

Chronic Subdural Hematoma, Review of 30 Cases Managed at DHQ Teaching Hospital, Sahiwal Medical College, Sahiwal

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ABSTRACT

Chronic subdural hematoma (CSDH) most commonly occurs in elderly patients. Our aim was to examine the incidence, clinical presentation, causes (pathology), mode of surgical treatment and final results in patients with chronic subdural hematoma were identified. The chances of chronic subdural hematoma were always more in old age patients. Head trauma i.e. fall & road side accident was the cause in 76.66% and etiology was not known in 23.33% of patients. The common clinical presentation was headache, vomiting, altered conscious level (60%) and neurological deficits (50%). All the patients (100%) were operated while one patient died after surgery.

Key Words: Chronic subdural hematoma, shunt surgery, neurological deficit.

INTRODUCTION

Chronic subdural hematoma is one of the commonly occurring disease neurosurgeon faces during his life.^{1,2,3,16} It affects mainly elderly people.² The incidence of chronic subdural hematoma may increase in future as the world population is growing older and it is disease of old age. They occur bilaterally in 20% of the cases and for some unknown reasons, affect male gender more often.^{5,6}

Being more common in elderly patients, a reasonable percentage of patients have chronic medical illnesses e.g. hypertension, diabetes, cardiac diseases and many of them are on anticoagulants.

Often reported symptoms and signs include headache, mental changes, hemiparesis, papilloedema, depressed conscious level,⁹ those of increased intracranial pressure being more common among the relatively younger age group.⁹ Chronic subdural hematoma is not a benign disease, its surgical & overall mortality ranging from 0 to 32%^{5,13} and recurrence rate from 0.36% to 33.3%.¹¹

There are lot of surgical procedures available to treat subdural hematoma i.e., burr-hole craniostomies, craniectomies.¹² Some surgeons make one burr-hole, others prefer to make two over the same hematoma.^{7,8} Majority of the neurosurgeons prefer two burr-hole craniectomies with a drain.

In our department two burr-hole craniectomy with a soft drain in subdural space had been the first line operative technique for the treatment of chronic subdural hematoma.

MATERIAL AND METHODS

Thirty patients with CSDH were treated by two burr-hole craniectomy with close-system drainage technique from July 2007 to June 2013. Twenty eight patients were elderly, two were relatively young. The neurological and general status of each patient on admission and at discharge was assessed by Glasgow Coma Scale. We collected data including etiological factor, clinical presentation, risk factors & concomitant diseases, CT scan brain, mode of treatment, and final outcome.

CT scan brain was done in all patients to confirm the diagnosis and, postoperatively as needed. CT scan was repeated at six months follow up as well. The routine laboratory tests including clotting profile, ECG and X-Rays chest done as part of pre-operative assessment. Surgery was performed after ETT general anesthesia in all patients. The surgical technique involved two burr-holes focusing the site of collection. The dura matter was coagulated with bipolar cautery and a cruciate incision was made. The rims of the dura matter

were coagulated again to secure hemostasis. The outer membrane of hematoma was incised to permit removal of collection. The internal membrane was not removed in any case. The subdural hematoma was evacuated by repeated irrigation with normal saline followed by close-system drain in subdural space. In two cases with bilateral subdural hematoma, the surgical procedure was performed on both sides.

Soft silicon tube as a drain left in subdural space for 2-3 days postoperatively. The duration of keeping the drain depended on its output. Prophylactic antibiotics were also given.

RESULTS

Out of thirty patients, 22 were males and 8 were females. Twenty-eight patients were above 55 years and two patients were above 30 years. Twenty – three (76.66%) patients had history of head trauma i.e. fall and road side accident and seven (23.33%) patients did not have any known cause. The predisposing factors included administration of thrombolytic therapy (15 cases) and chronic liver disease (3 cases). Etiology, predisposing factors and concomitant diseases are summarized in table 1.

Table 1: *Etiology, Predisposing Factors and Concomitant Diseases.*

Etiology, Predisposing Factors. Concomitant Diseases	Number of Patients (%)
Etiology	
Head trauma	23 (76.66%)
Unknown	7 (23.33%)
Predisposing Factors	
Thrombolytic therapy	15 (50%)
Chronic liver disease	3 (10%)
Concomitant Diseases	
Hypertension	15 (50%)
Diabetes mellitus	12 (40%)
Cardiac disease	6 (20%)

The leading signs and symptoms were altered mental status (60%), neurological deficits (50%), headache, vomiting (table 2). Eighteen patients had GCS more than 13, eight patients had GCS 10 – 12

and four patients had GCS below 10 preoperatively.

