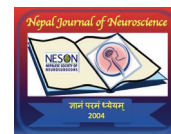


Institutional analysis of management and outcome of Chronic Subdural Hematoma in elderly population



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Date of submission: 28th February 2023

Date of acceptance: 9th March 2023


Date of publication: 30th March 2023

Introduction

Chronic subdural hematoma (CSDH) is the most common neurosurgical emergency seen in practice.¹ It is usually caused by minor trauma, and its risk factors are elderly age, cerebral atrophy and coagulopathy.² However many times the patient is unable to recollect any trauma. The elderly represent up to 90.9% of those with CSDH.³ The increased presentation among the elderly presents the most difficult aspect in the management of CSDH to the clinicians¹. CSDH is common after the 6th decade; however when it presents among patients 75yrs and above, it is a challenge to manage. Most of the patients of this age group are in poor performance status, with co-morbidities, sometimes poorly controlled, many present as an emergency and are usually unfit/pose a high risk for anesthesia and surgery. There are many surgeries done for CSDH, this depends greatly on the clinical status or the type of CSDH and also personal preferences based on personal experience. Craniotomy for a non-septated CSDH and craniotomy with membranectomy in septated variants have their proponents and opponents. Sahyouni

et al. reported that membranectomy during drainage of CSDH did not show statistically significant difference in morbidity, mortality, and recurrence rates, and reported the following rates 3%–12%, 5%, and 10%–21%, respectively.⁴ In this study we, however perform only burr hole craniotomy for non-septated, and craniotomy for the septated variety without extensive membranectomy. Recurrence is not uncommon among these patients, so also deaths. Dakurah et al. reported recurrence of 2.1% and deaths among 2.1%.⁵ Studies from the US and Sweden showed varied recurrence rates between 3% and 37%.^{6,7,8} Success via nonsurgical management has been reported as well. Bansal et al. reported the spontaneous disappearance of a large CSDH, whereas two studies from Japan documented good results with nonsurgical treatment of CSDH via the daily administration of tranexamic acid to patients.^{9,10,11} Nevertheless, conservative treatment is not yet popular among neurosurgeons. Most of the elderly patients are a challenge to treat with favourable outcome, hence in our study we plan to analyze the presentation, surgical management, problems faced, outcome, follow up of CSDH among patients above 75yrs of age who were managed surgically.

Access this article online
Website: <https://www.nepjol.info/index.php/NJN>
DOI: <https://doi.org/10.3126/njn.v20i1.43549>
HOW TO CITE
Carvalho AS, Gupta VK, Debanath A, Patel L, Ahmed F. Institutional analysis of management and outcome of Chronic SDH in elderly population. NJNS. 2023;20(1):68-70.




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ISSN: 1813-1948 (Print), 1813-1956 (Online)

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Methods and Materials

We plan to analyze the management of CSDH among patients >75y of age, between 01 Jan 2020 to 30 Jun 2020, followed by their 6 month follow up from 01 Jul 2020 to 31 Dec 2020. We hereby present the initial 6 month follow up study. We plan to further follow up these patients on a 6 monthly basis for the next three cycles and present our analysis subsequently.

Inclusion criteria

Inclusion criteria were age >75yrs with chronic SDH/ acute on chronic SDH, both unilateral/bilateral and all those who underwent surgical evacuation. Exclusion criteria were age <75y, patients who were unfit for surgery/refused surgery, patients who had a recurrence.

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There were 37 patients who qualified. Their presentation and a detailed clinical and neurological examination were done. Of particular interest were the associated co-morbidities and any antiplatelet/anti coagulation medications they were taking. Any history of head injury/trauma or any signs of external injury to the head was also noted. All patients underwent routine blood, biochemical and radiological investigations including chest X-ray, ECG and echocardiography. All underwent Non Contrast CT Head as part of initial neuro-imaging. Strict clinico-radiological correlation was done prior to surgery. Only two types of procedures were done, (1) burr hole craniostomy at two places; frontal and parietal, at the maximum thickness of the CSDH followed by warm saline irrigation till the returning fluid is clear and (2) formal craniotomy.

Follow up

All patients underwent repeat NCCT head post-op day one and then after 6 weeks, 12 weeks (in those with residual collections) and all of them underwent a scan at 6 months. Patients who had a recurrence of symptoms or fresh complaints also underwent a NCCT on SOS basis.

