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GRAVECOMPLICOUSOPHIDAL ENVENTION OF A ARACHNOIDAL HEMORRHAGIA

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ABSTRACT

Introduction: Ophidian envenomation is a global public health problem. In Morocco, she was responsible for 72 deaths, the cause of which is usually haematological, neurological, respiratory, renal or haemodynamic failure. Observation: We report the case of severe envenomation secondary to a viper bite in a 37 year old patient who required early ventilatory management because of the occurrence of a state of convulsion. The initial assessment reveals a clinical and biological hemorrhagic syndrome with a state of deep defibrination. He was responsible for moderate arachnoid hemorrhage. FAV Afrique® immunotherapy combined with symptomatic resuscitation were effective, and the haemostasis assessment normalized before the 24th hour (TP, TCA and platelets) and later for fibrinogenemia (3rd day). The patient leaves the intensive care unit at day 9 and the hospital at day 14 with follow-up in neurology consultation. Conclusion: Snakebites are medico-surgical emergencies of concern, responsible for high mortality in Africa. In Morocco, and even if these figures are relatively low, they can not be reassuring. In the absence of specific immunotherapy, it is lawful to attempt treatment with FAV Afrique® in order to take advantage of the paraspecificity (although disputed) of the antivenoms pending the availability of an antivenom adapted to local species.

Keywords *: Ophidian envenomation, Echisarietans, subarachnoid haemorrhage, specific immunotherapy.*

INTRODUCTION

With more than 6 million snake bites a year worldwide and 2.4 million envenomation, the WHO finally recognized in 2009 the Ophidian envenomation as a global public health problem. It is a frequent and serious medical emergency responsible for one death every five minutes. In Morocco, the anti-poison center recorded 1761 cases of snakebite between 1980 and 2008. An ophthalmic envenomation was observed in 1049 patients, responsible for 72 cases of death, ie a mortality of 7.2%. [1]

Death is usually secondary to haematological, neurological, respiratory, renal or hemodynamic failure.

The authors report the case of a serious envenomation secondary to a viper bite, complicated by

subarachnoid hemorrhage, effectively treated with a fraction (Fab ') 2 of non-specific polyvalent immunoglobulins of equine origin.

MATERIALS AND METHOD

OBSERVATION:

A 37-year-old patient is hospitalized in the Resuscitation Department of the Avicenna Military Hospital in Marrakesh for a convulsive condition occurring 10 hours after a snake bite in the right forearm.

While he was partly hunting, escorts report having seen a triangular head snake so a viper, with very massive body, of more than one meter, aggressive, with the loud and strident whistle evoking the geodistribution of the venomous species in Morocco [2] orBitisarietanssoitmacroviperamauretanica.

The patient has two hemorrhagic marks on the anterior aspect of the right forearm. The bite is extremely painful, accompanied by vomiting, devertial diarrhea and lipothymia. He was initially treated at the Essaouira Provincial Hospital for a rapid assessment of the severity of the patient's condition: This is a mild envenomation since the edema does not extend beyond the elbow and presence of a bruise surrounding the bite point. Urgent symptomatic measures were undertaken: The patient was put under oxygen therapy at a good rate, a peripheral venous route is put in place with perfusion of physiological saline.

The entrance door is meticulously cleaned with soap and water, disinfected with an antiseptic solution (Betadine®) before being covered with a sterile dressing.

An analgesic treatment was instituted associating propacetamol and nefopam. Two grams of amoxicillin-clavulanic acid was administered intravenously slowly to prevent bacterial superinfection.

Vaccine therapy and tetanus serotherapy were administered. The patient is monitored without any assessment being requested.

An hour later, the clinical picture was clearly aggravated by the occurrence of a resolving seizure by the intravenous administration of 10 mg of diazepam. The blood glucose is 1.62 g / l. The recurrence of seizures leads to the diagnosis of convulsive condition. Its management included the achievement of a barbiturate anesthesia after control of the airways by orotracheal intubation. This conditioning was completed by the establishment of nasogastric and bladder probes and the patient evacuated to our structure.

Upon admission to the medical resuscitation department, 13 hours after the bite, the patient is ventilated under sedation with midazolam and fentanyl. The pupils are in tight miosis. Hemodynamics is precarious: Blood pressure is 70/35 mm Hg, heart rate is 136 beats per minute cyanosis coldness and mottling point to hypovolemic shock and vascular filling is then achieved.Its inefficiency leads to introduction norepinephrine at a rate of 1.5mg / hour that restores blood pressure to 110 / 75.It is afebrile. The edema extends well above the elbow, and its limits are marked by stylodermography. The anterior region of the forearm is the seat of an ecchymotic cupboard. The presence of other associated haemorrhagic signs (hematuria, gingivorragias, bleeding at the point of insertion of the venous catheters) sign a syndrome of severe defibrination that the biological examinations will confirm. Peripheral pulses are all seen including radial right.

