Chronic subdural haematoma: Review of 96 cases attending the Korle Bu Teaching Hospital, Accra

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Summary
Background: Chronic subdural haematoma is not uncommon in Africa. Early diagnosis and treatment is satisfying. Simpler operative procedures are generally effective. This review is meant to find out the situation regarding the condition in Ghana.
Study design: A retrospective study of patients with chronic subdural haematoma admitted to and treated by the Neurosurgical Unit of Korle Bu Teaching Hospital between January 1995 and December 1998 was undertaken. The case notes, computerise axial tomography (CT) scans and operative records were reviewed and the relevant data extracted. Incomplete records were excluded.
Results: 96 patients were involved. The mean age of the patients was 46.9 years, with male to female ratio of 16:1. The most common presenting feature was headache (64.7%). Time of injury to presentation was about 2 months. 81 were treated using burr hole and drainage and 15 by craniotomy and stripping of membranes. Eighty four were treated under general anaesthesia. Two were operated on because of recurrent bleed. There were two (2) deaths. Ninety patients had a Glasgow Outcome Score of good at the time of their last visit.
Conclusion: The data suggests that burr hole and closed drainage is a very effective method of managing CSDH.

Key-words: Chronic subdural, RTA, Headaches, CT scan burrhole, Local anaesthesia.

Résumé
Plan d'étude: UNE étude retrospective de malades avec subdural haematoma chronique a avoué et traité par l'Unité de Neurologique de Korle Bu enseignant l'Hôpital entre le 1995 janvier et le 1998 décembre a été entreprise. Le cas note, informatisé la tomographie axiale (CT) les balayages et les rapports opératifs ont été réexaminés et les données pertinentes extraées. Incomplet a été records exclu.
Les résultats: 96 malades ont été impliqués, avec un âge moyen de 46.9 années, re l'âge moyen des malades était 46.9 années, avec le mâle à la proportion femelle de 16:1. La caractéristique présente la plus commune était le mal de tete (64.7%). Le temps de blessure à la présentation était a peu près 2 mois. 81 ont été traités utilisant le trou de barbe et le drainage et 15 par craniotomy et dépouiller de membranes. 84 ont été traités sous l'anesthesie generale. 2 ont été reoperated sur parce que de recurent saigneur. Il y avait deux (2) les morts. 90 malades avaient un Score d'issue de Glasgow de bon lors de leur derniere revue.
Conclusion: Les données suggèrent que ce trou de barbe et le drainage fermé est une méthode tres efficace de gérer de SDHC.

Introduction
Chronic subdural haematoma (CSDH) is one of the most common type of intracranial haemorrhage. Early diagnosis and treatment can lead to complete recovery. However late diagnosis can be fatal. The accumulation of blood in the subdural space is usually due to tearing of bridging veins. Little force is required to tear these veins and the initial injury may be trivial.

Blood accumulation can also be due to cerebral laceration principally at the temporal poles or due to arterial rupture. Cerebral compression can be acute (up to three (3) days) or may be delayed for weeks or months or years with formation of liquid chronic subdural haematoma.

According to Mellgaard et al. the mean age is 70.5 years and the male: female ratio is 2:1 but can be as high as 5:1. The most common aetiological factor is head injury followed by anticoagulant therapy. Blood dyscrasias, excessive alcohol intake and arterial hypertension have also been associated with CSDH. The symptoms can be non-specific, however headache is the most common presenting feature in all age group. Also altered levels of consciousness, memory impairment and occasionally lateralising signs including weakness of one side or the other may occur. Presently diagnosis is usually established by computed tomography (CT scan) and also magnetic resonance imaging (MRI). These have contributed enormously to early diagnosis and treatment.

There is agreement that operative treatment is indicated but there is still controversy as to which technique is best. Some workers suggest that simpler procedures are very effective. This review is meant to find out the situation regarding the condition in Ghana.

Patients and methods
We carried out a retrospective study of the hospital records of 96 patients with CSDH attending KBT. All cases were seen at the Neurosurgical unit over the period January 1995 to December 1998. The various clinical features were recorded and analysed using Microsoft Excel. Diagnosis was established by CT scan in all cases. The mode of treatment was either burr hole and closed drainage or craniotomy and stripping of membranes. The outcome in
each case was assessed using the Glasgow Outcome Score (GOS).

