## Original Article

# Outcome of Non-surgical Management of Chronic Subdural Hematoma

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**Abstract**

**Background:** Chronic subdural hematoma (CSDH) is a common condition in neurosurgical field. It is difficult to select the treatment modality between the surgical method and the conservative method when patients have no or mild symptoms along with comorbid diseases and strong refusal to operation. **Objective**: The objective of this study was to evaluate outcome of chronic subdural hematoma with conservative management. **Methods:** This prospective study was conducted among 90 patients of chronic subdural hematoma fulfilling the selection criteria admitted into the department of Neurosurgery of Rangpur Medical College Hospital from January 2015- December 2018. All patients were offered surgical treatment but the subjects declined. Therefore, all patients were managed conservatively with steroids, anticonvulsant drugs and analgesics. Repeat CT scan of brain was done after 4 weeks of treatment. **Results:** Among 90 patients, 83 (92.2%) patients were managed conservatively and 7 (7.8%) patients required surgery due to symptom aggravation and growing hematoma. Complete recovery was resumed in 82(91.1%) patients and incomplete recovery in 5(5.6%) patients and 3 patients (3.3%) died. **Conclusion**: It was concluded that in well selected, 10mm or less thickness of CSDH on CT scan, good GCS score (9 or above), minimum or no symptoms, non- operative management may be a treatment option of chronic subdural hematoma patient.

**Indexing words:** Chronic subdural hematoma, Non-surgical treatment

**Introdction:**

Chronic subdural hematoma is an emergency neurosurgical condition and most of the neurosurgeons take surgical evacuation for granted as the key principle in the management of symptomatic chronic subdural hematoma (CSDH) [1, 2,3,4,5]. When brain CT scan reveals slight compression of the brain parenchyma caused by hematoma and patients have no neurological symptoms or have mild symptoms, it is occasionally difficult to select the treatment strategy between surgical and conservative treatments and uncertainty prevails about the surgical decision[6].

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The literature on non-operative treatment of CSDH is scanty indeed. Forty-seven years ago, it was reported and proposed that in selected patients, spontaneous resolution of CSDH might take place and that non-operative therapy might be preferable to surgical treatment[7]. Operative procedure is generally considered the treatment of choice (burr-hole trephination, craniotomy, twist-drill craniostomy), but final decision rests on the neurosurgeon's intuition coupled with patient's consent for surgery and comorbid dieases[7]. It is likely that some patients with CSDH remain asymptomatic and have spontaneous regression of their lesions with low dose steroid therapy[8,9]. However close observation and follow up of the patient is a challenge for the neurosurgeons to try with conservative treatment. The mechanism of steroids in the resorption of CSDH is still unclear, membrane stabilizing action of dexamethasone has been claimed to be the key factor for regression of the chronic subdural hematoma[10].

**Methods:**

This prospective study was conducted among 90 cases of chronic subdural hematoma admitted in neurosurgery department of Rangpur Medical College Hospital from January 2015 to December 2018. Detailed history, clinical examination and relevant investigations were done in all patients having history of RTA, minor trauma, taken anticoagulant or had history of chronic alcoholism. General clinical examination included headache, nausea, vomiting and neurological examination comprised of hemiparesis, dysphasia, and altered consciousness. Glasgow Coma Scale (GCS) scoring was done for clinical assessment. Investigations included clotting profile, cranial computed tomography (CT) scan of brain. Patients having CSDH 10mm or less on CT scan, minimum or no midline shift, surgically fit, GCS score 9 or more, no comorbid diseases were included All patients were offered surgical evacuation of the hematoma. However none of these enrolled patients agreed to undergo surgical intervention. Each patient was given a course of analgesics, anticonvulsants drugs and oral dexamethasone 2mg every 12hourly for 5 days with close monitoring of clinical improvement or deterioration. Repeat cranial CT scan was done 4 weeks later. All the data were tabulated and analyzed by SPSS version-23.



**Fig 1:** TC scan of a patient before treatment showing left sided chronic subdural hematoma with minimum midline shift.

