

Examine the Outcome of Surgical Management in Patients Presented with Chronic Subdural Hematoma

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ABSTRACT

Objective: To assess the outcomes of surgical treatment in patients of presented with chronic subdural hematoma.

Study Design: Descriptive study

Place & Duration: Study was conducted in Department of Neurosurgery, District Headquarter hospital Timergara for duration of 18 months from 1st January, 2019 to 30th June, 2020.

Methods: Fifty two patients of both genders with ages 25 to 75 years presented with chronic subdural hematoma were enrolled. After taking written consent, patients detailed demographics including age, sex and BMI were recorded. Patients were categorized according to the Markwalder grading system. CT examination was done before and after surgical treatment. Outcomes were recorded according to the Glasgow outcome scale. Data was analyzed by SPSS 24.0.

Results: There were 43 (82.69%) males and 9 (17.31%) were females. Mean age of patients was 52.46±10.74 years. Mean BMI was 25.23±2.66 kg/m². 26 (50%) and 15 (28.85%) patients had Markwalder Grade 2 and 3. According to GOS 45 (86%) patients had favorable outcomes while 14% had unfavorable outcomes. Recurrence found in 8 (15.38%) patients. Mortality found in 3 (5.77%) patients.

Conclusion: Surgical treatment is safe and effective for chronic subdural hematoma with fewer rate of complications.

Keywords: Surgical Treatment, Chronic subdural hematoma, Glasgow outcome scale

INTRODUCTION

Chronic subdural hematoma (CSDH) is one of the most commonly diagnosed and treated intracranial diseases with an optimal prognosis. Due to rising life expectancy in developed countries, a constant rise in the incidence of CSDH has been observed.¹⁻³

The standard CSDH treatment is surgical evacuation, typically contributing to improved neurology. Different surgical procedures such as the evacuation of burr holes, worldwide the most common technology, twisting – craniostatic drilling, craniotomy, endoscopic removal, and peritoneum shunting have been taken.⁴⁻⁶

Classification and regression tree (CART) is an alternative statistical method of predicting the data by dividing the data set into different subgroups based on repeated division.⁷⁻⁸ The CART search section introduces as "decisive trees" combinations of values of the indigenous variables that better predict the dependent variable's value and outcomes.

Surgical evacuation in most patients with CSDH is the safest care. Some of these patients, particularly when small hematomas grow after antiplatelet medication, can be treated without operation. The usually medium pressure found in CSDH are numerous.⁹ The following signs are: patients with a neurological deficiency symptom and GCS between 5-15; a median brain change greater than 0,5cm; a hematoma thickness greater than 1,5cm; and a hematoma volume greater than 25ml. The key treatment begins with the evacuation of a burr hole, with the use of

infiltration with local anaesthetist (evacuation by a burr hole or with two burr holes, or with craniostomy). The subdural space with normal saline is carefully and meticulously irrigated and continued until normal saline returns. A closed drainage tube and bag in the subdural region is placed after irrigation. When achieved with local infiltration and sedation the method of evacuation of haematoma decreases the risks of anaesthesia and surgery and can be conducted when other co-infections occur^{10,11} The aim of our study was to evaluate the outcomes of chronic subdural hematoma treatment by operation as calculated under the Glasgow Outcome Scale.

METHODS

This descriptive/observational study was conducted at Department of Neurosurgery District Headquarter hospital Timergara for duration of 18 months from 1st January, 2019 to 30th June, 2020. In this study total 52 patients of both genders with ages 25 to 75 years presented with chronic subdural hematoma were included in this study. Patients detailed medical history including age, sex and residence were recorded after taking written consent from all the patients. Patients with previous history of surgical management were excluded from the study.

Patients were categorized according to the Markwalder grading system i.e Grad I, II, III, IV at the time of admission and recorded as patients baseline details. All the patients underwent surgical management of CSDH, CT scan was done before and after surgery and the discharge

time. Outcomes were recorded according to the Glasgow outcome scale such as excellent, Good, fair and unfavorable as poor. Mortality was also recorded.

