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Single versus double burr holes
evacuation in the treatment of chronic
subdural hematoma.
A tertiary centre experience

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ABSTRACT

Background: Chronic subdural hematoma (CSDH) is a well-known entity and common surgical disorder managed by the neurosurgeon and, if not recognized and treated timely, may prove fatal. It can be non-traumatic or post-traumatic and all of them need urgent attention irrespective of aetiology. It manifests with a progressive neurologic deficit that occurs ≥ 3 weeks following head injury. The principal techniques used in the treatment of CSDHs presently are burr hole, twist drill craniostomy, craniectomy and craniotomy.

Objective: The aim of this study was to assess clinical outcome in unilateral chronic subdural hematoma patients treated by single or double burr-hole drainage. This prospective study was carried out at the Department of Neurosurgery, IMS, BHU, Varanasi from September 2016 to August 2018. A total of 60 patients with their age ranged from 22 to 88 years with GCS 6 to 15 & hematoma thickness 10mm were included in this study and randomly divided into two groups using random allocation software. In group A, patients with chronic subdural hematoma (CSDH) were managed with single burr-hole drainage. In group B, patients were managed with double burr-hole drainage. Clinical outcome was measured on the 1st postoperative day, 3rd postoperative day and 7th postoperative day by GCS and at 1 month follow-up by measuring the Glasgow outcome scale (GOS).

Result: In this study double burr-hole drainage and single burr-hole drainage surgery shows equal success in the management of CSDHs with single burr hole taking less operative time.

INTRODUCTION

Chronic subdural hematoma (CSDH) is a common neurosurgical disorder managed by neurosurgeons and if not recognized and treated timely, may prove fatal. It can be non-traumatic or post traumatic and all of them need urgent attention irrespective of etiology. It manifest with progressive neurologic deficit that occur ≥ 3 weeks following head

Keywords

single burr hole craniostomy (SBHC),
double burr hole craniostomy (DBHC),
chronic SDH (CSDH)



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injury.²Besides clinical suspicion various modalities has been used to diagnose CSDH but CT scan of head is the investigation of choice. CT scan has revolutionized the ways in which patients with CSDH may best be managed. ³Some CSDH known to resolve spontaneously as seen by the existence of calcified "hematomas". Medical management has been advocated for old debilitating patient with CSDH included bed rest, steroids and mannitol but it needs prolonged hospitalization for these patients. ⁴It is a common consensus that operative treatment would be more quickly, safely and effectively remove the mass. ⁵Most of the neurosurgeons prefer to place two burr holes on the side of lesion and irrigate through small silicon catheters to wash out the subdural space with or without use of sterile closed drainage system.⁶Few authors have suggested the use of a single burr hole and thorough irrigation for evacuation of CSDH. Instead of evacuation through a burr hole, evacuation through a twist drill hole in critically ill patients was found to be equally satisfactory by some surgeons.⁷Evacuation of CSDH by craniotomy is also indicated in certain situations and there are few surgeons who feel craniotomy has still a definite role in management of CSDH. Endoscopic evacuation of CSDH can also be done.⁸In the light of current knowledge, there are various methods for surgical evacuation of CSDH. Described by different authors, all the methods have its merits and demerits. It is still debated that which is the best method for CSDH. This study is planned to compare the intraoperative, postoperative complications and outcome of evacuation of CSDH by two different techniques in the same set up ie single vs double burr hole evacuation of CSDH.

MATERIAL AND METHODS

This prospective study was conducted on patients with CSDH, admitted to Trauma Centre and SSH Hospital(Sir Sundar Lal hospital) Department of Neurosurgery IMS, BHU Varanasi, from september2016 to August2018. Total 60 patients were enrolled in the study and divided in two groups .Informed consent was taken from the patients or immediate relatives (first degree) .The patients who underwent single burr hole drainage were labeled as Group A and those with a double burr holes were designated as Group B. Both groups included 'thirty' patients each who presented with diagnosis of CSDH

on Monday, Wednesday, Saturday and on alternate Sundays.