The diagnosis of severe ophthalmic envenomation is retained, and the initial biological assessment

reveals a renal insufficiency with creatinine at 150 µmol / l, the urea is at 18 mmol / l, a coagulopathy associating a prothrombin level collapsed to 31%, deep hypofibrinogenemia at 0.1 g / l and thrombocytopenia at 65000 / mm3. The TCA is> 120 seconds. The hematocrit is 37%. He is of group B Rhesus negative.

Faced with this severe ophthalmic envenomation, resuscitation included vascular filling by crystalloids, continued aminergic support and sedation.

Administration of effective antivenom-only therapeutic eetologic immunotherapy was possible, and the patient received a slow intravenous ampoule of antiveninFAV Africa® and one ampoule in one infusion of 250 ml of isotonic saline in 15 minutes.

Management initially initiated was completed by performing a cerebral computed tomography that showed meningeal hemorrhage without ventricular flooding, with diffuse cerebral edema. (Figure 1)

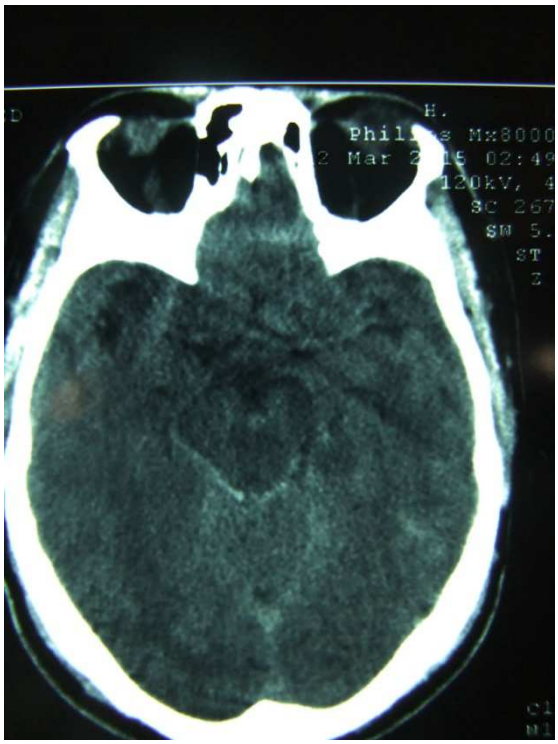

Figure 1: Meningeal hemorrhage and cerebral edema on cerebral CT.

Surveillance focused on limb status (local signs), hemorrhagic symptoms, and monitoring parameters: Pulse, invasive blood pressure, tissue oxygenation and diuresis, and monitoring of hemostasis by platelet count, prothrombin time, activated partial thromboplastin time, fibrinogen level, every 4 hours as long as it was disturbed, as well as twice daily monitoring of the number of leucocytes, and the hematocrit level.

The evolution over 24 hours was marked by a gradual improvement in the hemostasis balance, except for fibrinogen which took 3 days to normalize (Figures 3 and 4).

