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MANAGEMENT OF CHRONIC SUBDURAL HEMATOMAS IN CHU-JRA: MONO-INSTITUTIONAL EXPERIENCE OF 102 CASES

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ABSTRACT

Introduction: Chronic subdural hematomas are collections of old blood between the dural and arachnoid. It is a benign disease, late evolution of head injury and the treatment is surgical in most cases. **Objectives:** To evaluate the therapeutic results in chronic subdural hematomas, neurosurgery department of CHU-JRA. **Methods:** It was a retrospective monocentric study of 102 cases of chronic subdural hematomas treated in the neurosurgery department of CHU-JRA Antananarivo Madagascar during 5 years. **Results:** In our series, this pathology mainly concerned subjects over 50 years (73.82%), with a clear male predominance with a ratio of 6.8 / 1. The majority of patients had risk factors including alcoholism (25.46%), cortico-subcortical atrophy (12.74%) and 11.76% of repeated falls with a free interval about 4 weeks. Symptoms are dominated by headache (47.05%) and a deficit in the hemi corporeal deficit (44.11%). The brain tomography make the diagnosis, the topography is left in 52.95% and bilateral in 17.64% cases. The treatment was immediately surgical in 95.09%, using a trephine (31.37%) and placement of a subdural drain in 90.84% of the cases. **Conclusion:** All notion of head injury and late onset of neurological signs, thought of a chronic subdural hematoma.

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INTRODUCTION

Chronic subdural hematoma (CSDH) is one of the pathologies that generally occurs in the context of a head trauma with a spectacular postoperative outcome. It is a collection of liquefied aged red blood limited by a membrane located between the dura mater and the arachnoid, secondary to hemolysis of an unnoticed hematoma (1). It is a condition affecting elderly patients with risk factors such as head trauma, anticoagulant use, cortical atrophy, and alcoholism (2-5). In the presence of any notion of head trauma and the appearance of a late neurological symptom, CSDH should be considered, and the treatment is most often surgical (evacuation and irrigation followed or not by the placement of a subdural drain). There are few studies conducted in Madagascar on this pathology; the objective of this study was to evaluate the therapeutic outcomes of chronic subdural hematomas in patients hospitalized and managed in the neurosurgery department of CHU-JRA.

MATERIALS AND METHODS

We conducted a retrospective, descriptive, and single-center study of patients hospitalized and managed for a chronic subdural hematoma (CSDH) in the Neurosurgery Department of the Joseph Ravoahangy Andrianavalona University Hospital Center (CHU-JRA) in Madagascar over a period of 5 years (January 2013 to December 2017). We included all patients presenting with a chronic subdural hematoma confirmed by brain CT scan, whether operated on or not; incomplete records were excluded. The variables studied during this research were epidemiological, clinical, radiological, therapeutic, and outcome-related aspects. Diagnostic imaging mainly consisted of brain CT scan.

RESULTS

During the targeted period, we collected 102 cases of chronic subdural hematomas treated at CHU-JRA Antananarivo, Madagascar. It was the third most frequent surgical procedure

performed in the department after extradural hematomas and infant hydrocephalus. It accounted for 7.30% of the surgical activity, with 20.4 cases per year. Chronic subdural hematoma was mainly observed in patients over 50 years old, representing 73.82% (of which 54.90% were over 60 years old), with an average age of 63.13 years, and extreme ages of 2 and 90 years. There was a clear male predominance with a sex ratio of 6.84/1. The risk factors for chronic subdural hematomas were represented by alcoholism (25.46%), cortico-subcortical atrophy (12.74%), recurrent falls (11.76%), and 1.96% antiplatelet use. According to traumatic etiology, different mechanisms were identified, represented in Table I.

Table I: Distribution of Hematomas According to Etiological Mechanisms

	Number (n=102)	Percentage (%)
Domestic accident (DA)	30	29,41
Road traffic accident (RTA)	16	15,70
Assault	12	11,76
Occupational accident	4	3,92
Repeated microtraumas	15	14,70
Unknown causes	25	24,51

Patients were referred either by a local hospital in 39.21% of cases, by a general practitioner and a provincial hospital with respective rates of 13.73%, or following an emergency consultation at the hospital in 23.52%. The duration of symptom progression before diagnosis was variable but characteristically long, spanning several weeks (Table II).

