CASE REPORT J Pub Health Med Res 2015;3(2):50-51

Post Traumatic subgaleal hematoma causing orbital hematoma and blindness

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(Received:05/09/2015, Revised: 01/10/2015, Accepted: 12/10/2015)

Abstract : The authors report a case of a 7 year old boy who presented with a tense subgaleal hematoma and severe bilateral proptosis and blindness that was successfully managed by drainage and continuous closed system drainage that resulted in partial restoration of vision.

Key words : Blindness , Orbital hematoma, Proptosis, Sub galeal hematoma

Introduction : Subgaleal hematomas are of common occurrence in most head injuries. They are usually localized and rarely extensive enough to occupy the entire subgaleal space. Very rarely they can cause proptosis [1]. In this article we present a case of extensive subgaleal hematoma causing delayed bilateral proptosis and blindness following a minor head injury, its clinical features, CT features, surgical management and partial restoration of vision.

Case Report :

History and examination. This seven year old boy had sustained a minor head injury about 5 days prior to presentation to us. He did not have any loss of consciousness at the time of injury. He had a small swelling on right side of the head that progressively increased in size. He was seen by a local doctor and referred to NIMHANS where CT scan showed subgaleal hematoma with no orbital extension and normal brain parenchyma and no orbital fracture. He was advised conservative management at a local hospital and sent. However they went home and the boy continued to have progressive increase in the size of subgaleal hematoma with proptosis of both eyes and progressive loss of vision and almost total blindness and that is when he was brought to us.

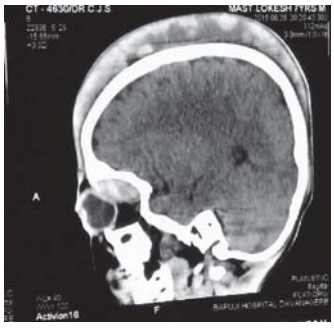

Fig 1. Preoperative CT scan showing subgaleal hematoma tracking in to roof of orbit

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On examination the boy was conscious, hemodynamically stable. His Glasgow coma Scale was 15/15. He was irritable and crying as the loss of vision had disturbed him. He was obeying requests. He had extensive subgaleal hematoma with gross proptosis of both eyes and he was unable to see anything and even counting fingers at 3 feet was absent. He was subjected to CT scan which showed extensive subgaleal hematoma with extension into both orbits causing displacement of orbital globes inferiorly and forwards. There was no intracranial hemorrhage. His PCV was 22%, platelet count was 2.16 lakhs per cu.mm, prothrombin time was 11sec (normal 11-16 sec), activated prothrombin time was 28 sec (22-34 sec), and bleeding time was 1 min 45 sec (normal 2- 7 min). The peripheral blood smear had a normocytic normochromic picture. Qualitative assay for factorXIII showed normal results.

Fig 2. Preoperative picture showing bilateral chemosis and proptosis

Fig 3. Post operative day 5 picture showing decrease in chemosis and proptosis

An ophthalmologist opinion was sought about considering lateral orbitotomy to evacuate the orbital extension of subgaleal hematoma. However after due deliberation with them we decided to decompress the subgaleal hematoma. Accordingly a small right temporal incision was made and subgaleal hematoma under very high pressure was evacuated and a closed system subgaleal vacuum drain was placed. About 500 cc of

dark altered blood was evacuated. The drain was left for 6 days and the drain output which was 300 ml on first day progressively decreased to around 30 ml by sixth day when the drain was removed.

The patients Hb% was 7.3gms%. Patient received 200 ml of packed cell transfusion for two consecutive days. The proptosis improved by third day and boy started reporting improvement of vision from third day. By fifth he was able to identify objects from a distance of 15 feet in right eye and count fingers from a distance of 10 feet in left eye.

Discussion :

Subgaleal collection of blood can occur due to rupture of emissary veins that connect veins of scalp with the intracranial dural veins. This can result from rapid shearing forces on these vessels due to trauma and hematoma accumulates between the epicranial aponeurosis and the pericranium of the skull bones[2]. The orbital septum that extends from the periosteum to the upper eye lid acts as a barrier between the facial and orbital structures. The anterior layer of the levator palpebral aponeurosis blends with the posterior part of the orbital septum[3], except at the lateral canthal region where there is continuity of the cranial subgaleal space with the potential space between the levator palpebral aponeurosis and the orbital periosteum[4]. Thus the subgaleal space communicates anteriorly over the superior orbital ridge with the superior orbit, allowing blood to track into the periorbital space as shown in Fig 4. This feature recognized by Gioia et.al[5] in 1987 and elaborated on by Kim and Taragin[6] explains the delayed occurrence of proptosis in patients with large subgaleal space.

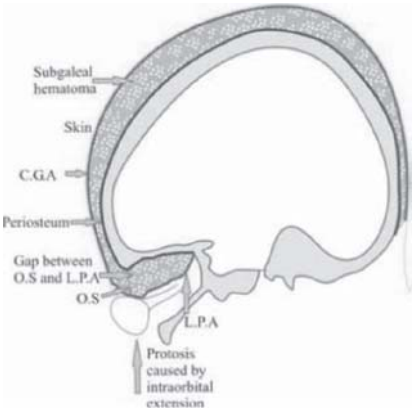

Fig 4. Diagram demonstrating extension of the subgaleal hematoma over the roof of the lateral orbit, causing proptosis. C.G.A = cranial galeal aponeurosis; L.P.A = levator palpebral aponeurosis ; O.S = orbital septum.

Conclusion : Large subgaleal hematomas rarely can be cause of blindness when they extend into orbit as seen in this case. Hence subgaleal hematoma should be drained immediately in such an event . This possibility should be watched for . Deficiency of factor XIII or other bleeding diathesis should be kept in mind when trivial trauma cause large subgaleal hematomas.

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How to Cite this article :
T Vyjayanth, Shanthakumar C J, Post Traumatic subgaleal hematoma causing orbital hematoma and blindness. J Pub Health Med Res, 2015;3(2):50-1.

Funding: Declared none
Conflict of interest: Declared none