The subdural collection was on one side i.e. unilateral in 28 cases and both sides i.e. bilateral in 2 cases.

No complication occurred during surgery and one patient died in the hospital due to chest infection. None of the patients needed second operation and all showed good response in the follow up weeks and months.

Table 2: *Clinical Features.*

Symptoms & Signs	No. of Patients (%)
Altered mental status	18 (60%)
Neurological deficits e.g. Hemiplegia Gait disturbances, speech defect	15 (50%)
Headache & vomiting	12 (40%)
Seizures	4 (13.33%)

DISCUSSION

Chronic sub dural hematoma (CSDH) is collection of blood in the subdural space which usually gets liquefied and gradually increases in volume leading to the appearance of neurological changes/deficits and other symptoms in affected patients almost within three weeks of injury.¹⁴ Atrophic changes in the brain and flimsy nature of venous system are important associated factors. As brain gets older, its weight reduces up to 200 grams which leads to 11% decrease in extra cerebral space.²⁴ This leads to free movements of the brain within the skull. The stretched veins and freely moving brain because of atrophic changes leads to bleeding in the subdural space even after trivial trauma.

Different ratios between male and female has been observed in various studies. Because of more outside activities and exposure to injuries, males are more affected than females. This may also be due to the fact that less number of females get medical treatment and females may be more protected by the affects of estrogens on capillaries.¹¹ In our study male to female ratio was almost 3:1 while in a series by H.I. Secer et al,²⁶ male to female ratio was 2.5:1.

Trauma is an important factor in the formation of CSDH. In this series, 76.66% of patients had head trauma while in a study by H.I Secer et al,²⁶ it was 75.6%. In some series head trauma was present in 65% of patients as the cause of CSDH.^{20,22} The first

predisposing factor in our study was the use of anticoagulants i.e. 50% patients were on thrombolytic therapy. In a series by Tonis and Kafetz,²¹ the incidence was 20% and in Asghar's series patients taking such medication represented 33% of the cohort.¹⁵

Headaches, vomiting, dull sensorium, altered behavior and varying degrees of unconsciousness^{15,16} are the symptoms and signs in different combinations in old age patients. In the series of Mori and Maieda⁹ the most common symptom was gait disturbance followed by hemiparesis. In our study, altered mental status was present in 60% and neurological deficits in 50% of cases.

Headache is less common in elderly compared to young patients. In our study, it was present in 40% of patients while it ranged from 14% to 80% in different series.^{17,21}

Treatment of CSDH has been a topic of controversy. Mekissock et al²³ were the beginners in the surgical management of CSDH by burr-hole craniectomy and drainage with a much reduction in death rate. We followed the burr-hole craniectomy with soft drain in subdural space as operative procedure in our patients with very good results and without any operative complications. The conscious level at the time of discharge is important factor showing the good results.²⁵ Functional results have been satisfactory in 72% to 95% of recent series.^{9,18,19}

We obtained functional and radiological good results in 96.68% of our patients while it was 73% in a study by H. I. Secer et al.²⁶ The death rate of surgically managed CSDH patient in different series varies from 1.5 to 25%.^{18,19} In our study mortality rate was 3.33% while in study by H. I. Secer et al²⁶ it was 13.33% and majority was because of concomitant medical diseases. One of our patients who died after surgery was hypertensive and diabetic. As a whole, with increased age, morbidity and death rate increases and associated different medical illnesses do play a poor prognostic role in the final output of patients as it happened with one of our patients.

CONCLUSION

Chronic subdural hematoma is neurosurgical disease with high morbidity and death rate. Two burr-hole craniectomy in combination with soft tube in subdural space is a simple, safe and effective mode for the surgical management of CSDH. The most common cause of mortality in the surgery of CSDH is concomitant diseases and systemic complications in post-operative

period. In our experience the significant prognostic factors are the general medical condition, neurological status especially the conscious level and Glasgow coma scale (GCS) at the time of diagnosis and preoperative period.

