after admission all cases two burr holes one frontal and the second in the parietal region were done and washing out the collection with iso-osmotic saline solution and insertion of thin drainage tube size 8 F in the parietal burr hole , connected to close drainage system were performed. The catheter tip was inserted in the subdural space, exteriorized through a separate scalp incision in the retroauricular region .This manoeuver was done on both sides in patients with bilateral lesions. The catheters were removed after twenty four hours or less.

Statistical analysis: The obtained data were analyzed using SPSS version 17. Appropriate descriptive statistics were used to analyse the findings and to draw the inferences.

RESULTS

Majority of them were males with male to female ratio of 9:1 with a mean age of 56.4 ± 15.3 years ranging from 15 to 74 years. Nearly two third of them were in the age group of less than 60 years and remaining 35% of them in the age group of equal to or more than 60 years.

The predominant symptoms were headache (70%), hemiparesis (45%), gait ataxia (25%) followed by visual disturbances (20%), altered behaviour (15%) and seizures (10%). Papilloedema was seen in 45% of the cases. At the time of admission level of consciousness was assessed where in 12 (60%) cases had GCS of 13 – 9, 5 (25%) cases had low GCS of 8 – 3. The origin of the CSDH was determined in 12 patients (60%) and remained unclear in 8 patients (40%). Of the determined cases the causes of the head injuries were a fall (7 cases), traffic accident (1 case), or other accidents (4 cases).

The computed tomography [CT] scan, which was done to all patients, showed a unilateral collection in 17 (85%) of patients and bilateral in 3 (15%). Midline shift was noted in 5 (25%) of patients. Only one case showed conning of the brain. In half of the cases right side of the brain was involved and in 7 (35%) cases left side of the brain was affected. Most of the subdural haematomas were seen in the Frontoparietal (50%) region of the brain followed by Frontoparietoccipital (35%), Frontoparietotemporal (10%) and Frontoparietotemporooccipital region.

Unilateral burr-hole craniotomy was performed in 17(85%), while bilateral bur-hole craniotomy was done in 3(15%) of the patients. In the postoperative follow up, 19 (95%) patients showed uneventful recovery and only patient developed postoperative recurrence for which second surgery was done. Other medical complications were urinary tract infection in one patient. There was no mortality in our cases.

Table 1. Clinical profile of patients (N=20)

Findings		Frequency	Percentage
Sex	Male	18	90.0
	Female	2	10.0
Age in years (mean ± SD) and range		56.4 ± 15.3 (15 - 74)	
	< 60 years	13	65.0
	≥ 60 years	7	35.0
Clinical features*	Headache	14	70.0
	Vomiting	2	10.0
	Hemiparesis	9	45.0
	Seizures	2	10.0
	Gait ataxia	5	25.0
	Visual disturbances	4	20.0

	Altered behaviour	3	15.0
	Papilloedema	9	45.0
Glasgow coma scale	GCS 15 - 14	3	15.0
	GCS 13 - 9	12	60.0
	GCS 8 - 3	5	25.0
Origin	Fall	7	35.0
	Traffic accident	1	5.0
	Other accidents	4	20.0
	Unknown	8	40.0

*Multiple symptoms

Table 2. Radiological Profile of patients (N=20)

CT Scan Findings		Frequency	Percentage
Side affected	Rightside	10	50.0
	Leftside	7	35.0
	Bilateral	3	15.0
Site of SDH	Frontoparietal	10	50.0
	Frontoparietooccipital	7	35.0
	Frontoparietotemporal	2	10.0
	Frontoparietotemperoccipital	1	5.0

