Serratiopeptidase in treating hematomas without surgical drainage in hemophilia, three successful cases

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INTRODUCTION AND OBJETIVES:

Hematomas generate complications like the development of pseudotumor in many sites (central nervous system, abdomen, thorax, soft tissues, etc). The drainage of the hematoma limits the chronic inflammatory damage[1], but not always is possible because resources constraints or patient s rejection of surgical procedure. Then, a few options left to treat the patients: using a prophylactic scheme with antihemophilic factor, giving some appropriate analgesics, and rehabilitation exercises, all with the objective to minimize the pain, discomfort and volume of pseudotumor. By using fibrinolytic drugs hematoma can be absorbed through the lymphatic system, once the vascular damage has been healed, around the 10th day of injury, after the proliferative phase of cicatrization[2].

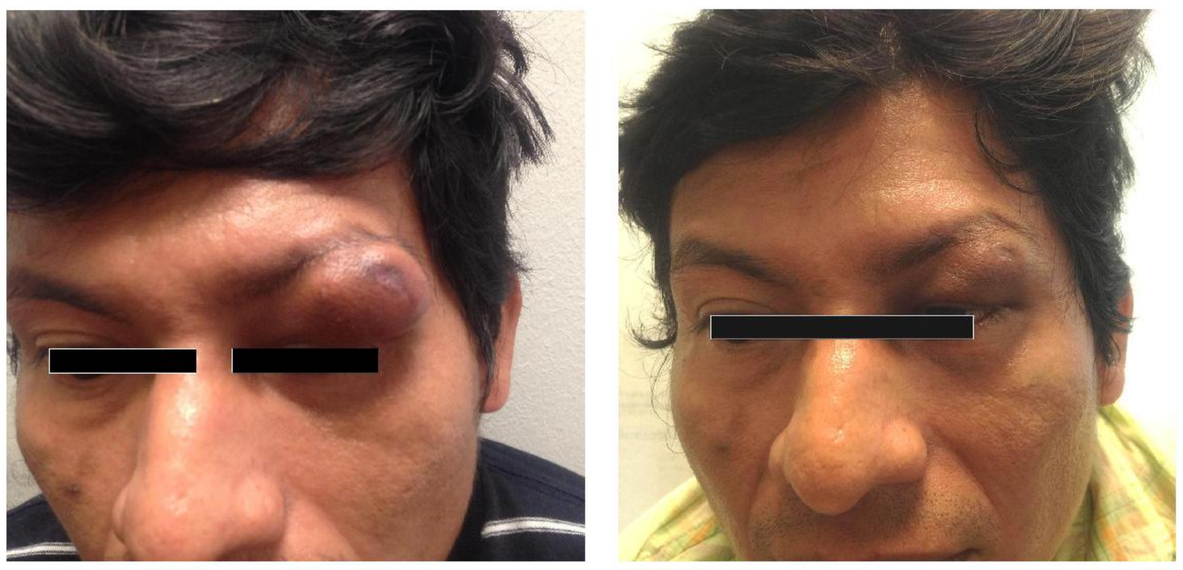

Fig 2. At diagnostic, the left eyelid blocking the eye opening. Less volumen after 2 weeks using serratiopeptidase .

MATERIALS AND METHODS:

Three patients with hemophilia A were treated with factor VIII concentrates according to the WFH guidelines, but the surgical drainage was impossible. No history of inhibitors. In all of the three cases, the surgical procedure was rejected for the patients because that was considered too risky. Then the treatments goals change into symptoms control and minimizing discomfort. It was a shared decision between medical team and patients to use fibrinolytic agents to try to diminish the amount of coagulated blood in the affected tissues, under medical surveillance to detect any signs of new bleeding episode to stop the medication and return to the hospital in necessary case. The selection of *Serratiopeptidase* was over its double effect in the inflammatory tissues: by diminishing local bradykinin release and proteolytic (not only over fibrin, but over others inflammatory proteins) effect. At the 10th day of treatment with factor replacement, the enzyme serratiopeptidase (Takeda Chemical Industries) was started with the purpose of pain relief and functional improvement. The dose used in all three cases was 10 mg po twice daily for two weeks.

One patient (mild hemophilia A) had an hematoma in the left eyelid measuring 6 x 4 x 2 cm, blocking the eye opening. A second patient (moderate hemophlia A) had a chronic iliopsoas hematoma with a new episode of hemorraghe, with an initial volume of **980** cm^3 measured by CT scan, besides intense pain. The third patient (moderate hemophilia A) had a frontotemporal subgaleal hematoma with an initial volume of 150 cm^3.

