ORIGINAL ARTICLE

OUTCOME OF CHRONIC SUBDURAL HEMATOMA PATIENTS TREATED BY TWO BURR HOLES METHOD

Riaz ur Rehman, Azmatullah Khattak, Farooq Azam, Waqar Alam, Anayatullah

Department of Neurosurgery, Hayatabad Medical Complex, Peshawar

ABSTRACT

Background: Chronic subdural hematoma is one of the most common clinical entities in neurosurgical practice especially in elderly. This trial was conducted to study the clinical features and post-operative outcome of two burr-hole evacuation in chronic subdural hematoma.

Methodology: This descriptive study was conducted at Department of Neurosurgery, Hayatabad Medical Complex, Peshawar, from 1st February 2008 to 30th January 2010. Chronic subdural hematoma was diagnosed on CT scan of brain. Surgical technique used was two burr hole aspiration. Patients were followed for one month after surgery. Glasgow outcome scale was used to assess the patients on follow up.

Results: Sixty patients of chronic subdural hematoma were included in this study; 48 males and 12 females. The age range was 30-88 years. Fall was the predominant etiological factor. Forty (66.67%) patients presented with hemiparesis, 38(63.3%) with headache, 30(50%) urinary incontinence and 25(41.67%) with behavior changes. On discharge, 52(86.6%) patients showed excellent outcome. Mortality rate was 6.6%.

Conclusion: Chronic subdural hematoma is common in male and elderly population. Most of the patient present with hemiparesis, headache, behavioral changes and urinary incontinence. Two burr-hole evacuation has excellent outcome with minimal complications.

KEY WORDS: Chronic subdural hematoma, Two burr-hole evacuation, Outcome.

INTRODUCTION

Chronic Subdural Hematoma (CSDH) is one of the most common clinical entities in daily neurosurgical practice especially in elderly.[1,2] Clinical presentation of CSDH is often insidious. Symptoms include decreased level of consciousness, headache, ataxic gait, cognitive dysfunction or memory loss, motor deficit e.g. hemiparesis, headache and aphasia.[3,4]

Thorough history and clinical examination is very important to early diagnosis.[5] Elderly individuals may develop an asymptomatic CSDH.[6,7]

CT scan brain is the choice investigation because it depicts acute hemorrhage and skull fractures well, fast to obtain, and more readily available than MRI. For smaller hemorrhages MRI is the study of choice.[8]

Treatment options include two burr-holes drainage,[9] single large burr-hole drainage,[2] twist drill craniostomy[10] or a small temporal craniotomy.[11]

After successful and timely management, most patients return to their pre morbid level of functioning.[2,12] Complications associated with surgery include re-accumulation of hematoma, seizures, intracerebral hemorrhage, tension pneumocephalus and subdural empyema.[13,14] A mortality rate of 0-8% has been reported.[2,15]

The present study was conducted to study the clinical features and post-operative outcome of two burr-hole evacuation in chronic subdural hematoma.

MATERIAL AND METHODS

It was a hospital based descriptive study which was conducted in the Department of Neurosurgery at Hayatabad Medical Complex, Peshawar, from 1st February 2008 to 30th January 2010. Sixty patients of CSDH were included in this study. Detailed history and clinical examination was done by the time of admission. CSDH was diagnosed on CT scan brain. A Performa was used for the collection of information. Patients with CSDH who were considered for this study were those who were above thirty years with out gender discrimination. Patients with subdural hygroma, subdural empyema, CSDH with under lying brain contusion were not analyzed because these factors would bias our study results.

Surgery was performed either under general anesthesia or local anesthesia. Much irrigation was

done via each burr holes in two burr-hole craniostomy until the irrigation fluid would become clear. No drain was placed in all these cases. All the patients were assessed for improvement in neurological status post operatively. The patients were discharged by third to seventh day after surgery.

Patients were followed in outpatient department at two weeks intervals after operation for one month. Glasgow outcome scale was used to assess the patients on follow up as fallow.

Grade V: Good recovery, resumption of normal life.

Grade IV: Moderate disability, disable but independent.

Grade III: Severe disability, dependent for daily support.