Figure 1. CT scan showing right SDH

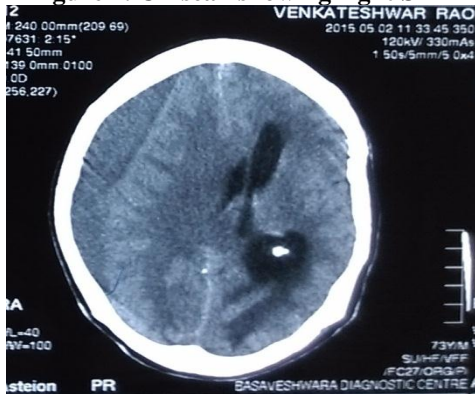


Figure 2. CT scan showing Left SDH

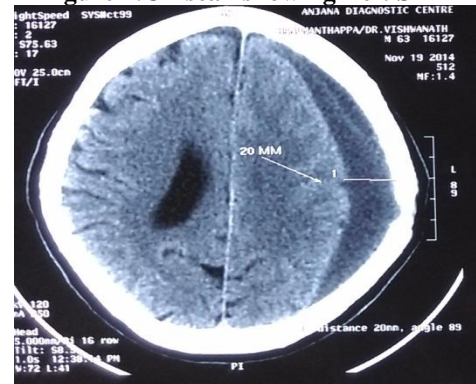


Figure 3. CT scan showing bilateral SDH

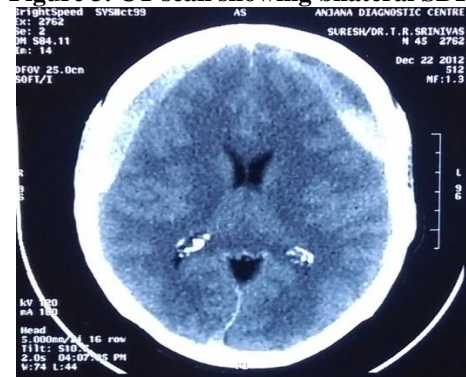
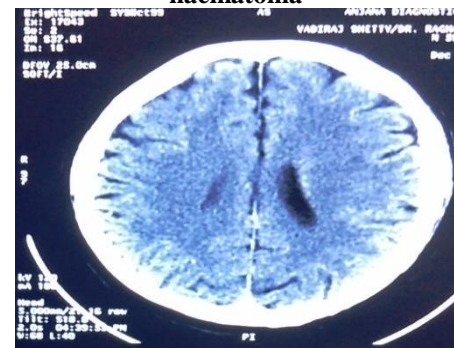


Figure 4. Post-operative CT Scan showing no residual haematoma



DISCUSSION

Chronic subdural haematoma is one of the most common clinical entities in daily neurosurgical practice [3], yet optimal treatment is not well defined and research for efficient surgical solution continues [4]. The common occurrence of CSDH in older patients causes a variety of diagnostic and therapeutic challenges because of frequently described nonspecific symptoms and accompanying diseases [1]. The incidence of CSDH increases greatly with age, and its occurrence ranges from approximately 3.4 per 100,000 in patients younger than 65 years of age to 8–58 per 100,000 in those older than 65 years [2,3]. The incidence increases with age [4,5,6], due brain atrophy, vascular malformation, trivial trauma [7], use of anti-coagulants, alcohol, and chronic medical diseases [8,9,10]. Our study shows similar age preponderance and gender distribution. In the present study the predominant symptoms were headache (75%) and hemiparesis (45%). Similar results were observed in studies done by Sousa et al [11] and Ibrahim M A et al [12] and other studies [3,13,14]. In the present series in all patients the subdural haematoma was removed surgically by burr-holes craniotomy, irrigation and close system drainage. In 95% of the patients recovery was uneventful and only one case had recurrence. The recurrence of subdural haematoma after burr-hole craniotomy and irrigation was reported to be 17% [15], while in Okada study 25% recurrence was found from his 20 patients. In cases where burr-hole craniotomy was supplemented with drainage, a reduction in recurrence rate was reported to be 2% [16] while others demonstrated no difference between the irrigation and drainage groups.

In the present study both techniques were combined and using double burr-hole craniotomy as

adopted by Ibrahim M A et al [12], the results were similar to the drainage group.

A new therapeutic method for the treatment of CSDH without irrigation and replacement of the haematoma with oxygen resulted in a recurrence of 10%. Many factors contribute to recurrence as the presence of thick subdural membrane visualized during surgery, separated type, frontal base type, midline displacement >5mm, volume of haematoma >70 ml and long standing residual air after surgery [5,17,18].

CONCLUSION

Chronic subdural hematomas are common neurosurgical problems associated with significant morbidity and mortality. In our series, headache and hemiparesis were the most frequent symptoms of CSDH. A burr hole with closed-system drainage is a simple, safe, and efficient method for the treatment of CSDH, and it has a low occurrence of complications.

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CONFLICT OF INTEREST

None.

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