

Reversible Dementia in victims of Chronic Subdural Hematomas

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ABSTRACT

Objective: The objective of this joint study was to offer the prompt surgical treatment to all diagnosed victims of Reversible dementia with chronic subdural hematomas in our population. Evaluation was based upon comparison of their Pre and Postoperative MMS scoring and HDS-R grading.

Materials and Methods: This study started in June 2013 and is currently ongoing at the Services Institute of Medical Sciences with its allied Services Hospital, Lahore as a joint venture principally between the departments of Neurosurgery and Neurology. We included 30 cases in this study.

Results: Out of 30 cases there were 25 (83.3%) males and 05 (16.66%) females patients. Twenty five out of 30 victims (83.3%) were suffering from dementia pre operatively. Twenty out of these patients (80%) recovered fully and three patients (10%) partially. 02 patients (6.6%) neither improved nor deteriorated. Twenty eight out of 30 victims underwent surgical evacuation by burr holes with closed drainage system under general anesthesia (91.1%) and 2 under went under local anesthesia (6.6%) due to their co-morbid conditions.

Complications: There was no noticeable mortality. One patient complained of post operative pyrexia with convulsions (%) and was managed satisfactorily by conservative treatment. Another patient complained of headache for 3 days which was also managed conservatively pie diagram – II. There was no intracranial wound infection in our study.

Conclusion: It was concluded that there was marked post operative improvement in patient's memory, behavior and neurological status. This was established by proper recording, documentation and comparison of their pre and post operative MMS scoring and HDS-R grading system. It is recommended that the victims of chronic subdural hematomas should be offered prompt evacuation to improve their neurological status.

Key Words: Reversible dementia, chronic subdural hematomas.

Abbreviations: MMS: Minimal mental state. HDF – R: Hesagawa Dementia Scale – Revised. CSDH: Chronic Subdural Hematoma. ICP: Intra Cranial Pressure. OPD: Out Patient Department. ADL: Activities of Daily Living.

INTRODUCTION

Very little is found in literature, especially, in our population regarding reversible dementia due to chronic subdural hematomas. The reported annual incidence of CSDH is approximately 0.001 – 0.002%.⁹ A steady increase in incidence has been observed in developing countries due to rise in life expectancy, the incidence reaching 0.0074% in over 70's age group.¹⁰ In neurosurgical departments, commonly three operable causes of dementia are recognized: Normal Pressure hydrocephalus, frontobasal located meningiomas and chronic

subdural hematomas.⁶ In comparison, in our ongoing study until now, we did, not find any frontobasal meningioma; may be in future, we may find such case.

Dementia is a common neurosurgical, neurological, neuropsychiatry and medical and allied problem. It is generally subdivided into irreversible and reversible etiology. We present a total No. of 30 cases of reversible dementia in victims who presented to neurosurgery, Neurology, Neuropsychiatry, medical and allied departments at Services Institute of Medical Science / Services hospital Lahore with chronic sub dural hema-

tomas. This is an ongoing study as a joint venture between Departments of Neurosurgery and Neurology at the services Hospital Lahore. Minimal mental state (MMS) and Hasegawa dementia scale – Revised (HDS-R) grading (appendix – I and appendix – II). was marked improved in post-operative cases of chronic subdural hematomas – one of the major cause of reversible dementia in victims of head injuries with chronic subdural hematomas. Patients who present

with dementia and chronic subdural hematomas should be promptly offered surgical evacuation to improve their dementic ailments including memory, behavior and neurological deficits.

OBJECTIVE

The objective of this joint study was to offer the prompt surgical treatment to all diagnosed victims of

Appendix 1: Hasegawa’s Dementia Scale – Revised (HDS-R).

