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Research Article Chronic Subdural Hematoma in Khost

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ABSTRACT

In this study, chronic subdural hematoma patient investigated and information related to chronic subdural hematoma collected, the CSDH described briefly, this study was conducted in different hospital in khost province, information related to age, gender, causes, clinical manifestation, and hematomae location has been collected.

Keywords- pathophysiology, clinical manifestation, hematoma location, cause of hematoma, location of hematoma.

I. INTRODUCTION

Chronic subdural hematoma is a collection of old blood covered by a capsule, it may be partially or completely convert into liquid form (motor oil fluid), this disease is a diseases that usually occurred in older patient and develop after a slight trauma. A history of direct trauma to Head not seen in half of chronic subdural hematoma patients, the most common clinical manifestation is altered in conscious, may be different from mental change to coma.

Another clinical manifestation is focal neurological disorder, disability and death are seen especially in elder patient, but those patient which have undergone to surgery usually have a good prognosis.

CSDH first time describe in 1857 by Virchow, He used the term of Pachymeningitis haemorrhagica interna for this disease, after this another scholar Trotter trauma theory develop, he told that tearing of bridging vein can cause this disease he use the term of subdural haemorrhagica cyst for this disease, after that trauma was consider the major factor in the development of chronic subdural hematoma, CSDH should differentiate from ASDH which, ASDH occurred in young adult and usually develop within in 72 hours after a major trauma,while chronic subdural hematoma usually occurred in older people and develop after a small trauma within a weeks or months to give clinical manifestation, in the 6^{th} and 7^{th} decades its incidence reaches it peak, tow scholars Fogetholem and Waltimo, estimated that the incidence of CSDH is 1.72/100000 per year, which increase with age in 79-70 years old cases reach 7.35/100000 and there is a possibility that these cases will increase with age.

II. PATHOPHYSIOLOGY OF CSDH

It occurs when there is a slight trauma to the vessel that is located between the cortex and the dura mater, the bridging vessel is tear and the blood come out of it, which located in the subdural space in result stimulates an inflammatory process in the area, one day later a thin layer of fibrin and fibroblast cells is formed on the external surface of the hemorrhage, the proliferation and migration of these cells causes a membrane to form on the surface of the clotted blood up to the fourth day, this membrane rapidly enlarges and fibroblast invades the hematoma, resulting in a thin membrane forming on the inner surface of the hematoma within in two weeks, due to the presence of phagocytosis cells the hematoma turns into liquid or liquefaction (motor oil fluid), after that, either the hematoma absorbs

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itself or it slowly increases in size, resulting in CSDH. there is another hypothesis for CSDH, which is that when the arachnoid membrane is tear due to trauma, the CSF enters to the subdural space, so when the cerebrospinal fluid enters here, it stimulates an inflammatory process, internal and external membrane form resulting chronic subdural hematoma.

There are two main theories about the development of CSDH, one is the osmotic theory and the other is called the recurrent bleeding theory.

Osmotic theory is a very basic theory in this theory, it is said that the amount of proteins increases in hematoma liquefaction, oncotic pressure increase, this oncotic pressure causes the hematoma to draw fluid from the adjacent vessels into the inside, which increase the size of hematoma covered by capsule.

But this theory was rejected by a scientist named Weir who said that the osmolality of the hematoma and the osmolality of the blood and CSF fluid are the same and there is no difference.

He said that recurrent bleeding from capsule is a well proven theory of hematoma, he said that abnormal and enlarged vessels occur in the hematoma capsule, which causes rebreeding into the hematoma, resulting hematoma amount increase, this view was further strengthened by the information provided by the ITO, those with RBC that were cr-labeled, had an intravenous drip six to twenty-four hours before the hematoma drained. After draining the hematoma, he observed that the hematoma precursors contained 2.2-28% fresh blood that contained labeled cells.

And he also said that fibronolytic activity increases within the hematoma and coagulation abnormalities occur, both of which contribute the development of CSDH. Intracranial pressure is normal or slightly elevated in patients with CSDH. A brain that has atrophied has a reduced typonading effect,resulting in a gradual increase in CSDH, the contents of subdural hematoma varies from time to time, it can be in the form of a clot or in the form of liquid.

III. METHODOLOGY

Study design:

My research was descriptive in the form of a case series which was conducted in khost in 2022, this research work was done on 50 patients, from this group of patients 10 were direct treated by the researcher, they were informed prospectively, but the remaining 40 patients were informed retrospectively, they were notified of their file and documents that, the patient had been treated before.

As we know that different methods are used in research, each method has its own goals or characteristics, one type of research is descriptive research in this research answers are given. Against the question, in this study, the patients of chronic subdural hematoma were investigated, its causes, sex, age, pathophysiology, location of hematoma were recorded.

Definition of target population and sample derivation method:

Patients who were admitted to the neurosurgery department until 2022, as a sample patient who had CSH were considered. in research there are different sampling methods, that are used in special conditions, the most popular method is universal method in this method the chance of selecting is random, in this study 50 chronic subdural hematoma patients were randomly selected without considering and condition.

Inclusion criteria:

This research has been done on patients who had chronic subdural hematoma and were admitted to various neurosurgery department in khost province, in this research patient according to age, sex, causes, clinical manifestation, hematoma location investigated-

Exclusions criteria:

1- Those patients who do not agree to admit in neurosurgery department.

2- Those patients who have hygroma whose sign and symptoms are similar to CSH.

IV. DATA COLLECTION METHOD

There are various methods for collecting data, such as observation, history, library, direct examination, questionnaires etc. in this research observation or history has been used to collect data, as it is somewhat similar to the questionnaire, the data was collected from the file which were randomly selected as well as from the patients who were directly observed.

