Original Article

Chronic Subdural Haematoma: Clinical Presentation and Surgical Outcome

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ABSTRACT

Objective: Chronic subdural hematoma having diversity of clinical features, poor index of suspicion and non availability of CT scan is still diagnosed very late in AJK.

The objective of study was to find out the clinical status at the time of admission and outcome of surgery in these patients managed in our hospital.

Study Design: Descriptive Study.

Place and Duration of Study: This study was conducted at the DHQ Hospital Mirpur AJK from March 2006 to April 2010.

Materials and Methods: A total number of 47 patients with chronic subdural hematoma of all age groups were operated at DHQ hospital Mirpur in this period. Clinical presentation of the patients at the time of admission was recorded. Patients were followed for a period of 2-3 months after surgery

Results: Forty seven patients were studied. Among them 40(85%) were male and 7(15%) were female. The age range was 2 months to 100 years with average age 52.5 years. Thirty one (66%) had positive history of head trauma whereas 16 patients (34%) did not remember any injury. Thirty one (66%) had headache, 35(74.5%) had hemiparesis, 19(40.4%) had behavioral changes and urinary incontinence. Six patients (12.8%) were having GCS 3 with reactive pupils. One (2.1%) patient came with decreased vision. CT scan showed unilateral hematoma in 37 (78.7%) and bilateral in 10 (21.3%) patients. Twenty five (53%) patients had hematoma on left side, 12(25.5%) had hematoma on right side and 10(21.3%) had bilateral hematoma. Thirty four (72.3%) had good recovery. Four (8.5%) could not survive.

Conclusion: Chronic subdural hematoma due to diversity of symptoms, poor index of suspicion, and non availability of CT scan is still diagnosed very late in AJK.

Elderly patients with diversity of confusing neurological symptoms need to be kept under high index of suspicion for diagnosis of chronic subdural hematoma. Drainage of Chronic subdural hematoma with two burr holes and placement of subdural drain offered excellent

Key words: Chronic subdural hematoma, Burr hole craniostomy.

INTRODUCTION

The incidence of chronic subdural hematoma (CSH) in the general population is approximately five per 100 000 per year, but is higher for those aged 70 years and older[1]. In elderly peak incidence at the age of 63 years[2] and in infants at 6 months[3] has been reported in some studies..

It is difficult to diagnose chronic subdural hematoma due to wide diversity of clinical features. In elderly it presents with features simulating neurological and psychiatric conditions like dementia, confusion, language difficulties ,hemiplegia, seizures, transient ischemic symptoms, and coma[4] Keen observations and high index of suspicion is necessary for diagnosis of subdural hematoma in these patients.

Often the only presenting sign of chronic subdural hematoma in infants is an accelerated increase in head size. Further investigation usually reveals some element of irritability, poor feeding, occasional vomiting, or tension of the anterior fontanelle[5].

The pathogenesis of chronic subdural hematoma is still a matter of debate and interest.

Among various theories the osmotic theory[6] and re bleed from the membrane around the clot[7] are important.

Computed tomography remains the primary imaging modality for diagnosing chronic subdural. MRI is highly reliable in diagnosing chronic and sub acute subdural hematoma[8]. Lesions that are isodense or hypodense on computed tomography generally appear hyperintense on both T1- and T2-weighted images**.**

Chronic subdural hematoma are treated by drainage by two burr holes[9] single burr hole[10] and twist drill craniostomy[11] Subdural drain can also be used postoperatively[12], usually 3 days of drainage is recommended for outer membrane of chronic subdural hematoma to restore a balance between coagulation and fibrinolysis[13].

Most of the patients return to their premorbid level of functions after treatment[14]. In children with evidence of increasing intracranial pressure, a subdural tap is performed, both for therapeutic decrease in pressure and for evaluation of the fluid for degree of blood content. If the pressure remains normal, more than one tap is usually not necessary. This tapping can be

repeated if there is recurrence of elevation in the pressure. If repeated taps do not resolve these collections, then a subdural peritoneal shunt is usually warranted[15].