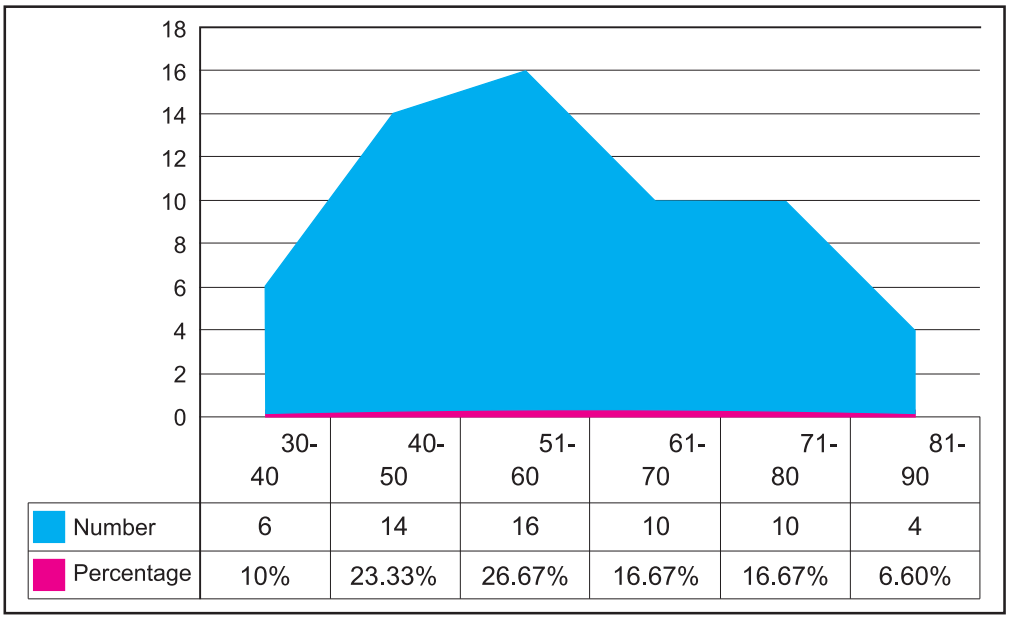
Grade II: Vegetative state, unresponsive and speechless.

Grade I: Death.

The collected information were entered in statistical package of social sciences (SPSS) version 10 and analyzed. Frequency and percentage were calculated for variables like age, sex, mechanism of trauma, clinical features, CT scan findings, complications and postoperative outcome. Results were presented as graphs and tables.

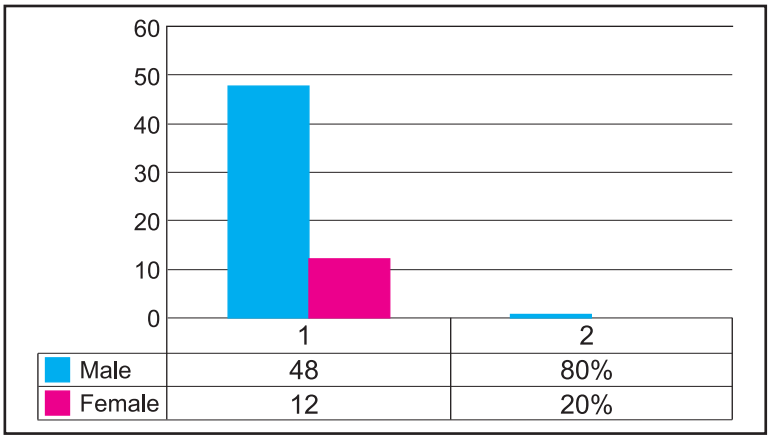
RESULTS

Sixty patients fulfilled the selection criteria. The age range was 30-88 years, with a mean of 63+2.8. Gender distribution was predominantly male 48 (80%).The male to female ratio was 4:1. (Figure 1 & 2)



	30-40	40-50	51-60	61-70	71-80	81-90
Number	6	14	16	10	10	4
Percentage	10%	23.33%	26.67%	16.67%	16.67%	6.60%

Fig. 1: Age distribution of patients.



	1	2
Male	48	80%
Female	12	20%

Fig. 2: Gender distribution of patients.

Predominant cause of CSDH was fall (40%) and 18 (30%) had a history of road traffic accident.18 (30%) patients did not remember any injury to the head when asked after treatment. (Figure 3)

Five patients had deranged bleeding profile. However they were not using any medication that could have altered their coagulation profile. Six patients were hypertensive. Forty (66.67%) patients presented with hemiparesis.