Table II. Distribution According to the Interval Between Trauma and Onset of Symptoms

Free Interval	Number (n=102)	Percentage (%)
2 to 4 weeks	70	68,62
5 to 8 weeks	17	16,67
9 to 13 weeks	3	2,94
14 to 18 weeks	4	3,92
More than 18 weeks	8	7,85

Reasons for consultation were dominated by one or more of the following symptoms: headaches and consciousness disorders with respective rates of 47.05%, hemiparesis in 44.11% of cases, seizures in 13.72%, and memory disorders in 8.82% of cases. On clinical examination, patients were classified according to the Glasgow score to assess the state of consciousness: 60.78% had a score above 12; 34.31% a score between 12 and 9; 2.94% a score from 9 to 6, and 01.97% a score from 6 to 3. Neurological examination revealed various clinical presentations, with consciousness disorders and hemiparesis being the most frequent with respective rates of 41.17% and 32.35% of cases (Table III).

Table III. Distribution of Patients According to Clinical Examination Findings

	Number	Percentage (%)
Intracranial hypertension syndrome	22	21,56
Disturbance of consciousness	42	41,17
Temporal and spatial disorientation	6	5,88
Speech disorders	17	16,66
Unilateral mydriasis	6	5,88
Hemiparesis	33	32,35
Hemiplegia	26	25,49
General health deterioration	22	21,56

Imaging requested was exclusively a brain CT scan without or with contrast injection, and the topography of CSDH was left-sided in 52.95% of cases, right-sided in 29.41%, and bilateral in 17.64%. Therapeutically, 95.09% of CSDH cases were operated on; antibiotic therapy was used systematically postoperatively for a duration of 5 to 7 days, with the first two days parenterally then switched to oral administration. The drug used was mainly 3rd-generation cephalosporins with the aim of preventing superinfections; corticosteroid therapy was used in 15.94% postoperatively and in 100% of non-operated hematoma cases, and antiepileptics in 7.97%. Regarding surgery, the preferred technique was burr hole in 31.37% of cases, followed by enlarged craniotomy in 24.50%, mini-flap in 21.56%, and twist-drill in 17.66% of cases, with the placement of a subdural drain in almost all operated patients (90.84%). In terms of outcomes, 82.36% were uncomplicated, noting that the complications encountered were recurrences in 13.72% and superinfections in 3.92% of cases, which required surgical revision.

DISCUSSION

Male predominance (87.25%) is found in most of the literature (6-8), and indeed it is a pathology of elderly individuals, given that the majority of cases are over 50 years old with cortical atrophy, on anticoagulants, and with a history of minor head trauma (2-5), especially repeated microtraumas (14.70%). However, no obvious cause could be established in 24.51% of cases. The majority of CSDH cases evolved between 2 to 4 weeks before diagnosis (68.62%). For patients with a history of head trauma, the free interval is very difficult to determine since it involves repeated microtrauma in most cases, but for severe or moderate trauma, this interval is long and averages 4 weeks. The presence of this free interval is the most typical form of CSDH (9). Patients presented for consultation at different stages of evolution of chronic subdural hematoma, at the stage of hemiparesis (44.11%) although they had already experienced initial headaches; some consulted for consciousness disorders (47.05%), headaches (47.05%), and others for seizures (13.72%). Brain CT scan enabled diagnosis in all reported cases in the present study without resorting to other imaging modalities including magnetic resonance imaging. In our series, the most frequent topography was left-sided (52.95%), and the bilateral form accounted for 17.64%. This is comparable to data from the literature (10,11). Therapeutically, the only medical treatment sometimes used was corticosteroids, introduced in non-operated patients and in 15.94% postoperatively in cases of unsatisfactory brain expansion. This corticosteroid therapy is recommended by some authors in the literature (12). Antiepileptics are not used systematically. In our series, the surgical technique was either burr hole (31.37%) or enlarged craniotomy (24.50%), under general anesthesia with systematic placement of a subdural drain followed by postoperative antibiotic therapy. In the literature, surgical techniques vary and there is no consensus. Some neurosurgeons recommend removal of the membranes (13,14), but little evidence supports this practice. Placement of a subdural drain allows prevention of recurrence and has been the subject of a prospective and randomized study demonstrating a beneficial effect on survival (15). Most neurosurgeons recommend burr hole and drain placement as the first-line technique, and craniotomy for recurrences (16). Recurrence was observed in only 13.72%, and superinfection

was rare (3.92%) in our series. This may be related to the systematic postoperative antibiotic therapy.

CONCLUSION

The diagnosis of CSDH is straightforward in the presence of a history of head trauma and the appearance of late secondary neurological symptoms, confirmed by brain CT scan. In Madagascar, the intervention is performed under general anesthesia with the systematic introduction of antibiotics postoperatively

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