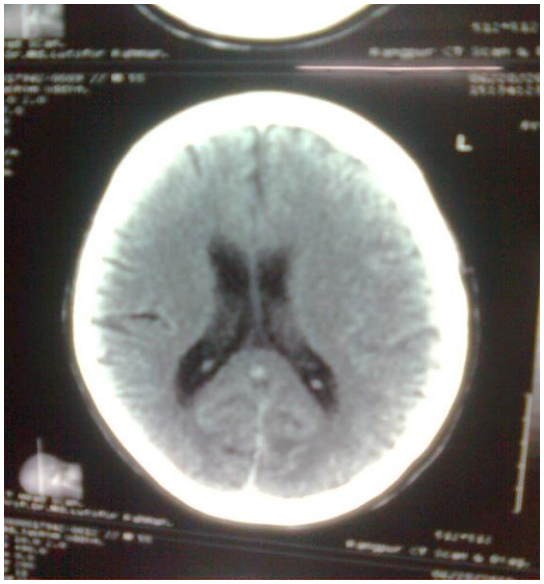


**Fig 2:** CT scan of same patient 4 week after treatment hematoma absorbed.

**Results**:

Table 1 shows highest frequency of chronic subdural hematoma at 61-70 years age group patients (28.9%) ($p<0.05$).

Table 2 shows male patients (72.2%) outnumbered female (27.8%) ($p<0.05$).

Table 3 shows that among clinical presentations headache (94.4%) was the most common symptom followed by vomiting (71.1%) ($p<0.05$).

Table 4 shows that most of the patient (72.2%) presented with history of minor head trauma followed by RTA (22.2%) ($p<0.05$).

Table 5 shows that 48.9% patients presented with GCS 9-13, followed by 33.3% patients presented with GCS 14-15 and 17.8% patients with GCS 3-8 ( $p <0.05$).

Table 6 shows CSDH on CT scan on left side in 54.4% cases and on right side in 43.3% cases ($p <0.05$).

Table 7 shows that most patients (70%) had hematoma thickness <10mm followed by (30%) patients with 10mm ($p <0.05$).

Table 8 shows maximum patient (92.2%) cured with conservative treatment and 7.8% patient required surgery ($p <0.05$).

Table 9 shows complete recovery in 91.1% cases, incomplete recovery in 5.6% cases, death in 3.3% cases ( $p <0.05$).

**Table 1:** Distribution of study patients by age (n=90)

| Age group in years | Frequency | Percent | Valid Percent | p value |
|---|---|---|---|---|
| Up to 40 | 3 | 3.3 | 3.3 | |
| 41-50 | 9 | 10.0 | 10.0 | |
| 51-60 | 15 | 16.7 | 16.7 | |
| 61-70 | 26 | 28.9 | 28.9 | <0.05 |
| 71-80 | 19 | 21.1 | 21.1 | |
| 81-90 | 13 | 14.4 | 14.4 | |
| 91-100 | 5 | 5.6 | 5.6 | |
| **Total** | **90** | **100.0** | **100.0** | |

**Table 2:** Distribution of chronic subdural hematoma patients by sex (n=90)

| Sex | Frequency | Percent | Valid Percent | p value |
|---|---|---|---|---|
| Male | 65 | 72.2 | 72.2 | <0.05 |
| Female | 25 | 27.8 | 27.8 | |
| **Total** | **90** | **100.0** | **100.0** | |

**Table 3:** Distribution of chronic subdural hematoma patients by clinical presentation (n=90)

| Clinical features | Frequency | Percent | Valid percent | p value |
|---|---|---|---|---|
| Headache | 85 | 94.4 | 94.4 | |
| Nausea, vomiting | 64 | 71.1 | 71.1 | |
| Hemiparesis | 21 | 23.3 | 23.3 | <0.05 |
| Dysphasia | 10 | 11.1 | 11.1 | |