**Result**

The average age of the patients was 46.9 years with a range of 21 to 75 years. The male:female ratio was 16.1. More than half (62.5%) of the patients presented about two months after an initial traumatic event. The etiology could be established in 67 (69.8%) of the patients with the most common cause being head injury, mainly due to road traffic accident (Fig 1). Headache was by far, the most common presenting feature followed by contralateral hemiparesis (Table 1).

Four patients were initially seen at the Department of Medicine where the diagnosis was made and then referred to the neurosurgical unit for operative management, whilst one initially presented at the Ophthalmology Department with complaint of blurred vision. Hypertension was the most common concomitant disease (Table 2).

The Glasgow Coma Scale recorded at the initial visit is shown in Table 3. Most of the patients presented in a conscious state with 5 presenting as emergencies in coma.

Diagnosis in all cases was by CT scan. The sites of the various haematoma are shown in Table 4. Eighty-four patients were treated under general anaesthetic and 12 under local anaesthetic. There were no complications with the latter technique. Eighty-one (88.2%) were treated by burrhole and drainage and 15 (11.8%) by craniotomy and stripping.

Complications were as follows: three patients had

<table>
<thead>
<tr>
<th>Concomitant disease</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypertension</td>
<td>10</td>
</tr>
<tr>
<td>Alcoholism</td>
<td>8</td>
</tr>
<tr>
<td>Prolonged labour</td>
<td>1</td>
</tr>
<tr>
<td>Psychiatric background</td>
<td>3</td>
</tr>
<tr>
<td>Total number</td>
<td>22</td>
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</table>

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Frequency</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headaches</td>
<td>62</td>
<td>64.6</td>
</tr>
<tr>
<td>Weakness</td>
<td>41</td>
<td>42.7</td>
</tr>
<tr>
<td>a. Contralateral</td>
<td>37</td>
<td>39.6</td>
</tr>
<tr>
<td>b. Ipsilateral</td>
<td>4</td>
<td>4.2</td>
</tr>
<tr>
<td>Confusion</td>
<td>17</td>
<td>17.7</td>
</tr>
<tr>
<td>Memory impairment</td>
<td>11</td>
<td>11.4</td>
</tr>
<tr>
<td>Blurred vision</td>
<td>9</td>
<td>9.4</td>
</tr>
<tr>
<td>Vomiting</td>
<td>9</td>
<td>9.4</td>
</tr>
<tr>
<td>Seizures</td>
<td>6</td>
<td>6.2</td>
</tr>
</tbody>
</table>

**Table 3 Glasgow coma scale at presentation**

<table>
<thead>
<tr>
<th>GCS</th>
<th>Frequency</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>43</td>
<td>44.8</td>
</tr>
<tr>
<td>14</td>
<td>19</td>
<td>19.8</td>
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<tr>
<td>13</td>
<td>15</td>
<td>15.6</td>
</tr>
<tr>
<td>12</td>
<td>2</td>
<td>2.1</td>
</tr>
<tr>
<td>11</td>
<td>4</td>
<td>4.2</td>
</tr>
<tr>
<td>&lt; 10</td>
<td>13</td>
<td>13.5</td>
</tr>
<tr>
<td>Total number</td>
<td>96</td>
<td>100</td>
</tr>
</tbody>
</table>

**Table 4 Frequency of site of haematoma on CT scan**

<table>
<thead>
<tr>
<th>Site</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilateral</td>
<td>11</td>
</tr>
<tr>
<td>Left parieto-occipital</td>
<td>4</td>
</tr>
<tr>
<td>Left parieto-temporal</td>
<td>4</td>
</tr>
<tr>
<td>Left fronto-parieto-occipital</td>
<td>2</td>
</tr>
<tr>
<td>Left fronto-parietal</td>
<td>19</td>
</tr>
<tr>
<td>Right fronto-temporal</td>
<td>4</td>
</tr>
<tr>
<td>Right fronto-parieto-occipital</td>
<td>21</td>
</tr>
<tr>
<td>Right fronto-parietal</td>
<td>31</td>
</tr>
<tr>
<td>Total number</td>
<td>96</td>
</tr>
</tbody>
</table>

Fig. 1 Aetiology of head injury in CSDH

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pneumocephalus, I had an intracerebral haemorrhage, two
had cerebrospinal fluid leakage and I patient had a second
bleed after burrhole and drainage and so had a second
operation which was craniotomy and stripping of membranes.
With the exception of the last patient all the other
complications were managed conservatively successfully.
One patient had memory impairment prior to surgery but this
persisted for about 19 months before recovery.