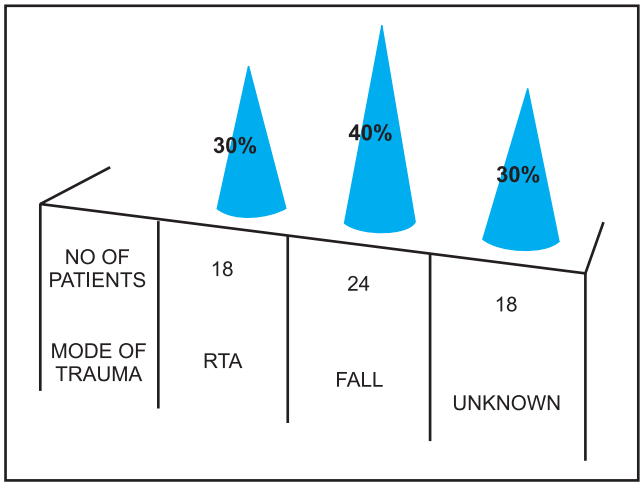


Fig. 3: Mechanism of trauma

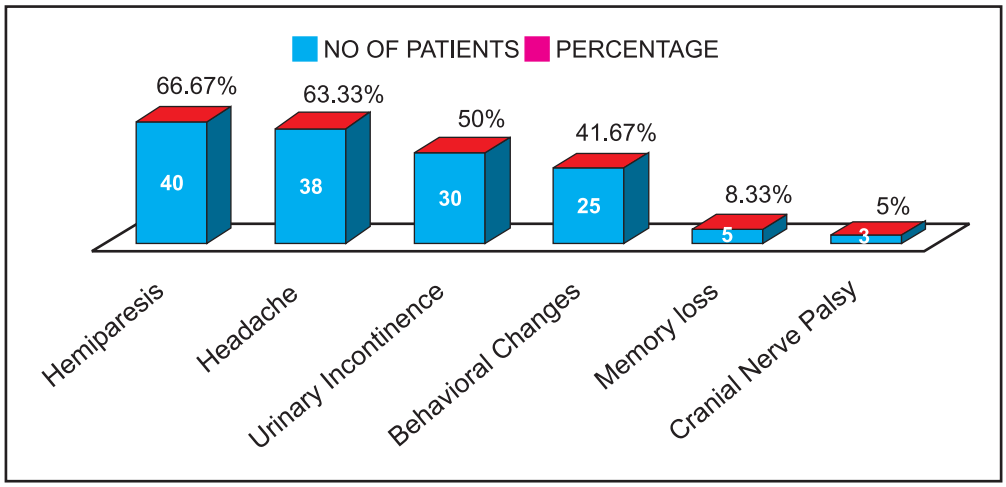


Fig. 4: Clinical status of patients.

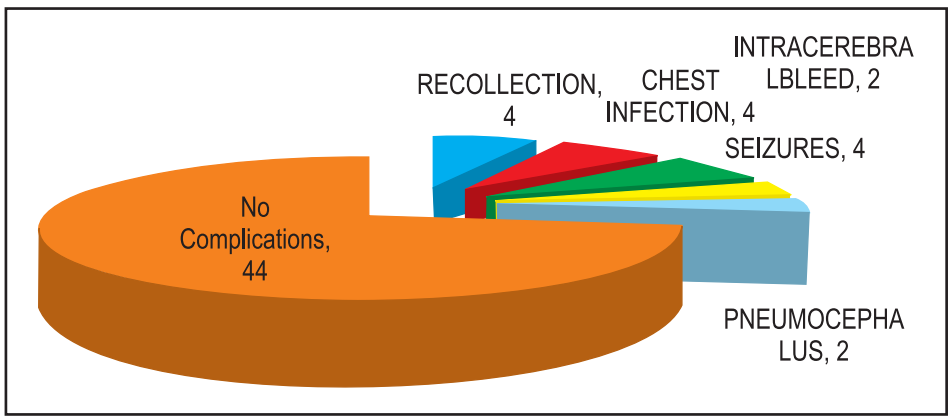


Fig. 5: Analysis of complications..