**Table 4:** Distribution of chronic subdural hematoma patients by etiology (n=90)

| Etiology | Frequency | Percentage | Valid percentage | p value |
|---|---|---|---|---|
| RTA | 20 | 22.2 | 22.2 | |
| Minor trauma | 65 | 72.2 | 72.2 | <0.05 |
| Aspirin (anticoagulant) | 11 | 12.2 | 12.2 | |
| Alcohol | 10 | 11.1 | 11.1 | |

**Table 5:** Showing GCS scoring of study patients (n=90)

| GCS Scoring | Frequency | Percent | Valid Percent | p value |
|---|---|---|---|---|
| 3-8 | 16 | 17.8 | 17.8 | |
| 9-13 | 44 | 48.9 | 48.9 | <0.05 |
| 14-15 | 30 | 33.3 | 33.3 | |
| **Total** | **90** | **100.0** | **100.0** | |

**Table 6:** Showing side of hematoma on CT scan findings among study patients (n=90)

| Side of hematoma | Frequency | Percent | Valid percent | p value |
|---|---|---|---|---|
| Right side | 39 | 43.3 | 43.3 | |
| Left side | 49 | 54.4 | 54.4 | <0.05 |
| Bilateral | 2 | 2.2 | 2.2 | |
| **Total** | **90** | **100.0** | **100.0** | |

**Table 7:** Showing thickness of hematoma on CT scan among study patients (n=90)

| Thickness of hematoma | Frequency | Percent | Valid percent | p value |
|---|---|---|---|---|
| 10mm | 27 | 30.0 | 30.0 | <0.05 |
| <10mm | 63 | 70.0 | 70.0 | |
| **Total** | **90** | **100.0** | **100.0** | |

**Table 8**: Showing treatment modality required among study patients (n=90)

| Treatment | Frequency | Percent | Valid percent | p value |
|---|---|---|---|---|
| Conservative | 83 | 92.2 | 92.2 | <0.05 |
| Surgery | 7 | 7.8 | 7.8 | |
| **Total** | **90** | **100.0** | **100.0** | |

**Table 9:** Outcome of study patients after conservative management (n=90)

| Outcome of study patients | Frequency | Percent | Valid Percent | p value |
|---|---|---|---|---|
| Complete recovery | 82 | 91.1 | 91.1 | |
| Incomplete recovery | 5 | 5.6 | 5.6 | <0.05 |
| Died | 3 | 3.3 | 3.3 | |
| **Total** | **90** | **100.0** | **100.0** | |

**Discussion:**

Much of the literature dealing with non-operative treatment of CSDH is old and many of these earlier reports appear to focus more on cases with documented spontaneous resolution[8]. Nonetheless, there exists evidence, including some recent case series of successes with non-surgical primary treatment of CSDH in well selected cases[6, 8].

In this study, 28.9% cases were in the 61-70 years old age group and 72.2% cases were male patient. This is almost similar to the study by Roka et al[11]. The presenting symptoms of our study were headache in 94.4% cases, nausea and vomiting in 71.1% cases which confirm to the study of Shrestha et al[12] and Santarius et al[13]. In this study, majority of patients had previous history of minor head trauma in 72.2% cases which closely resembles with study by Roka et al[11]. In this study most of the patients presented with GCS 9-13 in 48.9% cases and GCS 14-15 in 33.3% cases which are almost similar to the study by Phang et al[14]. This study revealed that on CT scan, right sided hematoma in 43.3% cases, left sided in 54.4% cases and bilateral distribution in 2.2% cases which are almost similar to the study by Roka et al[11]. This study reported 10mm thickness hematoma on CT scan in 30% patient and less than 10mm thickness in 70% patients which is almost similar to the study by Hyung et al[6]. The current study shows almost complete recovery in 91.1% cases, incomplete recovery in 5.6% cases and death in 3.3% cases.

**Conclusion:**

Considering the results from the above study, it was concluded that in 10mm or less thickness of CSDH on CT scan, good GCS score (9 or above), with minimum or no symptoms, non-operative treatment with short period of low dose dexamethasone, analgesics and anticonvulsants may be a therapeutic option for chronic subdural hematoma .

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