All the statistical data was analyzed by computer statistical software 24.0. Frequency and percentages were recorded to examine the values obtained from all the data.

RESULTS

From all the patients 43 (82.69%) were males and 9 (17.31%) were females. Mean age of patients was 52.46±10.74 years. Mean BMI was 25.23±2.66 kg/m². According to the Markwalder grading system, 5(9.62%) patients had Grade I, 26 (50%) patients had Grade II, 15 (28.85%) patients had Grade III and 6 (11.5%) patients had Grade IV. According to the CT scan we found isodense, hypodense, hyperdense and mixed hematomas in 22(42.3%), 15 (28.85%), 10 (19.23%) and 5 (9.62%) patients respectively. (table 1)

According to GOS 45 (86%) patients had favorable outcomes while 7(14%) had unfavorable outcomes. (table 2)

Recurrence found in 8 (15.38%) patients. Mortality found in 3 (5.77%) patients. (table 3)

Table 1. Baseline characteristics of all the patients

Characteristics	Frequency No.	Percentage
Gender		
Male	43	82.69
Female	8	17.31
Mean age	52.46±10.74	
Mean BMI	25.23±2.66	
Markwalker Grade		
I	5	9.2
II	26	50
III	15	28.85
IV	6	11.5
CT Scan		
Isodense	22	42.3
Hypodense	15	28.85
Hyperdense	10	19.23
Mixed	5	9.62

Table 3. Outcomes according to the Glasgow outcome scale.

Characteristics	Frequency No.	Percentage
GOS		
Favorable	45	86
Unfavourable	7	14

Table 4. Recurrence and mortality rate after surgical management

Characteristics	Frequency No.	Percentage
Recurrence		
Yes	8	15.38
No	44	84.62
Mortality		
Yes	3	5.77
No	49	94.33

DISCUSSION

Chronic subdural hematoma is one of the most malignant disorders among neurological disorders. The mortality rate is high among these patients due to delay in treatment. Early and better treatment modality may effective to gain a favorable outcomes¹²⁻¹³ Recent study was conducted

aimed to examine the outcomes of surgical management of chronic subdural hematoma patients. During the study period 40 patients were undergone surgical treatment for chronic subdural hematoma, in which majority of patients 82.69% were males and 17.31% patients were females. In our study majority of patients were ages 46 to 75 years 73%. These results were similar to study conducted in Pakistan in which male patients population was high 83% as compared to females 17% with mean age of 72 years¹⁴. 55% of patients had urban residency in our study population.

In present study, we analyzed patients according to the Markwalder grading system at the time of admission and we found 3 5 (9.62%) patients had Grade I, 26 (50%) patients had Grade II, 15 (28.85%) patients had Grade III and 6 (11.5%) patients had Grade IV. These results were similar to some other studies in which majority of patients had Grade II and Grade III at the time of admission¹⁵⁻¹⁶. In our study we found 42.3% patients were isodense hematomas and 28.85% patients had hypodense hematoma followed by hyperdense and mixed hematomas 19.23% and 9.62%. These results were correlates to a study conducted by Tokmak M et al¹⁷.

In our study recurrence was occurred in 15.38% patients. These results were comparable to some other studies in which recurrence rate was 6 to 20%¹⁸⁻¹⁹. In current study, we found 56% patients had favorable outcomes while 14% patients showed unfavorable outcomes. These results showed similarity to some other studies in which favorable outcomes were reported 88% to 95% with low rate of mortality²⁰⁻²¹.

The present study will be helpful for future surgeons to provide better and effective surgical management to the patients presented with chronic subdural haematoma.

CONCLUSION

One of the most often observed presentations of neurological disorders is chronic subdural hematoma. In this paper, we have carried out a review of the outcomes of surgery for patients suffering from chronic subdural hematoma and we came to the conclusion that early surgery for this disease is very successful with high rate of favourable outcomes with lesser complications.

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