Fig 3. The Chronic psoas hematoma recived non-surgical treatment with factor VIII replacement by 10 days. After that started serratiopeptidase for two weeks. There are 3 weeks betwen this abdominal TC scans.

RESULTS:

After two weeks of treatment with serratiopeptidase, the first patient decreased his hematoma in 80% of the initial volume leading to open his left eye. The patient with the iliopsoas hematoma decreased 66% of original volume, with **332.38** cm^3 at the end of treatment, the abdominal discomfort and pain was controlled, recovering mobility. The third patient reached 100% of absortion, with no signs of residual hematoma. None of them presented new hemorrhagic episode.

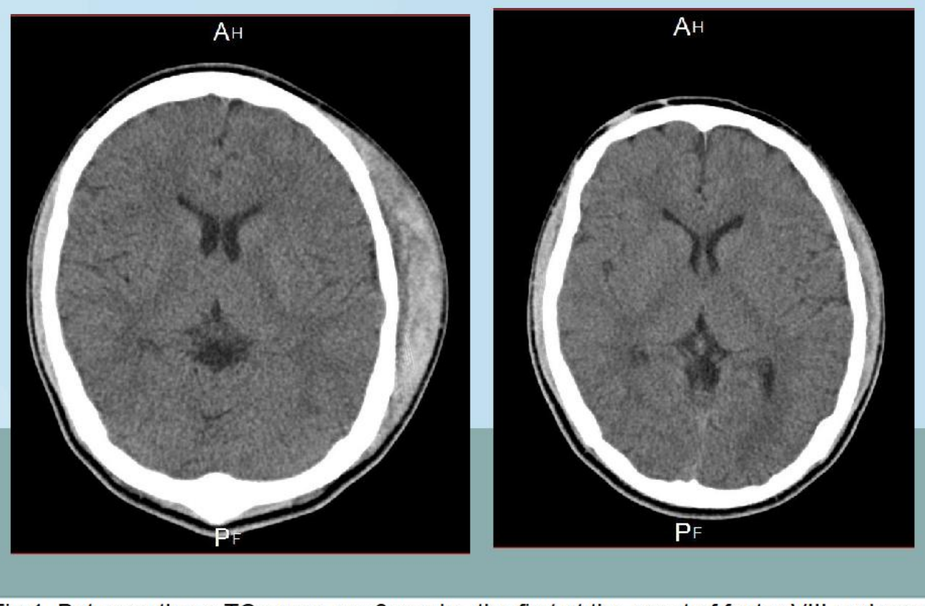

Fig 1. Between these TC scans are 3 weeks, the first at the onset of factor VIII replacement, the second after 2 weeks of serratiopeptidase.

COMMENTS:

One of the mayor consequences of frecuent bleeding is the deposit of iron and ferritin in the soft tissues, developing pannus and chronic changes that disturb the normal functioning of the joint, muscle or brain among other organs. It is a natural phenomenom that the hematoma is reabsorbed[2] but in certain amount of time. In hemophilia this time is greater than other patients, leading the changes in the affected tissues. By treating hematomas with fibrinolytic strategy, the time to eliminate the hematoma could be minor and thereafter the damage and chronic changes too, making each episode of bleeding less destructive in the involved organs. The physiological mechanism involves phagocytic cells that must destroy a huge amount of polymerized protein like fibrin, but this is much greater than the capacity of this cells and that s the reason why hematoma lies there, destroying tissues. Even in cases when the hematoma has started its organization into pseudotumor, the fibrinolytic strategy could bring some benefit by minimizing the volume of the tumor making the subsecuent surgical drainage or aspiration less traumatizing.

CONCLUSIONS:

Serratiopeptidase has been used in respiratory diseases to dissolve inflammatory exudates[3] and in cosmetic surgery[4] to reabsorb residual hematomas minimizing the size of scars. This enzyme can be used in major hematomas like the early hemophiliac pseudotumors to avoid or minimize the chronic damage such the progressive arthropathy, muscular atrophy or seizures in case of intracranial hematoma. This have a good potential to improve the quality of life of the patients. Fibrinolytic strategy is a conservative way to treat hematomas. There is no data to support the use the fibrinolytic strategy in a safe way in case of joint or intracranial bleedings. This work has the intention to stimulate the development of appropriate studies to asses the therapeutic effects of using fibrinolytic strategy in the management of hematomas.

Bibliography:

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