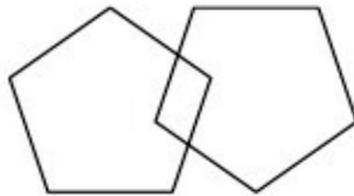
1. How old are you? (+/- 2 yrs.)		0	1
2. Year, month, date, day? <i>1 point each.</i>	Year	0	1
	Month	0	1
	Date	0	1
	Day	0	1
3. What is this place? <i>Correct answer in 5 sec.: 2 points</i> <i>Correct choice between “Hospital? Office?”</i>		0	1
		0	1
		0	1
		0	1
4. Repeating 3 words. <i>1 point each. (To use only one version per test.)</i>	a)		
	Version A. “a) Cherry blossom b) Cat c) Tram”	b)	0 2
	Version B. “a) Plum blossom b) Dog c) Car”	c)	0 1
5. 100-7=? <i>If correct, 1 point.</i> <i>If not: skip to them #6.</i> <i>Repeat 3-5-2-9 backwards.</i>		0	1
		0	1
		0	1
6. Repeat 6-8-2 backwards. <i>If not: skip to them #7.</i> <i>Repeat 3-5-2-9 backwards.</i>		0	1
		0	1
7. Recall 3 words. For each words <i>2 points for spontaneous recall.</i> <i>1 points for correct recall after category cue</i>	a)	0	1
	b)		
	c)	0	1
8. Show the unrelated common object, then take them back and ask for recall. <i>1. point each.</i>		0	1 2
		0	1 2
		0	1 2
9. Name all vegetables that come to mind. <i>No time limit. May remind once.</i> <i>Terminate when there is no further answer after a 10^lsec. interval. For each vegetable name after the 5th one: 1 point.</i> 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____		0	1 2
		3	4 5
Total score		0	1 2
		3	4 5
		/30	

Appendix – II

The Mini-Mental State Exam

Patient _____ Examiner _____ Date _____

Maximum	Score	
5	()	Orientation
5	()	What is the (year) (season) (date) (day) (month)? Where are we (state) (country) (town) (hospital) (floor)?
3	()	Registration Name 3 objects: 1 second to say each. Then ask the patient all 3 after you have said them. Give 1 point for each correct answer. Then repeat them until he/she learns all 3. Count trials and record. Trials _____
5	()	Attention and Calculation Serial 7's. 1 point for each correct answer. Stop after 5 answers. Alternatively spell "world" backward.
3	()	Recall Ask for the 3 objects repeated above. Give 1 point for each correct answer.
2	()	Language Name a pencil and watch.
1	()	Repeat the following "No ifs, ands, or buts"
3	()	Follow a 3-stage command: "Take a paper in your hand, fold it in half, and put it on the floor."
1	()	Read and obey the following: CLOSE YOUR EYES
1	()	Write a sentence.
1	()	Copy the design shown.



_____ Total Score
ASSESS level of consciousness along a continuum _____
Alert Drowsy Stupor Coma

"MINI-MENTAL STATE." A PRACTICAL METHOD FOR GRADING THE COGNITIVE STATE OF PATIENTS FOR THE CLINICIAN. *Journal of Psychiatric Research*, 12(3): 189-198, 1975. Used by permission.

Reversible dementia with chronic subdural hematomas in our population.

Evaluation was based upon comparison of their Pre and Post operative MMS scoring and HDS-R grading.

MATERIALS AND METHODS

This study is currently ongoing at the Services Institute of Medical Sciences with its allied Services Hospital, Lahore as a joint venture principally between the departments of Neurosurgery and Neurology. SIMS is a busy tertiary care medical centre in the heart of the



Fig. I: NCS and EMG Machine.

city of Lahore - capital of biggest province of Punjab of Pakistan. It is well equipped with all latest facilities of radiological particularly neuroradiology including CT scan, Nerve conduction studies (NCS) and Electromyography (EMG) Fig. I. It caters referral cold and