Results

Of the 37, 28 (75.67%) were males, 09(24.32%) females. Age ranged from 75yrs to 91yrs. Commonest symptomatology was altered sensorium, which was seen in all patients, 27 (72.97%) patients complained of headache, 23 (62.16%) had associated hemiparesis, 18 (48.64%) were on the right, 12 (32.43%) were on the left. Seven (18.91%) were bilateral. Two patients had seizures as an initial presentation, nine patients were known case of seizure disorder. For 23 (62.16%) patients, their next of kin gave a definite history of a head injury, three patients were old case of a cerebro-vascular accident. 34(91.89%) were on anti-platelets regimen, of which 10 were on dual antiplatelets. Three patients were on warfarin. Twenty one (56.75%) patients were diabetic. All patients were hypertensive, 10 (27.02%) patients had renal dysfunction and five were on dialysis. Four patients were cancer survivors. Of the 30 (81.08) unilateral variants, Eight (26.6%) had septated variety. Burr hole craniostomy was done in 22(59.45%) patients, of which seven underwent bilateral burr holes. All the eight unilateral septated variety underwent craniotomy. Four (18.18%) patient of the burr hole group required revision surgery.

We had a large number with associated co-morbidities, probably due to the type of cohort we selected. In view of this we, as a protocol, requested the help of a geriatric medical specialist and were very strict with the management of the co-morbidities, so we did not have

any instances of deep infection, we had only three patients with superficial wound infection.

Four patients had to undergo re-surgeries, of which one was for bleeding causing acute SDH and other three had recurrence of headache at 2nd/5th and 7th weeks respectively. All revision/re-do surgeries were craniotomy. None of the initial craniotomy patients had recurrence. Three patients died in the first 6 months of follow up, cause of death was not related to CSDH, two died of Myocardial infarction and one died due to Chronic kidney disease. There was no mortality directly related to the surgery of the CSDH. Wound infection was seen in three patients, there were no instances of subdural empyema. All diabetics were on strict blood sugar control post-op. By 6 months only one patient had a repeat CSDH on the opposite side.

Discussion

Chronic subdural hematoma is the most common neurosurgical emergency seen in practice¹. It is usually caused by minor trauma, and its risk factors like age, cerebral atrophy and coagulopathy¹². However many times the patient is unable to recollect any trauma. It has a peak incidence in the sixth and seventh decade of life. Fogelholm and Waltimo estimated an incidence of 1.72/100 000 per year, the incidence increasing steeply with advancing age up to 7.35/ 100 000 per year in the age group 70 to 79¹³. This incidence is expected to rise further due to the continuing growth of the older population. Hence, there is a need to study the outcome and long term follow up in elderly patients.

There are two forms of chronic subdural hematoma. These are septated and non-septated. Although the treatment of non-septated form is relatively easy, the treatment of septated form is a therapeutical problem.

There is no consensus in the literature regarding the superiority of drains. Laumer et al¹⁴ randomized 49 patients to closed system drainage and 47 to no drainage after burr hole craniostomy. There was no significant difference between the groups, with a repeated operation rate of 27%. Markwalder and Seiler¹⁵ described no additional benefit with subdural drain. Re-operation rate has been observed to be low in chronic subdural hematoma treated with post-burr hole drains but no difference was observed in sub-acute subdural hematoma. Erol et al¹⁶ in his prospective study, reported no significant difference in recurrence rate between simple burr hole craniostomy, irrigation and burr hole craniostomy with closed system drainage. Hamilton et al¹⁷ reported no significant difference regarding the incidence of post-operative complications or hematoma recurrence requiring subsequent surgery between the groups who underwent burr hole and craniotomy with or without drain. In view of the above we decided to only perform burr hole craniostomy and warm saline irrigation and formal craniotomy for the septated variety.

Conclusion

The increasing global incidence of CSDH because of an aging population has a great disease burden¹⁸. Management of the condition depends on the type of the CSDH and clinical condition of the patient, who most of the time are elderly with co-morbidities. In our study we selected a cohort of patients above 75yrs in order to study the outcome in this age group, for this reason we selected only those who were fit for surgery. Although this is an observational study, we did find favorable results among the burr hole craniostomy surgery without the placement of drain. We also found significant help and support of the geriatric medicine specialist in dealing with the elderly patients, and we recommend strict monitoring and control of the co-morbidities.

There was no conflict of interest in publication of this article.

No financial aid has been received from any individual/organisation in the conduct of this study.

