

Hematoma a life threatening condition: A rare case report

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Abstract: Hematoma is a mass of coagulated or extravasated blood in a cavity or closed tissue space. It can induce many infections if exposed to the exogenous or endogenous pathogens. High risk of infection after trauma is related to several factors: poor perfusion, shock, tissue viability following necrosis or hemorrhage, the number and virulence of organisms and host resistance. The presence of hematoma or accumulation of serum, and devitalisation and ischaemia of injured tissue, provides a favorable environment for growth of pathogens, including anaerobic bacteria, with decreased access of immune response. In the reported case, the post traumatic hematoma got infected and the patient developed cellulitis, which spread to the other spaces in the neck and caused difficulty in airway, speech and mastication. Antibiotics were prescribed to curb the infection and serratiopeptidase enzyme was administered for the purpose of suppressing and eliminating the post traumatic bleeding and hematoma. The main objective here was to prevent airway obstruction and avert a serious, life threatening condition.

Key words- Hematoma, infection, cellulitis, life threatening condition

I. Introduction

Hematoma is a mass of coagulated or extravasated blood in a cavity or closed tissue space.¹ It is localized swelling that is filled with blood caused by a break in the wall of a blood vessel. The breakage may be spontaneous, as in the case of an aneurysm, or caused by trauma. The word "haematoma" came into usage around 1850 and is derived from the Greek roots "hemat-" (blood) and "-oma", from soma, meaning body = a body of blood. Another etymological derivation would be from "haemat-" = "blood"-and "-oma" = "-ing", thus simply "bleeding". Hematomas form into hard masses under the surface of the skin. This is caused by the limitation of the blood to a subcutaneous or intramuscular tissue space isolated by fascial planes. This is a key anatomical feature that prevents such injuries from causing massive blood loss. In most cases the sac of blood or hematoma eventually dissolves; however, in some cases they may continue to grow or show no change. If the sac of blood does not disappear, then it may need to be surgically removed.

Injury mechanisms such as falls, assaults, sports injuries, and vehicle crashes are common causes of facial trauma in children² as well as in adults. Blunt assault, blows from fists or objects, are a common cause of facial injury.³ Nearly 10% of patients with craniomaxillofacial fractures sustain intracranial hemorrhages requiring frequently immediate neurosurgical intervention. Those patients, suffering from central midface fractures and skull base fractures, are prone to highly significant elevated risks of intracranial hemorrhage.⁴

II. Case report

A 10 year old male patient, reported to the department of Oral and Maxillofacial Surgery with swelling in the right preauricular region, following blunt trauma due to interpersonal violence at school (fig.1). The patient revealed that the initial swelling was small, and he experienced mild pain over the pre auricular region. As a result, he neglected the swelling, which, over the next 4 days increased in size. On examination, the swelling was roughly oval in shape, with ill defined margins, extending from right preauricular and submandibular regions to cross the midline and reach up to the middle of the neck, superior-inferiorly; and antero-posteriorly, from the right corner of the mouth to the tragus. The swelling was firm, indurated, woody hard, non-pitting, non-fluctuant and associated with tenderness and trismus. Crepitations were also felt in the neck region. The orthopantomograph appeared normal, with no relevant findings. The above findings were indicative of cellulitis which had spread to the other spaces in the neck and caused difficulty in breathing, speech and mastication.

A non-surgical, conservative approach was chosen for treatment. An I.V. line was established using No. 22 veinflow. Patient was administered I.V. antibiotics and steroids with oral doses of analgesics and antacids. O₂ was also administered at the rate of 2-3 litres/ hour for 3 consecutive days. A surgical approach (incision and drainage) was also planned for decompression of the spaces involved, but the patient responded

well to the I.V. antibiotics regimen as prescribed above. The swelling subsided within 3 days and the facial profile of the patient was back to normal (fig.2).