Data analysis method:

Usually when data are collected, we can analyze them in different ways, one of these method is descriptive (Qualification statistical analysis) method, here when the data are collected the descriptive method was used for analysis.

Table and Charts 1: CSDH incidence by sex

Number	Sex	Number	Research percentage
1	Female	18	36%
2	Male	32	64%
Total		**50**	**100%**

From the above table and graph, it can be seen that among fifty CSDH patients who have been researched, 18 of them are female which is 36% and the remaining 32 are male, which is 64%, they are compared to the international literature, it was seen that there is very little difference, this disease is more common in male then female, because of head Trauma, which male find more head trauma then female.

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Table and Charts 2: Study of CSDH by age

Count	Age	Number	Research Percentage
1	50>	6	12%
2	60	8	16%
3	70	13	26%
4	80	15	30%
5	90	8	16%
Total		**50**	**100%**

From the above table, it can be seen that the incidence of CSDH is based on age, so that out of the group of 50 patient only 6 patient were under age of 50, which is 12% of all patient, 16% of all patient were in their 6th decade, 13% patient were in their 7th decade, 26% of all patients, 15patient were in their 8th decade, 30% of all patient, 8 patients, which is 16% of all patients, were exposed to this disease in the 9th decade of age.

These figures were also compare with international literature, although there were some difference but in general the percentage was the same, from the figure in the table show that the incidence of CSDH increase every decade after 5th decade, and the pack of incidence is in the 8th decade of age.

After that the incidence decreases, the reason for the increase in the 8th decade may be the brain atrophies at this age, the attachment of the dura to the skull increases and also the space under the dura mater decrease, may CSDH develop easily.

Table and Charts 3: Study of CSDH patients from the point of view of causes

Count	Cause	Number	Research Percentage
1	Head trauma	25	50%
2	Neurosurgery operation	2	4%
3	Alcoholism	0	0%
4	Anticoagulant drugs	2	4%
5	Coagulopathy	0	0%
6	Arachnoid cyst	0	0%
7	unknown	21	42%
Total		**50**	**100%**

It can be seen from the above table, from 50 patient, 25 patients of their group were due to head trauma, which is 50% of total cases, 2 patient cause was anticoagulants drugs which is 4% of total incidence, 21 patient cause was unknown, which is 42% of total incidence.

The study was compared with the international literature and had differences in most points, as the percentage of head trauma was less then international literature, which may be the reason, that the people in our country are careless may the forgot head trauma, because the percentage of patients whose cause is unknown is more in our study compared to the international literature, the surgical operation percentage is also less in our study then international literature, the reason may be that, which this disease develop after aneurysm surgery which rarely performed here in Afghanistan.

Percentage of arachnoid cyst, coagulopathy, and alcoholism is our study is zero, which may be the reason for wrong history taking, noncooperation of the patients, and also the doctors' lack of knowledge about these causes.

Table and Charts 4: Study of CSDH patients according to common clinical manifestation

Count	Clinical Manifestations	Research Percentage
1	Alterations in conscious state	50%
2	Focal neurological disorder	52%
3	headache	70%
4	seizer	8%
5	Fallen down	55%
6	Transient neurological disorder	2%

It is not necessary to draw the above table, but still in order for the surgeon to have a better understanding of the clinical manifestation of this disease.

It has been shown in the study that CSDH patients complain of headache in the first degree, which is seen in most patients (70%),dizziness in the second degree(55%) and neurological disturbances in the third degree(52%), followed by changes in consciousness(50%), seizures(8%),and generalized neurological disorder(2%), there are other clinical manifestations of this disease but they are in the group of rare clinical manifestations, which are seen in very small percentages.

Table and Charts 5: Table five show CSDH by location

Count	Location Of CSDH	Number	Research Percentage
1	Right side	16	32%
2	Left side	23	46%
3	Bilateral	11	22%
Total		**50**	**100%**

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From above table it can be seen that 46% cases of CSDH occur in the left hemisphere of the head, 32% in the right hemisphere and 22% in both side (bilateral) **,** when this percentage compared with global literature, the same percentage is also seen in the global literature.it can be seen in the table that there are more cases of hematoma on the left side of the head than on the right side which may be the reason for falling which is a clinical manifestation of this disease and also plays a role in the development of this disease, a fall usually occurs, the left side of the head hits the ground.

V. CONCLUSION

From the point of view of gender, 50 CSDH patients who have been researched, 18 of them are female which is 36%, and the remaining 32 are male which is 64%, the compared with international literature, it turns out that there is very little difference, it was about to equal.

From the point of age it can be seen that the incidence of CSDH is based on age, so that out of the group of 50 patient only 6 patient were under age of 50, which is 12% of all patient, 16% of all patient were in their 6^{th} decade, 13% patient were in their 7^{th} decade, 26% of all patients, 15patient were in their 8^{th} decade, 30% of all patient, 8 patients, which is 16% of all patients, were exposed to this disease in the 9^{th} decade of age.

From the point of causes It can be seen that, from 50 patient, 25 patients of their group were due to head trauma, which is 50% of total cases, 2 patient cause was anticoagulants drugs which is 4% of total incidence, 21 patient cause was unknown, which is 42% of total incidence.

From the point of clinical manifestation that CSDH patients complain of headache in the first degree, which is seen in most patients (70%),dizziness in the second degree(55%) and neurological disturbances in the third degree(52%), followed by changes in consciousness(50%), seizures(8%),and generalized neurological disorder(2%).

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