All patients admitted in neurosurgery ward were evaluated by taking detailed history, clinical examination and investigations. Diagnosis of CSDH was confirmed by radiological (CT,MRI) investigation. Incidence of the CSDH was recorded out of all admitted patients in a particular time period. After confirmation of CSDH by CT/MRI scan patients were operated alternatively by single and double burr holes respectively.

Inclusion criteria:

- CT/MRI proved symptomatic cases of CSDH.
- Patients of both sexes and all age groups .
- All the patients who were operated for the first time for the disease (CSDH).
- All CSDH patients with midline shift of 10 mm or more.
- Unilateral chronic SDH patients
- Hematoma thickness of 10 mm or more.

Exclusion criteria:

- Patients with recurrent disease after previous operation.
- Asymptomatic patients with very thin CSDH (conservatively managed)
- ventriculoperitoneal shunt in situ.
- hematological disorder/anticoagulant drug use.
- bilateral CSDH.

Operations by "Two burr holes technique" and "Single burr hole were done under general anesthesia on emergency basis.

PROCEDURE

A written consent was taken from the patient or patient party after explaining the procedure. Patients with CSDH, treated at trauma centre & SSH, BHU Varanasi in a neurosurgical unit during the years September 2016 to August 2018. On admission, in addition to the presenting history, details were obtained regarding previous head injury, alcohol abuse and medication. The patients underwent a neurological examination. Routine laboratory tests, along with a complete coagulation profile and liver function tests, were done. Radiological investigation of the brain ie CT and MRI were the investigation to diagnose the CSDH. The size, extent and density/intensity of the contents of the CSDH were recorded.general anesthesia was given as the

standard modality for anaesthesia. Single and double burr hole procedure were performed randomly. The patients who underwent single burr hole drainage were labeled as Group A and those with a double burr holes were designated as Group B. The surgical procedure was as follows.

Double burr holes technique

Patient lied supine on operation table. Head turned to side on which burr holes were made. Parts cleaned and draped. Two linear skin incision of two to three centimeters for burr holes were given on frontal and parietal region (precoronal and post coronal) along mid papillary line which correspond to maximum thickness of CSDH NCCT head.

After the burr holes were made of dm 2.5 cm each, the dura was opened in a cruciate manner. The dural edges were coagulated completely. The subdural space was liberally irrigated with normal saline till the refluxing fluid started coming out clear. Skin closure was done in two layers with vicryl 2-0 rb and nylon 2-0 cutting sutures respectively.

No post-operative drains were used in our cases.

Single burr hole technique

Patient lied supine on operation table. head turned to side on which burr hole was made. Parts cleaned and draped. Single linear skin incision given after local infiltration along mid pupillary line over parietal bone correspond to maximum thickness of CSDH over NCCT head.

After the burr hole was made of dm 2.5, the dura was opened in a cruciate manner. The dural edges were coagulated completely. The subdural space was liberally irrigated with normal saline till the refluxing fluid started coming out clear.

Skin closure was done in two layers with vicryl 2-0 rb and nylon 2-0 cutting sutures respectively

No post-operative drains were used irrespective the fact whether brain expanded or not.

Post-operative course

Patients advised complete bed rest and were kept supine post-operatively for 3 days. The patients did not receive any specific medication, including steroids, anticonvulsants or excessive hydration. The operative procedure was standardized between the study groups. A repeat CT scan of the brain was performed in all patients on post-operative day 3 to confirm adequate drainage of the CSDH. Patients

were discharged after first Ct scan if no complication was found. In addition, a CT scan of the brain was performed at day 7 and 1-month after evacuation of the hematoma. All patients were followed-up for at least 1 month after surgery. Both clinical and radiological criteria were used to evaluate the recurrence of CSDH.

The clinical criteria suggestive of a recurrence:

- altered level of consciousness
- persisting headache
- appearance of new or worsening pre-existing neurological deficits.

The radiological criteria of recurrence:

- increased volume of subdural fluid
- mass effect on the ipsilateral brain or ventricular system,
- effacement of cerebral sulci to gross subfalcine herniation.

Reoperation in the form of rewashing, craniectomy or additional burr hole was done in cases with recollection/recurrence on post operative NCCT head.