References

1. Sousa EB, Brandão LF, Tavares CB, Borges IB, Neto NG, Kessler IM. Epidemiological characteristics of 778 patients who underwent surgical drainage of chronic subdural hematomas in Brasília, Brazil. *BMC Surg.* 2013;13:5. Published 2013 Mar 1. doi:10.1186/1471-2482-13-5
2. Gelabert-González M, Iglesias-Pais M, García-Allut A, Martínez-Rumbo R. Chronic subdural haematoma: surgical treatment and outcome in 1000 cases. *Clin Neurol Neurosurg.* 2005;107(3):223-229. doi:10.1016/j.clineuro.2004.09.015
3. Kurabe S, Ozawa T, Watanabe T, Aiba T. Efficacy and safety of postoperative early mobilization for chronic subdural hematoma in elderly patients. *Acta Neurochir (Wien)* 2010;152(7):1171-4. doi: 10.1007/s00701-010-0627-4.
4. Sahyouni R, Mahboubi H, Tran P, Roufail JS, Chen JW. Membranectomy in Chronic Subdural Hematoma: Meta-Analysis. *World Neurosurg.* 2017;104:418-429. doi:10.1016/j.wneu.2017.05.030
5. Dakurah TK, Idrissu M, Wepeba G, Nuamah I. Chronic subdural haematoma: review of 96 cases attending the Korle Bu Teaching Hospital, Accra. *West Afr J Med.* 2005;24(4):283-286. doi:10.4314/wajm.v24i4.28210
6. Koliás AG, Chari A, Santarius T, Hutchinson PJ. Chronic subdural haematoma: modern management and emerging therapies. *Nat Rev Neurol.* 2014;10(10):570-578. doi:10.1038/nrneuro.2014.163
7. Møllergård P, Wisten O. Operations and re-operations for chronic subdural haematomas during a 25-year period in a well defined population. *Acta Neurochir (Wien).* 1996;138(6):708-713. doi:10.1007/BF01411476
8. Traynelis VC. Chronic subdural hematoma in the elderly. *Clin Geriatr Med.* 1991;7(3):583-598.
9. Bansal H, Mahajan A, Singh A, Chaudhary A. Spontaneous Disappearance of a Large Chronic Subdural Hematoma: A Pleasant Surprise. *Indian J Surg.* 2015;77(6):532-534. doi:10.1007/s12262-015-1323-7
10. Kageyama H, Toyooka T, Tsuzuki N, Oka K. Nonsurgical treatment of chronic subdural hematoma with tranexamic acid. *J Neurosurg.* 2013;119(2):332-337. doi:10.3171/2013.3.JNS122162
11. Naganuma H, Fukamachi A, Kawakami M, Misumi S, Nakajima H, Wakao T. Spontaneous resolution of chronic subdural hematomas. *Neurosurgery.* 1986;19(5):794-798. doi:10.1227/00006123-198611000-00013
12. Foelholm R, Waltimo O. Epidemiology of chronic subdural haematoma. *Acta Neurochir (Wien).* 1975;32(3-4):247-250. doi:10.1007/BF01405457
13. Hellwig D, Kuhn TJ, Bauer BL, List-Hellwig E. Endoscopic treatment of septated chronic subdural hematoma. *Surg Neurol.* 1996;45(3):272-277. doi:10.1016/0090-3019(95)00417-3
14. Laumer R, Schramm J, Leykauf K. Implantation of a reservoir for recurrent subdural hematoma drainage. *Neurosurgery.* 1989;25(6):991-996. doi:10.1097/00006123-198912000-00026
15. Markwalder TM, Seiler RW. Chronic subdural hematomas: to drain or not to drain?. *Neurosurgery.* 1985;16(2):185-188. doi:10.1227/00006123-198502000-00010
16. Xu C, Chen S, Yuan L, Jing Y. Burr-hole Irrigation with Closed-system Drainage for the Treatment of Chronic Subdural Hematoma: A Meta-analysis. *Neurol Med Chir (Tokyo).* 2016;56(2):62-68. doi:10.2176/nmc.ra.2015-0013
17. Hamilton MG, Frizzell JB, Tranmer BI. Chronic subdural hematoma: the role for craniotomy reevaluated. *Neurosurgery.* 1993;33(1):67-72. doi:10.1227/00006123-199307000-00010
18. Uno M, Toi H, Hirai S. Chronic Subdural Hematoma in Elderly Patients: Is This Disease Benign?. *Neurol Med Chir (Tokyo).* 2017;57(8):402-409. doi:10.2176/nmc.ra.2016-0337.