Postoperative CT scan was done at two weeks for all
patients and then at any other period when indicated. For all
patients with residual haematoma it was repeated at six month.
This was the case in 65 patients (67.7%), all of which were
considered small.

The average review period was about 20.8 months with a
range of 6 - 23 months. Ninety had a GOS of good recovery
at the time of their last review. There were two mortalities.
One was the patient who rebled and had to have a second
operation and the other had a GCS of 3 at referral and repeated
generalized seizures.

Discussion

Subdural haematoma has been treated by neurosurgeons
since 1956 after it was first described by Wefer14. Recent
experimental studies15,16,17 suggest that blood in the subdural
space evokes an inflammatory reaction with deposition of
fibrin followed by organisation, formation of subdural neomembranes with ingrowth of neocapillaries. Enzymatic
fibrinolysis and liquefaction of blood clots then follow. There
is increase fibrinolytic activity and the release of fibrin
degradation products (FDP's), which are, incorporated into
cut clots hence no effective haemostasis.

In more than half the patients (57 or 59.4%) in the above
study presentation was about two months after the initial
injury. We thought this probably represents the interval when
the membranes, which are forming, have a significant effect
on the central nervous system in most of the patients. This
interval also conforms with the findings of Fogelholm et al
who observed median intervals of 5 weeks, 7.5 weeks and 10
weeks in the age groups 20 - 29, 40 - 59 and 60 - 79 years
respectively. However in our study the fine variation in
different age groups could not be matched. The mean age
(46.9 years) was much lower than that in other studies18
but comparable to the findings in India where the mode age
group was 41 - 50 years19. This may suggest that a similar age group
is a risk in both societies.

The most common presenting feature was headaches
(64.7%). This was also the most common presenting feature
in one study4 however this was not the case in Sambasivan’s
study4. The male: female ratio of 16:1 reflects the epidemiology
of head injuries in our society. It was also noted that arterial
hypertension was the most common concomitant disease
(9.0%) as was the case in one of the above studies9. However
the incidence of hypertension in a similar general population
in Accra was (8 - 11%)8,9. About 88.2% of the patients in
this study were treated by a single burr hole craniostomy,
saline irrigation and closed external drainage for 48 hours or
a variable period. Only 11.8% had craniotomy and stripping
of membranes. In the latter cases the haematoma was thought
to be large with the presence of neomembrane formation on
CT scan. Post-operatively no special measures were taken to
fill the subdural space. We noticed that no such precautions
were needed. Residual haematoma which was small in all
cases seemed not to have affected the outcome. These small
haematomas tended to disappear if the scan was repeated
after six or more months.

Rebleeding, after operation was recorded once in our
study. This patient’s condition continued to deteriorate with
repeated seizures after the operation and was reoperated on
10 days after the initial operation. He was one of the mortalities.
The incidence of rebleeding range from 9.2%16 to 26.5%21.
The reason for this low incidence in our study is difficult to
explain. Our suggestions is that our techniques involve
minimal surgical manipulation with burr holes made large
enough to allow evacuation of the subdural blood. This
accompanied by thorough irrigation of the subdural space
and external drainage for 48 hours reduce the load of
fibrinolytic substances and probably restrain neomembrane
formation. None of the patients were on long term
antiocoagulants. This may also be a factor in the low incidence.
More work however is needed in this area.

The advent of CT scan in Ghana has also contributed
epecially to the early diagnosis and treatment of the
condition. Our impression is that early diagnosis and
treatment of the condition will continue to increase, as the
facility becomes available to more Ghanaians. There was no
case of infection.

The two mortalities were both in a very poor state when
they were referred. One had a recurrent bleed and the other
incontinent seizures. It is difficult to conclude whether the
method used had any bearing on the outcome.

Conclusion

Burrhole drainage is effective and must be considered
in all cases irrespective of haematoma size, the presence or
otherwise of membranes and also as an initial procedure for
recurrent bleeds. In developing countries such as ours
relatively younger patients develop CSDH in a complex with the
epidemiology of head injuries. The advent of the CT Scan in Ghana has contributed enormously to the early
diagnosis and treatment of this condition. Our impression is
that as the facility becomes available to many more on a
regular basis the detection of CSDH will continue to be in the
increase.

Acknowledgment

We wish to express our gratitude to the nursing and
housestaff of the neurosurgical unit of the Korle Bu Teaching
Hospital for looking after these patients. Mr. E. L. vBj, formerly
of the Centre for Health Statistics, Ministry of Health, Corre-
Bu, helped with the statistical analysis; for which we are thankful.

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