RESULTS

The age ranges from 28 to 88 years in Group A with mean of 58.77 ± 14.29 years while it is 30 to 88 years in Group B with mean age 57.07 ± 15.02 years. Out of total patients 44(73.3%) were males and 16 (26.7%) were females. In Group A, 24(80%) were males and 6(20%) patients were females while in Group B 20 (66.7%) were males and 10(33.3%) patient were females. Headache was the most common presentation in both the groups with total 27 (45%) presented with it out of which 11(36.6%) were in Group A and 16(53.3%) were in Group B followed by Altered sensorium which was presented by 5(16.7%) and 3(10%) patients in Group A and B respectively. Other presentations were Hemiparesis presented in 4(13.3%) and 2(6.7%), aphasia (0%) and (3.3%), coma (10%) and (10%), gait disturbance (6.7%) and (3.3%), visual disturbance (6.7 & 3.3%), incontinence (6.7% & 3.3%) and seizure (3.3 & 6.7%) patients of Group A and B respectively (Figure1).

Trauma was the most common etiology in both Groups with total 48(80%) patients suffered with it. 23(76.7%) in Group A and 25 (80%) in Group B patient gave history of trauma, while 6(20%) and 5 (18.3%) in Group A and B respectively had history of

CVA (cerebrovascular accident). History of AVM (arteriovenous malformation) bleed was presented in one patient of Group A.

Hypertension was the most common associated comorbidity found in 20% of total patients followed by Dementia and Diabetes mellitus (DM) which was found in 15% each in total patients. Other comorbidities were COPD, alcoholic, renal failure respectively. (Figure2)

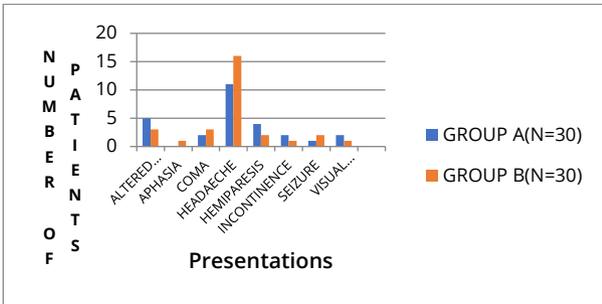


Figure 1.

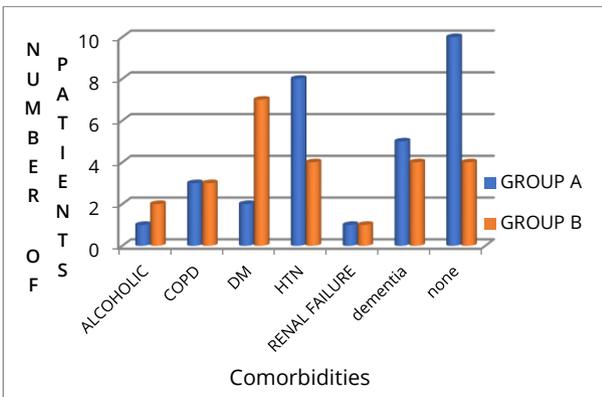


Figure 2.

The Chronic SDH diagnosis was made on CT/MRI brain. The thickness of chronic SDH in Group A ranges from 10 to 18 mm with mean of 14.63 ± 2.46 mm while in Group B the range was also from 10-18mm with mean of 14.43 ± 1.18 mm. The p value for thickness between two Groups was 0.71 which was not significant. Midline shift in Group A ranges from 10-14 mm with mean of 10.80 ± 1.03 mm while in Group B the range was 10-14 mm with mean of 10.67 ± 1.18 mm. The p value for midline shift on comparing two Groups came out to be 0.64 which was not significant. On comparing the characteristics on hematoma membrane between two groups both groups had thin membrane in 26(86.67%) patients and thick membrane in 4(13.33%) patients the p

value for membrane thickness was not significant. (Table 1)

Hematoma characteristics	GR. A	mean	GR. B	mean	P VALUE (two tailed T test)
Midline shift (mm)	10-14	10.80 \pm 1.03	10-14	10.67 \pm 1.18	.64
Thickness(m)	10-18	14.63 \pm 2.46	10-18	14.43 \pm 1.59	.71

Table 1.