emergency cases regularly not only from the Lahore but also far flung areas within the Pakistan. It provides both under and postgraduate education and training to under and post graduate trainees (PGTs). It carries both Medical and Surgical ICUs with ventilators, central oxygen supplies and cardiac monitors. It has good coordination among all its major and minor surgical and medical specialties, “a key point” in our study.” This study provides guidelines to the Neurosurgeons, Neurologists, Neuro psychiatry, Medical, Surgical and allied departments for early referral of patients with dementia due to underlying chronic subdural hematomas for prompt surgical evacuation for improvement in their mental and physical status. The victims complete profiles including age, sex, CT scan based findings comprising hematoma location, volume, thickness, midline shift along with documentation of pre and post operative MMS scoring and HDS-R Grading system were recorded in the files of the patients specially by the Neurology along with Neurosurgery department. As per these scale systems 25 out of 30 patients (83.3%) were suffering from dementia pre operatively. Surgery improved not only the patient’s independence in Activities of Daily Living (ADL) but also their Neuropsychiatric functions such as orientation, calculations evident by their documented postoperative

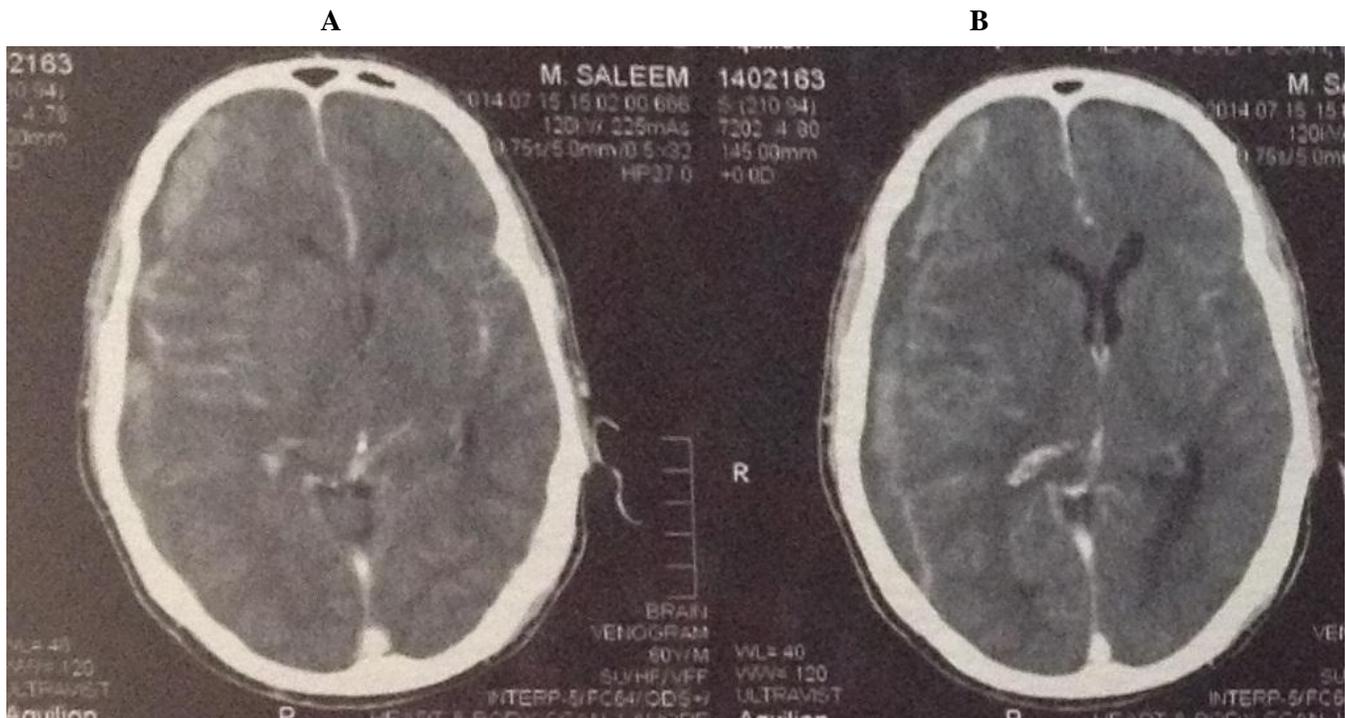


Fig. 2: CT Scan of brain showing right frontoparietal chronic sub duralhematoma with midline shift.



Fig. 3a: Victim of right chronic CSDH post operative with left hemiparesis.