Common complications associated with surgery include seizures, re-accumulation of hematoma, intracerebral bleed, pneumocephalus, and subdural empyema[16].

A mortality rate of 0-8% has been reported[10].

MATERIAL AND METHODS

It was a descriptive study carried out at DHQ hospital Mirpur AJK between March 2006 to April 2010.A total number of 47 patients with chronic subdural hematoma of all age groups were operated at DHQ hospital Mirpur in this period.

Patients of all age groups, who were diagnosed as subdural hematoma on CT scan, were included in the study. Patients were studied according to set protocol. All the patients had routine investigations done.

In the four pediatric patients repeated subdural taps were carried out which resolved the hematoma successfully. One patient who was symptomatic for more than 12 weeks, CT scan showed organized subdural hematoma, had craniotomy done. Rest of 42 patients were operated by two burr holes in unilateral and four burr holes in bilateral hematoma under local or general anesthesia.

All the patients received second generation cephalosporin preoperatively. Patients were positioned on the operation table keeping the head at the level of the heart. Local head shaving was done just before the incision. Incisions were marked depending upon the location and maximum thickness of hematoma. Area of incision was infiltrated with 2% xylocaine with0.001% adrenaline. Two burr holes one anterior and one posterior were made over the maximum thickness in unilateral hematoma. Dura was opened, hematoma drained (Fig 1A &B). Irrigation with isotonic saline was done till clear fluid came out. A subdural drain was placed in posterior burr hole and was taken out subcutaneously with different stab incision. For subdural drain soft feeding tube size 8-10 was used. The feeding tube was connected with drainage bag and connection was sealed with aseptic technique. Patients were shifted to ward keeping heads at the level of bed for 24-48 hours. Patients were hydrated well peri and postoperatively for rapid obliteration of subdural space[17]. Antibiotics were continued till drains were removed. Drains were removed when fluid drain was less than 30 ml in 24 hours. Drains were removed between 24-72 hours.

Patients were discharged 5-7 days after surgery. They were followed monthly in out patients for the period of 2-3 months.

RESULTS

Forty seven patients were operated. Among them 40 (85%) were male and 7 (15%) were female. The age range was 2 months to 100 years with average age of 52.5 years.

Fourteen patients (29.8 %) were infants, 13 patients (27.7 %) were between 71-80 years, 8 patients (17%) were between 51-60 years and only one patient (2.1%) was 14 years old. (Table 1)

Table No.1: Age Distribution

Age	No of Patients
Infants (Less than 2 years)	14 (29.8%)
14 years	1 (2.1%)
51-60 years	8 (17 %)
61-70	2 (4.2 %)
71-80	13 (27.7 %)
81-90	5 (10.6 %)
> 90 years	4 (8.5 %)

Table No. 2: Clinical Presentation of patients

Clinical presentation	No of patients
Hemiparesis	35(74.5%)
Behavioral changes	19(40.4%)
Urinary incontinence	19(40.4%)
Headache	16(34 %)
Irritibility, vomiting, buldging fontanel	6(12.7%)
Coma	6(12.7%)
Reduced vision	1(2.1%)

Table No. 3: Outcome

Neurological Grade	No of patients
Death	4 (8.5%)
Moderate disability	9(19.1%)
Good recovery	34(74.3%)

Thirty one patients (66%) had history of head trauma .Eighteen patients (38. %) had duration of symptoms for 2-4 weeks,17 patients had 4-8 weeks ,9 patients had less than 2 weeks whereas one patient had duration of symptoms more than 12 weeks. (Figure 2) Headache were present in 16 (34%), 19 patients (40.4 %) had behavioral changes, 35 patients (74.5 %) had hemi paresis, 19 patients (40.4 %) had urinary incontinence. Six patients (12.8%) were in coma and one 16 years old patient was referred to us with decreased vision and papilloedema. Six pediatric patients (12.7%) had irritability, vomiting and buldging fontanelle. (Table 2)

Thirty six patients (63.8 %) had GCS 13-15 on admission, 11 patients (23.4 %) had GCS 8-12, whereas 6 patients (12.8 %) had GCS 3-7.