During intraoperative period bleeding from the fragile emissary veins occurred in 3(10%) patients of Group A and 1(3.3%) patients of Group B, while brain contusion during opening up of thick membrane occurred in 2(6.67%) patients' of Group A but none in Group B. The brain after evacuation of hematoma not expanded in 4(13.33%) patients of Group A and 3(10%) of Group B while it expanded over time in 26(86.6%) of Group A and 27(90%) of Group B. the P value for intraoperative complications and non expansion of brain was $>.05$ which was not significant.

The mean time for the duration of surgery was 31.13 ± 5.01 min in Group A while in Group B mean operating time was 47.07 ± 4.75 min, showing that the mean operating time in the Group A was significantly less as compare to the Group B. (P value $<.001$).

In Group A (n=30), before surgery, mean Glasgow Coma Scale (GCS) was 11.90 ± 2.76 (SD) where the range of the GCS was 6-15. In Group B (n=30), mean Glasgow Coma Scale (GCS) was 12.83 ± 2.23 (SD) where the range of the GCS was 8-15. So, the difference of mean pre-operative Glasgow Coma Scale (GCS) between the two Groups was not statistically significant (p-value $>.05$).

Patients outcome on day one, three and seven was assessed with GCS. In Group A (n=30), after surgery, mean Glasgow Coma scale (GCS) was 13.00 ± 2.01 (SD), 13.93 ± 1.72 and 14.47 ± 1.01 on day 1, 3 and 7 respectively while it was 13.60 ± 1.67 , 14.00 ± 1.48 and 14.30 ± 1.29 respectively in Group B (n=30). The range of the GCS was 10-15 in both the Groups. So, in post-operative GCS level, there was no significant difference (p-value $>.05$). (Table2)

GCS	GR. A (mean \pm sd)	GR. B (mean \pm sd)	P VALUE
PREOP	11.90 \pm 2.76	12.83 \pm 2.23	0.15
DAY 1	13.00 \pm 2.01	13.60 \pm 1.67	0.21

DAY 3	13.93 ± 1.72	14.00 ± 1.48	0.87
DAY 7	14.47 ± 1.01	14.30 ± 1.29	0.58

Table 2.

Clinical outcome of patients at one month on follow up was measured using Glasgow Outcome Scale(GOS) .In Group A 17 (56.7%)&8(26.7%)had GOS of 5 &4 respectively while in Group B

15(50%)&8(26.7%) had gos of 5&4 respectively which is considered favorable GOS score, while GOS of 3 was present in 4(13.3%) patients in Group A and 6 (20%) patients in Group .One patient in Group A died whose GOS was one, while no mortality in Group B.the P value of GOS was s written in table below for various Groups and is more than >.05 and statistically not significant (Table 3).

		GOS	Group A(N=30)	percentage	Group B(N=30)	percentage	P value
Good outcome	Good recovery	5	17	56.7	15	50	.68
	Moderate disability	4	8	26.7	8	26.7	1
Poor outcome	Severe disability	3	4	13.3	6	20	.68
	Persistent vegetative state	2	-		1	3.33	.92
	Death	1	1	3.33	-		.93

Table 3.

In both Group A & B acute rebleed (from the dural stripping, subgaleal vessel) seen in one (3.3%) patient each. ,small brain haemorrhage seen in CVA patients in 1(3.3%) patients of Group A and 2(6.67%) patients of Group B. Pneumocephalus occurred in 3(10%) patients of Group A and 4(13.33%) of Group B. Death(3.33%) occurred in one patient in Group A while no death reported in Group B. Empeyma occurred in a 1(3.3%) patient of Group B only .Rest of complications like new onset seizure ,new focal neurological deficit, wound infection, meningitis also occurred in both Groups as given in table below. On applying fisher exact test no post-operative complication was statistically significant P value >.05 on comparing both Groups. (Figure 3)

B (16%) patients were discharged. After 10 days period only 1(3.33%) patients was discharged in Group A ,while 4(13.33%) were discharged in Group B .Mean hospital stay was 5.67 ±2.15 in Group A while it was 6.60 ±2.97 in Group B.On comparing the hospital stay by T test 2 tailed ,p value was 0.17 which was not significant.