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References

1. Hayashi T. Comment of reference Fujisaw. *Neurological Medico-Chirurgica*. 2006; 46: 338-9.
2. Maurice Williams RS Kitchen ND. The scope of neurosurgery for elderly people. *Age and Ageing*, September, 1993; 22 (5): 337-42.
3. Senturk S, Guzel A, Bilici A, Takmaz I, Guzel E, Aluculu MU, et al, CT and MR imaging of chronic subdural haematomas: a comparative study. *Swiss medical weekly*, 2010; 140 (23-24): 335-40.
4. US census bureau. Population profile of the United States, International Data base.
<http://cens.gov/ipc/www/idb/index/php> (Accessed 7 and 9 November 2010).
5. Beachli H, Nordmann A, Bucher HC, Gratzl O. Demographics and prevalent risk factors of chronic subdural haematoma: result of a large single-center cohort study. *Neurosurgical Review*, 2004; 27: 263-6.
6. Khadka NK, Sharma GR, Roka YB, Kumar P, Bista P, Adhikari D, et al. Single burr hole drainage for chronic subdural haematoma. *Nepal Medical Journal*, 2008; 10 (4): 254-7.
7. Han H-J, Park C-W, Kim E-Y, Yoo C-J, Kim Y-B, et al. One vs. two burr hole craniostomy in surgical treatment of chronic subdural hematoma. *Journal of the Korean Neurosurgical Society*. August, 2009; 46: 87-92.
8. Kansal R, Nadharni T, Goel A, Single versus double burr hole drainage of chronic subdural haematomas, a study of 267 cases. *Journal of clinical Neuroscience*. April, 2001; 17 (4): 428-9.
9. Mori K, Maeda M. Surgical treatment of chronic subdural hematoma in 500 consecutive cases: Clinical Characteristics, Surgical outcome complications and recurrence rate, *Neurologia Medico Chirurgica*, 2001; 41: 371-81.
10. Miranda LB, Braxton E, Hobbs J, Quigly MR. Chronic Subdural hematoma in the elderly: not a benign disease. *Journal of Neurosurgery*. January, 2011; 114: 72-6.
11. Sambasivan M. An overview of chronic subdural hematoma: experience with 2300 cases. *Surgical Neurology*, 1997; 47: 418-22.

12. Weigel R, Schmiedek P, Krauss JK. Outcome of contemporary surgery for chronic subdural hematoma: evidence-based review, *Journal of Neurology, Neurosurgery and psychiatry*, 2003; 74: 937-43.
13. White M, Mathieson CS, Campbell E, Lindsay KW, Murry L. Treatment of Subdural hematomas-A retrospective comparison of mini craniotomy versus burr-hole drainage, *British Journal of Neurosurgery*. June, 2010; 24 (3): 257-60.
14. Apfelbaum RI, Schulman K, Experimental production of subdural hematoma. *J Neurosurg*. 1974; 40: 336-46.
15. Asgher M, Adhiyaman V, Greenway M W, Bhomik BK, Bates A. Chronic subdural hematoma in the elderly_a North Wales experience. *J R Soc Med*. 2002; 95: 290-2.
16. Camerron MM, chronic subdural hematoma, a review of 114 cases. *J Nerol Neurosurg Psychiatry*, 1987, 41: 834-9.
17. Fogelholm R, Heiskanen o, Waltimo o, Chronic subdural hematoma in adults: influence of patients age on symptoms, signs, ad thickness of haematoma. *J Neurosurg*. 1975; 42: 43-6.
18. Gelabert-Gonzalez M, Lopez gerica E, Chronic subdural hematoma treated by burr holes and closed drainage system:a review of 630 cases. *Med principles pract*. 2001; 107: 41-7.
19. Gelabert-Gonzalez M, Iglesias-pais M, Garcia-Allut A, Martinez-Rumbo R. Chronic subdural hematoma: surgical treatment and outcome in 1000 cases. *Clin Neurol Neurosurg*. 2005; 10: 41-7.
20. Hamilton MG, Frizle JB, Tranmer BI, Chronic subdural hematoma: the role of craniotomy reevaluated. *Neurosurgery*, 1993; 33: 67-72.
21. Jhones S, Kaftez K.A prospective study of chronic subdural hematoma, *Neurosurgical ageing*, 1999; 28: 519-21.
22. Kotwica Z, Brezezinski J: Clinical pattern of chronic subdural hematoma. *Neurochirurgia*. 1991; 34: 148-50.
23. Mckiosk W, Richardson A, Bloom WH, Subdural hematoma: a review of 389 case. *Lancet*, 1960; 1: 1360-5.
24. Misra M, Salazar JL, Bloom Dm, Subdural peritoneal shunt: treatment for bilateral chronic subdural hematoma. *Surgical neural*, 1996; 46: 378-83.
25. Rozzele CJ, Wofford JL, Branch CL. Predictions of hospital mortality in older patients with subdural hematoma. *J Am Gariatr Soc*. 1995; 43: 240-4.
26. H I Seceret. Al. Chronic subdural hematoma treated by two burr-holecraniostomy and closed-system drainage in elderly patients' *Nervous Sys Surgery*, 2008; 1 (4): 220-228.

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