III. Discussion

Hematoma is a swollen or raised area at the venipuncture site resulting from leakage of blood into the tissues. The size and spread of a hematoma depends on its vascular origin (capillary, venous or arterial) and the tissue into which it is bleeding (muscle, fat or interstitia). Hematomas stop expanding when the pressure of the pooling blood exceeds the vascular pressure of the bleeding site. It can be viewed in three time frames: pre, peri and postoperative. Although no literature has provided a failsafe set of predictors as to which patients are at risk and which are not.⁵ The role of the mandibular fracture hematoma could be as a presumptive local reservoir for osteogenic progenitors and thus contribute to intramembranous bone healing.⁶

Classification

Types

- Subdermal hematoma (under the skin)
- Skull/brain:
- Subgaleal hematoma – between the galea aponeurosis and periosteum
- Cephalohematoma – between the periosteum and skull. Commonly caused by vacuum delivery and vertex delivery.
- Epidural hematoma – between the skull and dura mater
- Subdural hematoma – between the dura mater and arachnoid mater
- Subarachnoid hematoma – between the arachnoid mater and pia mater (the subarachnoid space)
- Othematoma – between the skin and the layers of cartilage of the ear
- Perichondral hematoma (ear)
- Perianal hematoma (anus)
- Subungual hematoma (nail)

Degrees

- Petechiae – small pinpoint hematomas less than 3 mm in diameter
- Purpura (purple) – a bruise about 1 cm in diameter, generally round in shape
- Ecchymosis – subcutaneous extravasation of blood in a thin layer under the skin, i.e. bruising or "black and blue," over 1 cm in diameter

Trauma often leads to inflammatory responses which induces the release of numerous vasoactive angiogenic pyrogens, which produce vasodilatation within a few hours of injury.⁷ Hemorrhage from the dilated, damaged vessels of the endosteum, periosteum and Haversian system leads to hematoma formation.⁸ Hematoma can induce many infections if exposed to the exogenous or endogenous pathogens.⁹ Most previous reports of infection after trauma in children have highlighted the importance of aerobic or facultative organisms.¹⁰

High risk of infection after trauma is related to several factors: poor perfusion, shock, tissue viability following necrosis or hemorrhage, the number and virulence of organisms and host resistance.¹¹ The presence of hematoma or accumulation of serum, and devitalisation and ischaemia of injured tissue, provides a favorable environment for growth of pathogens, including anaerobic bacteria, with decreased access of immune response.⁹

An etiologic diagnosis of simple cellulitis is frequently difficult, and generally unnecessary for patients with mild signs and symptoms of illness. Clinical assessment of the severity of infection is crucial, and several classification schemes and algorithms have been proposed to guide the clinician.¹² Hematomas of skin and soft tissues are often treated with **RICE** (rest, ice, compression, elevation). Emerging antibiotic resistance among *Staphylococcus aureus* (Methicillin resistance) and *Streptococcus pyogenes* (Erythromycin resistance) are problematic, because both of these organisms are common causes of a variety of skin and soft-tissue infections; and because empirical choices of antimicrobials must include agents with activity against resistant strains. Minor skin and soft-tissue infections may be empirically treated with semi-synthetic Penicillin, First-generation or Second-generation oral Cephalosporins, Macrolides, or Clindamycin. It is prudent to re-evaluate them in 24–48 hours to verify a clinical response. However surgical decompression combined with drainage enables complete evacuation of the blood clot and prevents possible sequelae.¹³

In the reported case, the post traumatic hematoma got infected and the patient developed cellulitis, which spread to the other spaces in the neck and caused difficulty in airway, speech and mastication. Antibiotics were prescribed to curb the infection and serratiopeptidase enzyme was administered for the purpose of suppressing and eliminating the post traumatic bleeding and hematoma. The main objective here was to prevent

airway obstruction and avert a serious, life threatening condition. Incision and drainage was the alternative treatment of choice.

IV. Conclusion

A case of post traumatic infected hematoma has been presented. We have discussed the clinical implications of a diagnosis of hematoma, its consequences and management. The surgeon plays crucial roles in recognizing and managing many emergencies. The most immediate danger for this swelling which started as a small, mild painful swelling in the preauricular region and due to negligence by the patient got infected and lead to cellulitis stage crossing the midline. Active measures should be taken to secure the airway and administering the proper antibiotics so that the emergency can be managed appropriately.



Fig.1 Pre hospitalization photographs



Fig. 2 Discharge photo

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