NCCT head was done on day 3 revealed recurrence in 3(10%) patients in Group A while in Group B 5(16.67%) patient had recollection/recurrence. On day 7 only 1(3.33%) patients had recollection in Group A while in Group B no patient had recollection. On follow up on 1 month 2(6.67) patients had recollection Group A while in Group B none had recollection. On comparing the recurrence on day 3,7 and 30 total recurrence was 20 %in Group A and 16.67% in Group Band p value was .067 by pearson chi square test which was not significant.

In Group A, 4(13.33%) patients were reoperated during one month follow up for recurrence/recollection while in Group B Total 3(10%) patients were reoperated during the same period. In Group A ,3(10%) patients were rewashed with the same craniostomy burr hole and improved and 1(3.3%) patients in which membrane was thick and brain not expanding had underwent craniectomy while in Group B 2(6.67%) patients were rewashed for recollection and one (3.33%) patient sunderwent craniectomy for thick membrane and non-expanding brain due to which his GCS was not improving. No Group needed extra burr hole for recollection. On comparing the both Groups for

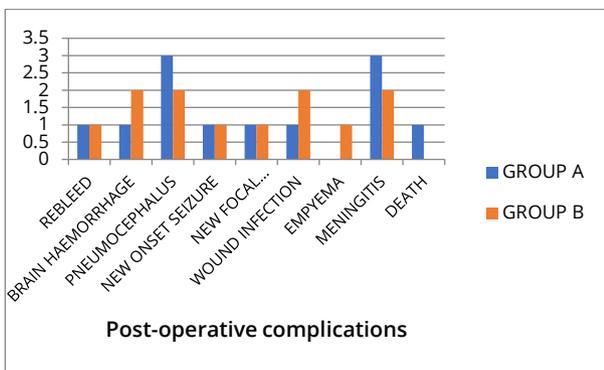


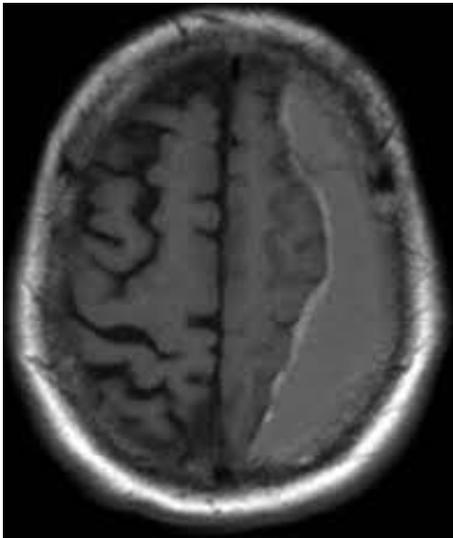
Figure 3.

In Group A 11(36.67%) patients were discharged on post operative day 4 & 5 while in Group B 10(33.33%) were discharged. In 5 to 10 days interval 18(60%) patients were discharged in Group A while in Group

reoperation the p value for wash Group was .60 and for craniectomy was .37. Both were more than .05 and not statistically significant.



Colour plate 1. Ncct brain showing colour plate 1A: MRI T1 image of brain. Right sided chronic SDH showing right side chronic SDH.



DISCUSSION

The common occurrence of chronic subdural hematomas in older patient raises some diagnostic and therapeutic difficulties. Despite general agreement about the indication of operation, the extent of surgery is still controversial. The treatment of chronic subdural hematomas has drastically evolved over time^{9,10,11,12,13,14}. In the management of CSDHs burr-hole craniostomy should be the method of choice for initial treatment. The treatment goal of

CSDH is complete drainage of the collection, using the least invasive technique without a high risk of recurrence. Although burr hole drainage remains the commonest form of treatment of CSDH, our literature search failed to yield an article that compared the results of single versus double burr hole drainage of CSDH. However, double burr hole drainage was generally considered a better result, especially regarding recurrence of the subdural collection. The present study was performed to address this issue.



Colour plate 2. Single burr hole incision marking.



Colour plate 3. Single burr hole after dura opening.



Colour plate 4. Single burr hole closure.