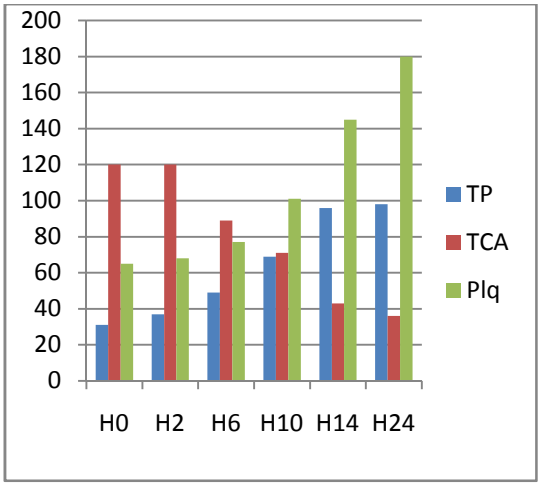

Figure 3: Evolution of platelet count, TP and TCA as a function of time

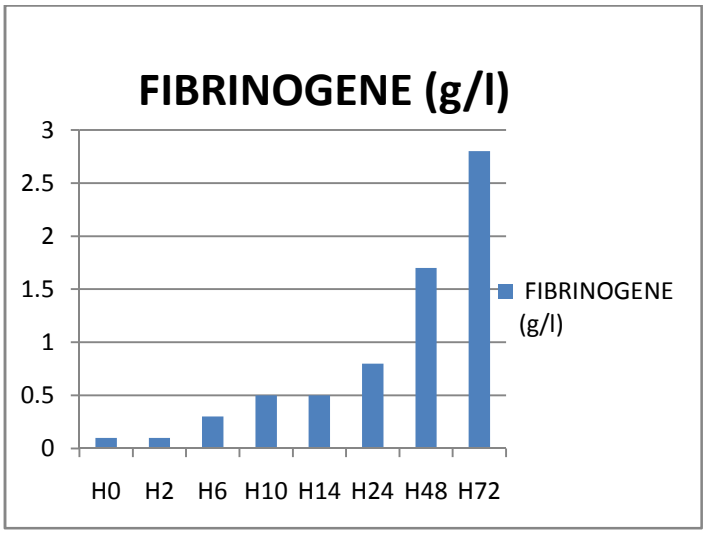

Figure 4: Evolution of the rate of fibrinogen as a function of time

Thus 5 ampoules of F (ab ') 2 fragments of purified polyvalent immunoglobulins were required and administered as follows:

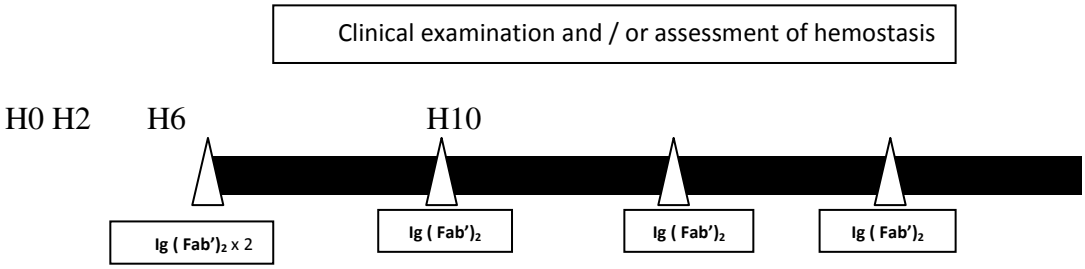

Figure 3: Immune Globulin Injection Profile According to Clinical and Biological Monitoring

The patient showed a noticeable improvement in his clinical condition during his stay in the hospital. It was sedated and hyperventilated for 04 days, at the end of which there is a resorption of cerebral edema at the TD control. The patient was extubated on D + 7. No neurological deficit was noted.

The right upper extremity was the seat of a significant edema going up to the axillary region. It required a trimming and a slightly compressive bandage. Against all odds, the evolution has been simple. It is less and less edematous, erythema and bruising have gradually regressed.

The patient is referred to the neurology department on day 9 and leaves the hospital after a stay of 14 days.

RESULTS AND DISCUSSION

Morocco hosts a relatively large number of snake species in its various ecosystems: 25 species of snakes have been recorded, but only 8- Table 1-are involved in Ophidian envenomations. It should be noted that among the 17 harmless species, 5 possess a venomous apparatus (venomous glands and hooks), but their hooks are located at the back of the jaw and can not be used against the man. The 12 remaining species n have no venomous glands. [3]

Venomous snake in Morocco		Size (in cm)	Characteristics			Efficiency of Fav Africa ®
			Body Tail Habitat	Body Tail Habitat	Body Tail Habitat	
Naja legion;	Élapidae	200	Black or gray brown	Long	Arid environments	Effective
An adder cěrastes	Viperidae	80	Large	Very short	All lesahara	Ineffective
A horned viper	Viperidae	45	Heavy	Very short	All the sahara	Ineffective
Macroviperama uretanica	Viperidae	120	Very heavy	short	All Morocco	Ineffective
Beets arietans	Viperidae	120	Very heavy	Very short	Souss and South West	Effective
EchisLeucogaster	Viperidae	80	Heavy	short	Sub-desert regions	Effective
Vipéralatastei	Viperidae	60	End	short	Rif and Middle Atlas	Ineffective
Viperamonticola	Viperidae	35	End	short	High Atlas	Ineffective

Table 1: Morphological characters and habitats of venomous snakes in Morocco

The venoms are secreted by the venomeus-derived gland of the salivary gland, and make a heterogeneous mixture of proteins, mostly enzymes and toxins. Only a few are toxic and induce clinical disorders. The composition of the venom is very variable from one species to another or even within the same species [4]. These variations sometimes explain the lack of effectiveness of the antivenoms, which are in fact only F (ab ') 2 fragments of immunoglobulin G produced in equines or cattle in response to a progressive inoculation of inactivated venom.