Thirty-eight (63.33%) patients had a history of headache.

Four (6.6%) patients had a Glasgow coma scale (GCS) 3-7, 28 (46.6%) had 8-12 and 28 (46.6%) patients had GCS 13-15 on presentation.

CT scan of 48 (73.33%) patients showed unilateral hematoma while 16 (26.66%) showed bilateral chronic subdural hematoma.

Four patients were operated twice for recollection. Two patient developed pneumocephalus. They were treated with high concentration oxygen inhalation. Two patient developed intra-cerebral bleed after evacuation of hematoma. They were at the same time hypertensive as well. Their neurological condition deteriorated and both of them died. Four patients developed severe chest infections. Three recovered and one died. Four patients had seizures post operatively and had to be started on antiepileptics.

On discharge, 52 (86.6%) patients showed excellent outcome (Grade V) on Glasgow outcome score, 4 (6.6%) had moderate disability (Grade IV) and 4 (6.6%) patients died (Grade I on Glasgow outcome score).

DISCUSSION

In this study we included 60 patients in order to analyze the clinical features and surgical results of CSDH.

The youngest patient was 30 years of age while the oldest was 84 years old. Forty patients (66.67%) were more than 50 years of age.

Sambasivan M conducted a large study over a period of 30 years, 2300 cases of CSDH were seen and treated. A male preponderance among the cases was seen in a ratio of 5:1.[16] In our study male to female ratio was 4:1.

Twenty-five to seventy percent of the patients would give a positive history of head trauma in the past, while 25-48% would not give any history of head injury in the past.[17-19] Falls and antithrombotic therapy are the most frequent risk factor for CSDH.[20] In our study 70% patients had a history of head trauma, in which 40% had a history of fall while 30% had a history of road traffic accident. There were 30% patients who did not remember the history of head injury. None of the patients had a history of use of antithrombtic therapy.

The most frequent presenting symptoms are headache, changes in mental status, and hemiparesis. CSDH may also present as a transient ischemic attack.[21] It can also present as dysphasia, memory disturbance, hemianopia, dementia, memory disturbances, papilloedema, ataxia, cranial nerve palsies, and meningism.[20, 22] In our series, clinical findings are very much comparable to the above mentioned studies.

Computed tomography is the most useful tool in diagnosing CSDH. It not only reveals the size, site, capsule formation, midline shift and the density of the clot but also the internal architecture.[23] In our study CT scan was done in all the cases; 76.6% had unilateral and 23.3% had bilateral CSDH.

There is no standard method for the treatment of CSDH. However Burr-hole craniostomy is the most commonly performed procedure for decompressing the hematoma within the past 20 years.[24]

The choice surgical procedure of our hospital is two burr hole craniostomy with intraoperative irrigation. In most of our cases, neurological status improved after the surgical treatment.

Post-operative complications like recurrence of hematoma, pneumocephalus brain collapse, and intracerebral hemorrhage may occur in some patients. Mortality ranges from 0-8% depending on the preoperative clinical status. Empyema occurs in 2% of patients, especially when the drain is left in place for more than 3 days. In most of the series, long-term epilepsy is a rare complication and patients do not require antiepileptic drugs. The lack of cortical re-expansion, postoperative intracerebral hematoma and tension hydrocephalus are among other complications occurring after surgery. Finally, 10% of the patients will have a permanent neurological impairment.[4,20]

In our series two most important factors that influenced the outcome was chest infection and hypertension. Complications which occurred in our patients are given in Figure 5. The main reasons for reoperation are residual thick hematoma membranes followed by re-accumulation of subdural fluid or re-bleed.[25] In our patients there were 6.6% deaths, 6.8% had moderate disability and 86.6% had excellent outcome. The overall outcome of two burr-hole craniostomy in our study was very much satisfactory.

CONCLUSION

Chronic subdural hematoma is common in male and elderly population. Most of the patient present with hemiparesis, headache, behavior changes and urinary incontinence. Two burr-hole evacuation has got excellent outcome with minimal complications.

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Corresponding author:

Dr. Riaz ur Rehman

Al-Noor Drug Agency

Small Industrial Estate, Kohat Road

Peshawar, Pakistan

E-mail: drriazurrehman@yahoo.com