Colour plate 5. Double burr holes after dura opening.

The continuous search for the best method of surgery led us to carry out this study in the department of Neurosurgery, IMS, BHU, Varanasi during the period of September 2016 to August 2018 in which we compared two groups of thirty patients each for intraoperative and postoperative complication, postoperative outcome with the help of GCS and GOS.

The mean age was 58.77 ± 14.29 years in the group A and 57.07 ± 15.02 years in group B respectively. These findings are consistent with the study of Ernestus et al¹⁵ in which the mean age was 60 years, which correlates with this study. The higher incidence among the older age group is because of cerebral atrophy and slow accumulation of blood as well as increased incidences of falling down in elderly population.

In the study out of 60 patients 16 (26.7%) were females and 44 (73.3%) were males. In group A, 6 (20%) patients were females and 24 (80%) were males while in Group B 10 (33.3%) patients were females and 20 (66.7%) were males. On comparing. Thus, males were mostly affected in both groups. The male-female ratio was 3:1 which correlates with the study of Sanbasivan¹⁶ where male-female ratio was 6:1 showing male preponderance in chronic SDH. Cause of male preponderance could be because they are more prone to injuries because of more outings. The thickness of CSDH in group A ranges from 10 to 18 mm with mean of 14.63 ± 2.46 while in group B the range was also from 10-18 mm with mean of 14.43 ± 1.18 .

Midline shift in group A ranges from 10-14 mm with mean of 10.80 ± 1.03 while in group B the range was 10-14 mm with mean of 10.67 ± 1.18 . The hematoma characteristics were similar to the P. Taussky et al.¹⁷ whose study included cases with hematoma thickness of 1.8 ± 0.7 cm and according to

him hematoma thickness, midline shift does not contribute to increased recurrence rate after surgery in both the groups.

During the intraoperative period bleeding from the fragile emissary veins occurred in 3 (10%) patients of group A and 1 (3.3%) patient of group B, while brain contusion during opening up of thick membrane occurred in 2 (6.67%) patients of group A but none in group B. The brain after evacuation of hematoma did not expand in 4 (13.33%) patients of group A and 3 (10%) of group B while it expanded over time in 26 (86.6%) of group A and 27 (90%) of group B. Then non-expansion of brain is due to long-standing CSDH and cerebral atrophy.

The mean time for the duration of surgery was 31.13 ± 5.01 min in group A while in group B mean operating time was 47.07 ± 4.75 min, showing that the mean operating time in the group A was significantly less as compared to the group B. These findings were similar to findings of HAN et al¹⁸ whose study stated that one burr hole craniostomy takes shorter operation time and is less invasive than that of two burr-hole craniostomy.

In group A (n=30), before surgery, mean Glasgow Coma Scale (GCS) was 11.90 ± 2.76 (SD) where the range of the GCS was 6-15. In group B (n=30), mean Glasgow Coma Scale (GCS) was 12.83 ± 2.23 (SD) where the range of the GCS was 8-15. So, the difference of mean pre-operative Glasgow Coma Scale (GCS) between the two groups was not statistically significant (p-value >0.50). Patients' outcome on Day one, three and seven was assessed with GCS.

In group A (n=30), after surgery, mean Glasgow Coma Scale (GCS) was 13.00 ± 2.01 (SD), 13.93 ± 1.72 and 14.47 ± 1.01 on day 1, 3 and 7 respectively while it was 13.60 ± 1.67 , 14.00 ± 1.48 and 14.30 ± 1.29 respectively in group B (n=30). The range of the GCS was 10-15 in both the groups. So, in post-operative GCS level, there was no significant difference (p-value >0.05). The clinical assessment of patients through GCS findings were similar to findings of Asaduzzaman SM¹⁹ et al who also studied patients preoperative and postoperative GCS and found that clinical outcome of CSDH patients after SBH craniostomy was similar to DBH craniostomy.

