MORESTIN SYNDROME: BEYOND THORACIC TRAUMA

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Abstract

Morestin syndrome (MS) is a rare clinical manifestation consequent to an acute compression trauma to the thorax. In such an event, the sudden elevated pressure that happens to the airway and the rapid and retrograde blood flow results in capillary rupture in the head and neck vessel territory. This case reports a car accident victim that was dragged by a truck down a road with closed thoracic trauma resulting in MS. The patient presented with ecchymotic mask, neck and facial cyanosis and petechiae, ocular hemorrhage, otorrhagia, left clavicle fracture and spleen laceration that resolved with conservative measures. In this article, the authors present a specific acute syndrome due to trauma, with potential severe complications that should be recognized early and subject to a multidisciplinary and systemic approach in the emergency setting.

INTRODUCTION

Morestin Syndrome is typically characterized by cyanosis, cervico-facial petechiae, ocular hemorrhage, epistaxis, otorrhagia and neurological symptoms. It is due to blunt acute thoracic trauma, with extreme compression causing a sudden retrograde efflux of blood to the head and neck. The authors present a clinical case with manifestations of this rare phenomena.

CLINICAL CASE

A 45 years old autonomous male, with no known precedents or regular medication was transported by a medical helicopter from Instituto Nacional de Emergência Médica (INEM) to a central trauma center in Lisbon, after a motor vehicle accident, where he was dragged by a truck for a few seconds, causing blunt chest trauma.

At the emergency department (ED) he was evaluated according to the *Advanced Trauma Life Support* (ATLS) protocol, with no need for invasive emergency procedures.

The patient was observed by several specialties, namely Maxillofacial Surgery and Otolaryngology that excluded trauma to their given areas, Ophthalmology that detected bilateral sub-conjuntival and pre-retinal hemorrhage on the lower temporal arcade of the left eye manifesting with diplopia, and Trauma that identified a left clavicle fracture without neurovascular complications and no need for surgical fixation.

The patient was submitted to a computed tomography (CT) of the head, thorax, abdomen, pelvis and vertebral column that revealed only a small left side asymptomatic pneumothorax. Because he was clinically stable, without the need for emergency care, a transfer was arranged to his referral Hospital.

Upon arrival at his local hospital he still complained of light dizziness, diplopia, constant pain localized to the left clavicle, and chest discomfort, predominantly on the right anterior chest grid with no irradiation, aggravated with breathing and movements of the right upper limb.

On clinical inspection, he was conscious, calm, hemodinamicaly stable with no vasopressor support, breathing without effort on 2 liters of supplemental oxygen. The chest wall did not show paradoxical movement, but local pressure points, bruising and ecchymosis could be seen on the anterior right hemitorax and left acromioclavicular area. Subcutaneous emphysema was detected in the left supraclavicular and cervical region. The cardiopulmonary and abdominal observation was not altered and the limbs had no signs of neurovascular compromise. At the cervicofacial level, extensive cyanosis, multiple petechiae and ecchymosis (Fig. 1 and 2) as well as bilateral subconjuntival hemorrhage was present.

Red cell count was normal with hemoglobin of 15.5g/dL, 9500 leucocytes /L, without increased neutrophils. Rhabdomyolysis reflected in 1196 U/L of serum

Figure 1 *Morestin mask- cyanosis and cervicofacial petechiae.*

Figure 3 *TAP CT: Grade III splenic hematoma.*

creatine kinase (CK) with cardiac enzymes and the remainder blood tests within normal range. The transthoracic cardiac ultrasound did not detect relevant changes.

The patient had another CT that revealed reabsortion of the left pneumotórax, the already known clavicle fracture and a previously undetected grade III splenic hematoma (Fig. 3).

Figure 2 *Left eye subconjuntival hemorrhage.*

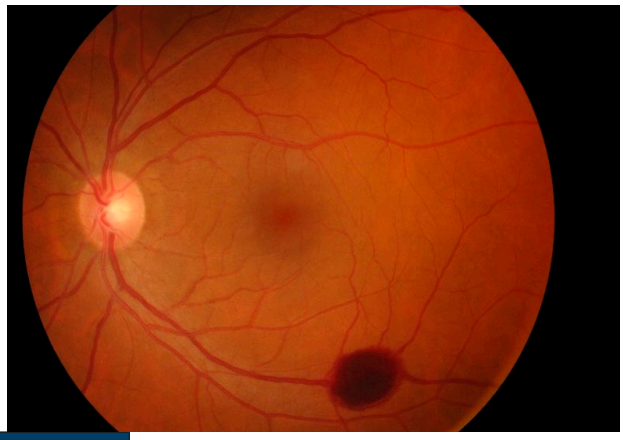

Figure 4 *Pre retinal hemorrhage of the temporal inferior arcade of the left eye without alterations of the optic disc or macula.*

He was admitted to intermediate care for surveillance and from there to the infirmary under General Surgery care.

All throughout the hospital stay he had a favorable clinical, laboratory and radiological evolution, with progressive regression of the ecchymosis, serum CK leveling and gradual resolution of the spleen hematoma on the CT the 12th day after the accident. At the same time, the diplopia disappeared and reevaluation by Ophthalmology revealed evidence of stable bilateral subconjuntival and left conjunctiva hemorrhage (Fig. 4) and the Trauma team recommended conservative care of the clavicle fracture.

Discharge occurred on the 9th admission day clinically stable referred to the General Surgery, Trauma and Ophthalmology outpatient clinic.

DISCUSSION

Morestin Syndrome (MS), also known as *Perthes Syndrome* or *traumatic asphyxia*, is a rare event of blunt force trauma to the chest, with only around 200 cases described in the literature.[3]

The most frequent causes are road traffic accidents (incidence of 1 in 18500 accidents) that make up 40% of the cases.[4] The remaining causes are generally

attributed to work or sport accidents.

In the MS, there is extreme and acute chest compression of a patient who, as an involuntary response to fear, takes a deep breath and closes his glottis at the moment of impact.

This causes an acute increase of intra-thoracic pressure, causing a retrograde efflux of blood from the right atrium to the superior vena cava (SVC) and to the SVC drainage territory with rupture of the head and neck venules and capillaries by the excessive pressure.

Consequently, these patients present with a typical Morestin face mask characterized by extreme cyanosis, ecchymosis and cervicofacial pethechiae.[1,6]

Frequently, eye hemorrhage occur causing ophthalmological complaints like decreased visual acuity, diplopia or exophthalmia can be seen as well as epistaxis or otorrhagia, possibly complicated by hearing defficits.[3]

The reported case presented with eye hemorrhage due to inferior temporal artery lesion without complications or permanent damage.

Another mechanism existing in this syndrome is the consequent reduction of cerebral blood flow, resulting in neurological manifestations of hypoxia like dizziness, headache, confusion, syncope or even brain death.[2,5]

Our patient's only complaint was self-limited dizziness.

Patients frequently present with concomitant non-specific lesions from the thoracic trauma, like fractures of the rib cage or other chest bones, hemopneumothorax or other organ damage from extreme compression.

We are presenting a case with splenic laceration, a possible complication that has been described in literature.[1]

CONCLUSION

MS is, therefore, a consequence of a blunt trauma of major kinetic energy, whose morbidity and mortality depends on the duration and severity of the chest compression to which the patient is exposed.[1,2]

These patients evaluation must follow the international recommendations of trauma care (ABCD) so as to precociously identify and treat lesions to avoid permanent damage.

This clinical case presents with manifestation of a rare syndrome that might entail serious complications or even death if not stopped and swiftly treated, while warning to the systematic and global approach to trauma patients.

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