Fig. 3b: Victim of post operative view of improved left hemiparesis.

MMS scoring and HDS-R grading. Factors affecting Neuropsychiatric status on admission were midline shift and ADL. Currently our ongoing study includes victims of chronic sub dural hematomas with dementia who underwent prompt surgical evacuation with closed drainage system by the Neurosurgery department. These patients were taken informed consent for the surgical procedure as well as inclusion in this study.

Patients of both gender were subject to undergo the CT scan of the brain (Fig. 2a and b).

For the diagnosis and surgical proceed by the Neurosurgeons. MMS scoring and HDS - grading system was examined as per Performa (appendix - I and appendix - II) by the neurologist both pre and post operatively. Those patients planned for surgical evacuation of chronic subdural hematomas were transferred to neurosurgical department. All these patients were pre and post operatively followed up in wards and Neurosurgical OPDs at weekly and monthly intervals with refilling of their MMS and HDS-R grading performs. A comparison was established between pre and post operative neuro logical status in all these patients.

RESULTS

Sex Incidence

Out of 30 cases there were 25 (83.3%) males and 05 (16.66%) females patients (Fig. 4).

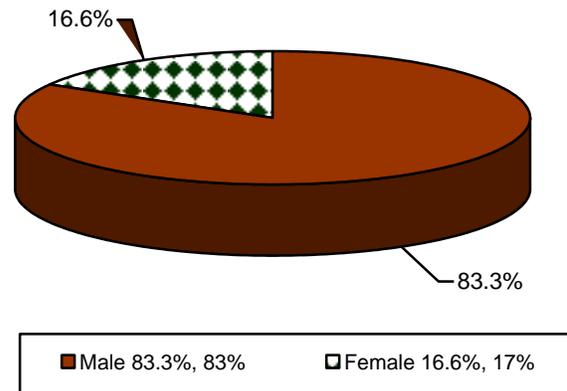


Fig. 4: Sex Distribution.

Clinical Presentation

Twenty five out of 30 victims (83.3%) were suffering from dementia pre operatively (Fig. 5).

Surgical Procedure

Twenty eight out of 30 victims underwent surgical evacuation by burr holes with closed drainage system under general anesthesia (91.1%) and 2 under went under local anesthesia (6.6%) due to their co-morbid conditions.

The closed drainage was usually left in the subdural space for 24 - 72 hrs post operatively and was

then removed successfully as evident in studies also (fig. 3a, b).

Three (3.3%) victims with bilateral chronic subdural hematomas underwent drainage from both sides during the same operation by means of Burr holes placed on each side of the head. The recurrence rate of chronic subdural hematomas at least at 30% remain as per literature,^{1,5} although not found currently in our ongoing study.

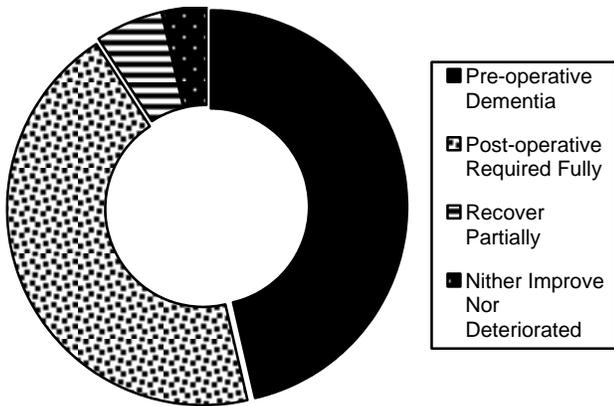


Fig. 5: Outcomes in Dementia.

Outcome

Twenty out of these 25 patients (80%) recovered fully and three patients (10%) partially. 02 patients (6.6%) neither improved nor deteriorated.