Clinical outcome of patients at one month on follow up, measured using Glasgow Outcome Scale (GOS) at 1 month. In group A 17 (56.7%) and 8 (26.7%) had GOS of 5 and 4 respectively while in group B 15 (50%) and 8 (26.7%) had GOS of 5 and 4

respectively which is considered favourable GOS score.while unfavourable GOS ie GOS of 3 was present in 4(13.3%) patients in group A and 6 (20%) patients in group B .one patient in group A died whose cause of death was old age and poor gcs had GOS 1,while no mortality in group B. the P value of GOS was >0.05 and statistically not significant .The clinical outcome assessment with GOS had proven the fact that single burr hole craniostomy is equally effective and less time consuming as compare to double burr hole craniostomy in selected group of patients as described by kansal et al²⁰

In both group A & B rebleed (from the dural stripping, subgaleal vessel) seen in one (3.3%) pt. each, small brain haemorrhage seen in CVA pt. in 1(3.3%) pt. of group A and 2(6.67%) pt. of group B which was due to uncontrolled hypertension. Pneumocephalus occurred in 3(10%) pt. of group A and 4(13.33%) of group B. Death (3.33%) occurred in one patient in group A, who had a preoperative gcs of 6 and after surgery he had rebleed for which washing done but patient dies due to multiorgan failure. Empeyma occurred in a 1(3.3%) patient of group B only who was a known case of diabetes mellitus and prone to postsurgical infections. New onset seizure ,new focal neurological deficit were seen in one patient each(3.3%)of both groups while, wound nfection(3.3%&6.7%),meningitis(10%&6.67%) were also occurred in both groups.

Mean hospital stay was 5.67 ± 2.15 in group A while it was 6.60 ± 2.97 in group B. The hospital stay was shorter in the SBH group as compare to DBH group can be explained due to less operative time and early recovery of the patients. The study conducted by Gupta Sanja K.²¹ had mean postoperative hospital stay was 5 days in single burr hole and 6.5 days in Two burr hole technique. NCCT head was done on day 3 revealed recurrence in 3(10%) patients in group A while in group B 5(16.67%) patient had recollection/recurrence. On day 7 only 1(3.33%) pt. had recollection in group A while in group B no patient had recollection. On follow up on 1 month 2(6.67) pt. had recollection group A while in group B none had recollection. On comparing the recurrence on day 3,7 and 30 p value was .067 by pearson chi square test which was not significant. The study by kansal et al ²⁰in which they compare SBH with DBH recurrence rates had higher recurrence in SBH group but not statistically significant. In group A, 4(13.33%) patients were

reoperated during one month follow up for recurrence/recollection while in group B Total 3(10%) patients were reoperated during the same period. In group A ,3(10%) pts. were rewashed with the same craniostomy burr hole and improved and 1(3.3%) pt. in which membrane was thick and brain not expanding had underwent craniectomy while in group B 2(6.67%) pt. were rewashed for recollection and one (3.33%) .pt.underwent craniectomy for thick membrane and non expanding brain due to which his GCS was not improving. No group needed extra burr hole for recollection. On comparing the both groups for reoperation the p value for wash group was .60 and for craniectomy was .37. Both were more than .05 and not statistically significant. A met analysis comparing single burr hole and double burr hole craniostomy for CSDH was published by Belkhair S²²et al, whose conclusion was that suggest that SBHC is as good as DBHC in evacuating chronic subdural hematoma and is not associated with a higher revision rate compared to DBHC. No group needed second reoperation and recovered well.

CONCLUSION

This study was undertaken with the aim to evaluate the results of treatment of CSDH with Single vs Double burr hole craniostomy. With this study, we have found that single burr hole evacuation is similar to double burr hole evacuation of CSDH in terms of Intraoperative and postoperative complications in selected group of patients. The patients in both groups after intervention had almost similar outcomes and quality of life according to GCS and Glasgow outcome scale also SBHC is a simple, less time consuming and less invasive treatment as it requires only one burr hole to be made.

It was found that double burr-hole procedure is better than single burr-hole procedure in terms of recurrence; but the difference is not statistically significant.

Thus, our study recommends SBHC as equal and a good alternative to DBHC in the management of CSDHs.

Limitations of the study.

The sample size was small and patients with specific conditions were omitted, example- use of anticoagulants. Investigations with larger sample size, inclusion of such patients are required to

further assess the role of number of burr holes as an independent risk factor of CSDH recurrence.

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