Elapids venoms are rich in neurotoxins that act on the motor plaque by rapidly and irreversibly binding to nicotinic acetylcholine receptors, thus blocking synaptic transmission of nerve impulses

and thus neuromuscular conduction [4]. Viperid venoms are rich in enzymes of varying specificity. They make a real mixture of necrotizing, procoagulant, anticoagulant and fibrinolytic enzymes which have a complex, multifactorial and variable action on coagulation from one species to another [5]. These ophidian proteins may be hemorrhages (alteration of capillary permeability), disintegrins (anti-aggregating action) or proteases that interfere with coagulation. The antivenom, the components of which are directed against all the ophidian proteins of the venom concerned, remains the only logical and especially effective treatment of ophidian envenomations even when it is administered late [6].

Clinically, it is classic to contrast viperin syndrome and syndromecobraïque.

The viperin syndrome is a toxidrome associating in variable proportions, disorders of the hemostasis and local attack with intense pain, sometimes extensive edema, phlyctenes and cutaneous necrosis, realizing a true "exodigestion" of the bitten limb. It is observed mainly as a result of a bite by viperidae, including Ceramic Castera, Arietan Betis or EchisLeucogaster. The disturbances of the haemostasis provoke local and then diffuse drains. First at the site of bite and mucous membranes, accompanied by a purpura, then pulmonary and digestive hemorrhages can appear and sometimes lead to a true state of hemorrhagic shock. They can also be delayed several days after the bite. Haemorrhagic strokes and subarachnoid haemorrhage are more readily described in the elderly, but may be noted in the young as is the case with our observation.

Cobraic syndrome: Although less common than viperin syndrome, it is still a therapeutic emergency [7]. It is secondary to elapid bites represented by Naja legionis. The patient quickly presents throbbing paresthesia running through the bitten limb. Bilateral ptosis, pathognomonic, is the first objective sign. It may be followed by an attack of other cranial pairs: disorders of oculomotricity, phonation or swallowing. The table then evolves according to a descending type paralysis. A trismus is heralding the diaphragmatic paralysis that leads to respiratory arrest and death, after a variable delay between ½ and ten hours. On the other hand the bite is not very painful and the minor local troubles.

These various syndromes mentioned above can be associated, making in practice Ophidian envenomations very polymorphic tables.

The first acts consist mainly in refraining from unnecessary or even dangerous gestures (sucking, aspiration of the venom, incision, cauterization of the wound or withers) [8].

The victim should be placed in supine position to prevent a fall due to low blood pressure, subsided and reassured. Rings and bracelets are removed. The wound is disinfected with a colorless product so as not to mask the local inflammatory signs [9].

A venous route is placed and a symptomatic resuscitation is started without delay. The vascular filling is ensured by cristalloïdes.in case of collapse by hydroxyethylstarchs in second line. Colloid failure requires the use of sympathomimetic [10]. , intravenous analgesia. Orotracheal intubation in rapid sequence allows the maintenance of airway patency in case of cobraic syndrome. Once the patient is stabilized, he / she will be evacuated to a hospital facility where immunotherapy can be delivered as soon as possible.

Indeed, immunotherapy is the only effective treatment and will be administered whenever the patient shows signs of clinical severity (shock, convulsions, hemorrhagic syndrome, rapid extension of edema ...) or biological (coagulopathy) or den cases of particular ground (child, pregnant woman ...) [10]

FAV Afrique® polyvalent anti-viperin serum is the only one currently available in Morocco [9]. These are purified polyvalent immunoglobulin F (ab ') 2 fragments of equine origin, adapted to the venoms of the main envenomating species in sub-Saharan Africa, belonging to the genera Bitis, Echis, Naja and Dendroaspis. However, the dendroaspis (also called green mamba) is a species not found in Morocco, while it is ineffective on the venom of vipers of the genera Cérastes, Latastei, Monticola and Macroviperamauretanica.

Its successful use in our observation suggests that the viper in question is an Echisleucogaster. Macroviperamauretanican venom is not neutralized by FAV Afrique®.

Besides this pathophysiological treatment, an adjuvant treatment is often associated including multimodal analgesia, loop diuretics in case of acute renal failure or extrarenal treatment, alkaline polyuria in case of rhabdomyolysis.Uneaponeurotomy discharge will be indicated urgently in front of a lodge syndrome.

CONCLUSION

Snakebites are worrying medical and surgical emergencies that cause high mortality in Africa. In Morocco, even if these figures are relatively low, they can not be reassuring because of the difficulty of establishing (despite the mandatory nature of the notifications) precise statistics, difficulties of access to care, geographical isolation , the high cost of antivenom and the frequent use of traditional medicine.

Improving the prognosis requires early administration of early and specific immunotherapy. The paraspecificity of antivenins [11] - although disputed and not consensual - is based on the principle of possible antigenic similarities between the toxins of various serpents and those for which the reference antivenom was intended. It is therefore lawful to attempt the only treatment available when the adapted antivenom is not produced. Solutions should be considered at the national or regional level, with the support of experts, to provide the clinician with an antivenom adapted to local species.

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