Thirty seven patients (78.7 %) had unilateral hematoma 10 patients (21.3 %) had bilateral hematoma. Hematoma was on left side in 25 patients (53.2 %), 12 patients (25.5 %) had on right side and it was bilateral in 10 (21.3 %) Four pediatric patients (8.5 %) were

managed with repeated subdural taps in OT. Four patients (8.5 %) were operated under local anesthesia whereas rest of 39 patients (82.9 %) was operated under general anesthesia. Four patients (8.5%) had postoperative intracranial bleed, 2 of them were hypertensive and 2 had associated bleeding disorders. These patients detoriated rapidly and did not survive. Five patients (10.6%) had postoperative seizures which were managed conservatively.

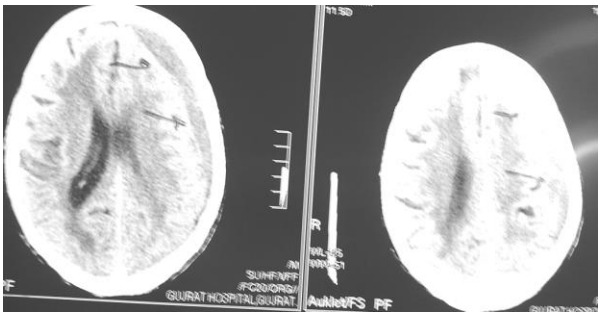

Figure 1 A: CT scan brain of 85 years old comatose patient with subdural hematoma

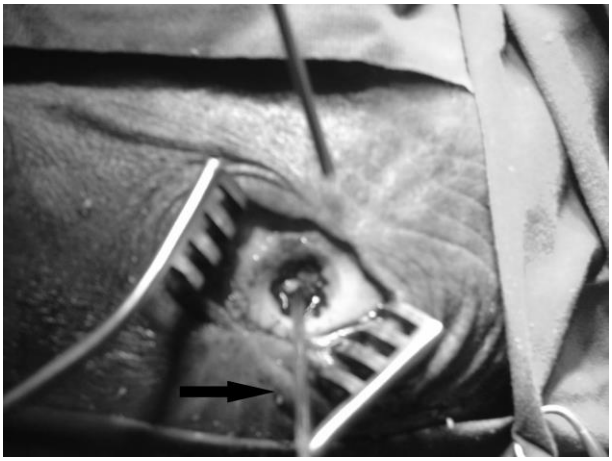

Figure 1 B: High pressure stream of subdural hematoma on opening dura in the same patient

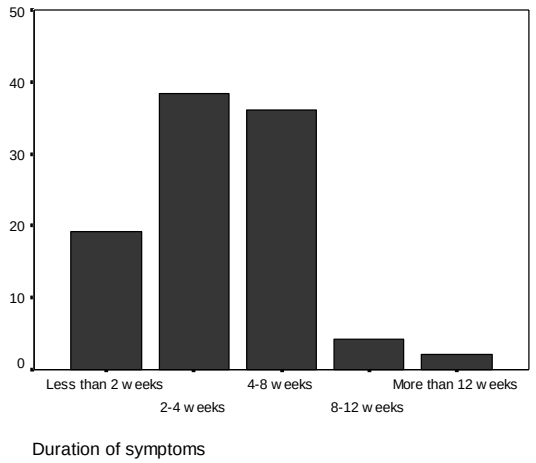

Figure 2: Graph showing duration of symptoms in percentage of cases

At the time of discharge 34 patients (74.3 %) showed good recovery (Grade V on Glasgow out come score), 9 patients (19.1 %) had moderate disability (Grade IV on Glasgow out come score), and 4 patients expired (Grade I) (Table 3).

DISCUSSION

Chronic subdural hematoma is a common clinical entity encountered in daily neurosurgical practice in pediatric and elderly patients[1,2,].Due to its diversity of clinical presentations, it is difficult to diagnose clinically.(4,5)

The incidence of chronic subdural hematoma is not well documented; it has been reported as 5 per 100000 populations with highest of 7.35 per 100000 in the age group between 70-79 years[3]. In the infants peak incidence reported at 6 months of age[2].