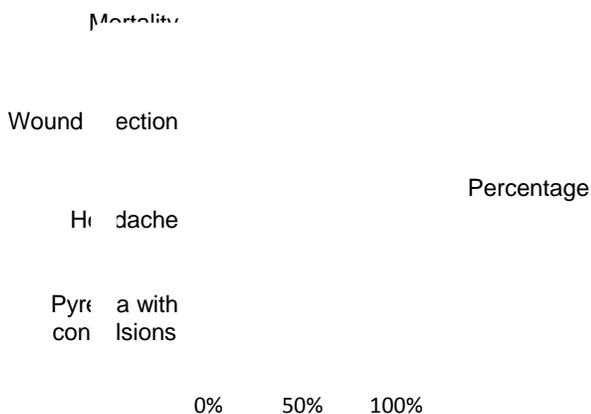


Fig. 6: Complications.

Complications

There was no noticeable mortality. One patient complained of post operative pyrexia with convulsions (%) and was managed satisfactorily by conservative treatment. Another patient complained of headache for 3 days which was also managed conservatively pie diagram – II. There was no intracranial wound infection in our study.

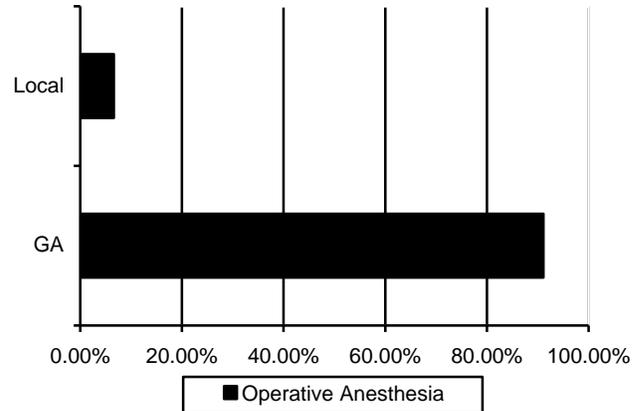


Fig. 7: Operative Procedures.

DISCUSSION

CSDH generally occurs in elderly patients⁶ the average age of onset is 63 years.¹¹ The symptoms include a change in the level of conscious, Psychosomatic regression, headache, vomiting due raised ICP and dysarthria.¹² The symptoms of increase ICP are common among younger age group but local neurological deficit and cognitive impairments are common among old ages.^{6,13} More than 50 illnesses can cause dementia.¹⁴ Subdural hematoma is a common Neurosurgical disorder that often en-require surgical intervention. It is associated with intracranial hemorrhage beneath the dura (essentially a collection of blood over the surface of the brain) Subdural hematomas can be associated with high mortality and morbidity rates even with the best medical and neurosurgical care. They are commonly caused by trauma but can be spontaneous or result from procedure e.g. lumbar puncture.¹

In 1840, the French author Balzac² described a case of chronic subdural hematoma (CSDH), including its traumatic origin and surgical treatment. Bullock et al³ reported that a Subdural Hematoma with a thickness greater than 10 mm or midline shift greater than 5 mm on computed tomography scan should be surgi-

cally evacuated, regardless of patients Glasgow Coma Scale (GCS) score.⁴

A study published in the journal of Korean Neuro-Traumatology Society in 2008⁶ about cognitive impairment in the elderly with symptomatic chronic subdural hematoma on 79 patients from 2005 to 2007 with review of their medical records and analysis done. The instruments used was Korean minimal mental state examination (KMMSE) the result of this study confirmed preoperative cognitive impairments in 43 patients (54.4 %) followed by headache in 34 patients (43.0%), hemiparesis in 31 patients (39.2 %) and dysarthria in 15 patients (20.3%). Simple burr – hole prephination and hematoma evacuation were done in all patients. Preoperative symptoms improved and conclusion was CS-DH is an important reversible cause of dementia in elderly patients and early neuro-imaging evaluation was recommended to allow timely treatment of this condition to avoid poor outcome. This study and our ongoing study findings in a way comparable.

CONCLUSION

It was concluded that there was marked post operative improvement in patient's memory, behavior and neurological status. This was established by proper recording, documentation and comparison of their pre and post operative MMS scoring and HDS-R grading system. It is recommended that the victims of chronic subdural hematomas should be offered prompt evacuation to improve their neurological status.

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