In this study youngest patient was 2 months old while the oldest patient was 100 years old. Among these patients 14 patients (29.8 %) were infants. Among adult 32 (68 %) patients, highest incidence was between 71-80 years (27.7%), followed by 51-60 years (17 %,), 81-90 years (10.6%) whereas 8.5% patients were between 91-100 years. This age incidence is in line with other studies[1,4].

Forty patients (85%) were male and 7 (15%) were female with male to female ratio of 6:1.

Male preponderance has been reported in various studies[18]. In females lesser exposure to trauma and estrogen defensive effect on blood vessels is said to be the reason for less incidence[18].

Thirty one (66 %) patients had positive history of head trauma. Four patients were hypertensive, and on anti thrombotic treatment. Falls and anti thrombotic therapy are reported as most frequent risk factors for chronic subdural hematoma[19].

The average time between injury and onset of symptoms is 6 weeks (20).These patients are usually diagnosed very late due to diversity of clinical picture and especially in the areas where CT scan is still not available.

Only 9 (19.1 %) patients in this study reported with in 2 weeks of onset of symptoms .Eighteen patients (38.3%) had symptoms for 2-4 weeks a 17 patients (36.2 %) had 4-8 weeks 2 patients (4.3 %) had 8-12 weeks. One patient 14 years old was symptomatic for more than 12 weeks was referred to us by ophthalmologist for reduced vision and papilloedema. Six patients (12.8%) who were symptomatic for more than 4 weeks were brought in coma.

This delayed presentation of our patients even compared with another local study (21) carried out at Islamabad is for the reason that Chronic subdural hematoma is less suspected by general practitioners and CT scan is still not available in peripheral areas of **AJK.:** Majority of patients (74%) had hemiparesis,

followed by behavioral changes and urinary incontinence (40.4%).Headache was only in 34% patients. Low incidence of headache compared to other studies[4,21,22] may be due to inclusion of pediatric and comatose patients where proper history was not available.

Best method of treating chronic subdural hematoma is still matter of debate. Chronic subdural hematoma are being drained by two burr holes, single burr hole, and twist drill craniostomy[9,10,11]. Placement of subdural drain is also controversial. In some studies they conclude that leaving drain is better to reduce the recurrence[4,22, 23].

Some recommend subdural drains for 3 days (13) whereas other authors are in opinion that there is no significance between recurrence in keeping or not keeping the drains[24].

In one local study, they concluded that placement of subdural drain caused increased rate of infection, brain injury and post op seizures[25].

In this study 4 pediatric patients were successfully managed by repeated subdural taps under aseptic techniques in operation theatre. One teen age patient who had more than 12 weeks symptoms of headache and decreased vision was managed by craniotomy because CT scan showed thick membrane. Rest of 42 patients had two burr holes for unilateral hematoma and four burr holes for bilateral hematoma. Subdural drain was placed for unilateral and two drains for bilateral cases. Drains were removed 24-72 hours when drainage was less than 20 ml. We did not have any incidence of recollection or infection.

Five patients (10.5%) had post operative seizures, which were managed conservatively. Four patients developed postoperative intracerebral bleed, two of them were hypertensive and two had added bleeding disorders. These patients detoriated rapidly and did not survive. High mortality as compared to other studies (4,24,25) was related to patients systemic problems.

At the time of discharge 34 patients (74.3%) were back to premorbid neurological status (Glasgow outcome score Grade V) 9 patients (19 %) hade moderate disability (Glasgow outcome score grade IV) Mortality was 8% (Table 3).

CONCLUSION

Chronic subdural hematoma due to diversity of symptoms, poor index of suspicion, and non availability of CT scan is still diagnosed very late.

Most of these patients presented with hemiparesis, headache, behavioral changes and urinary incontinence.

Elderly patients with diversity of confusing neurological symptoms need to be kept under high index of suspicion for diagnosis chronic subdural hematoma.

Drainage of Chronic subdural hematoma with two burr holes and placement of subdural drain offered excellent results.

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