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## Clinical Communications: Adult

### SUBGALEAL HEMATOMA AT THE CONTRALATERAL SIDE OF SCALP TRAUMA IN AN ADULT

Ching-En Chen, MD,\* Zen-Zhon Liao, MD,† Yen-Heng Lee, MD,‡ Cheng-Chieh Liu, MD,§ Chi-Kao Tang, MD,|| and Yi-Rong Chen, MD†

\*Division of Plastic and Reconstructive Surgery, Department of Surgery, Taipei Veterans General Hospital, Taipei, Taiwan,

†Department of Surgery, Kinmen Hospital, Ministry of Health and Welfare, Kinmen, Taiwan, ‡Department of Physical Medicine and Rehabilitation, ChiaYi Hospital, ChiaYi, Taiwan, §Department of Family Medicine, Taipei Veterans General Hospital, Taipei, Taiwan, and

||Division of Neurosurgery, Department of Surgery, Shin Kong Wu Ho-Su Memorial Hospital, Taipei, Taiwan

Reprint Address: Yi-Rong Chen, MD, Department of Surgery, Kinmen Hospital, Ministry of Health and Welfare, Kinmen, Taiwan

**Abstract—Background:** Subgaleal hematoma (SGH), an abnormal accumulation of blood under the galeal aponeurosis of the scalp, is more commonly observed in newborns and children. According to previous cases, the etiology of SGH includes mild head trauma, vacuum-assisted vaginal delivery, contusion, and hair braiding or pulling. **Case Report:** A 39-year-old healthy worker came to our emergency department (ED) due to scalp lacerations from an accident that caused severe twisting of his hair. He denied head contusion and was conscious upon arrival. Physical examination showed three lacerations over his right temporal area. The wounds depth extended to the skull, with a 10-cm subperiosteal pocket beneath the lacerations. Primary sutures were performed immediately under local anesthesia, not only for wound closure but also for hemostasis. However, he returned to our ED 3 h after the first visit for a newly developed soft lump over the left side of his forehead. Computed tomography scan of brain illustrated a huge and diffuse SGH in the left temporal region with extension to periorbital region. Although the option of incision and drainage was discussed with a neurosurgeon and a search for some case reports was done, most of the hematoma could be self-limited. Conservative management with non-elastic bandage packing direct compression was applied. The patient was then admitted for close observation and conservative treatment for 1 week. There was no recurrence of SGH in the following 3 months. Why

**Should an Emergency Physician Be Aware of This?:** SGH is an uncommon phenomenon that is caused by tearing of the emissary veins in the loose areolar tissue located beneath the galeal aponeurosis. Conservative treatment with bandage compression is recommended for SGH. Surgery is reserved for cases where non-invasive management fails or severe complications. © 2017 Elsevier Inc. All rights reserved.

**Keywords—**hair pulling; head trauma; subgaleal hematoma

#### INTRODUCTION

Subgaleal hematoma (SGH), a collection of blood in the space between the periosteum and galea aponeurotica, is caused by rupture of the emissary veins. It is usually observed in neonates after delivery by vacuum assistance and in children with minimal head trauma, such as hair combing or braiding. In addition, SGH has also been described in cases of severe head injury leading to cranial fractures. Although SGH is more commonly found in preschool-aged children, we describe here an adult patient who developed a contralateral SGH after experiencing severe pulling of his long hair in a construction accident.

## CASE REPORT

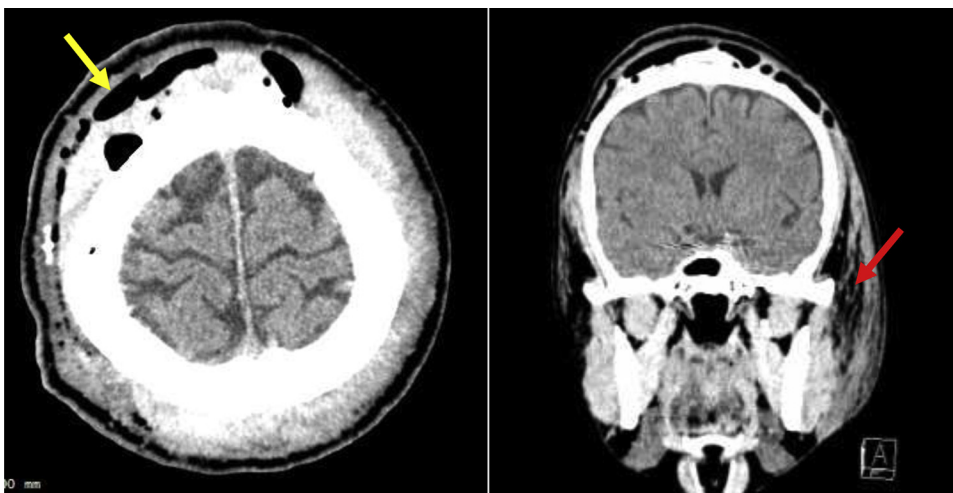
This patient was a 39-year-old healthy worker with no systemic disease or drug use. He came to our emergency department (ED) due to scalp lacerations from an accident that caused severe twisting of his long hair into an air compressor. He denied head contusion and was conscious upon arrival. He denied dizziness or palpitation and his vital signs were within normal limits. Physical examination showed three lacerations over his right temporal area. Each of the wounds measured approximately 5 cm and extended to the skull. Because of massive bleeding, debridement of foreign bodies and primary sutures were performed immediately in the ED under local anesthesia. During the procedure, we found that the wounds depth had extended to the bony structure, with a 10-cm subperiosteal pocket beneath the lacerations. After irrigation and hemostasis, the lacerations were closed in layers with a Penrose tube for open drainage. Gauzes and elastic net were applied for compression dressing. Because the patient reported no other major symptoms, he was discharged with oral pain medication and prophylactic antibiotics as take-home medicine after a 3-h observation.

However, he returned to our ED 3 h later for a newly developed soft lump over his left forehead. A fluctuant, non-tender, and cystic-like scalp lesion with ecchymosis over orbital extension was noticed. The remainder of his physical examination, including neurologic, respiratory, and gastrointestinal evaluations, was unremarkable. The hemogram revealed a white blood count of  $9170/\text{mm}^3$ , hemoglobin of 14.3 g/dL, hematocrit of 41.6%, and platelet count of  $202,000/\text{mm}^3$ . His renal and liver functions were normal in the biochemistry test; prothrombin

(9.7 s) and activated partial thromboplastin (27.4 s) times were also normal. Advanced evaluations, including brain computed tomography (CT) scan, were arranged to elucidate the etiology of the progressing subcutaneous mass. Although no intracranial hemorrhage was observed in the images, a huge and diffuse SGH was visible in the left temporal region (Figure 1). Conservative treatment with non-elastic bandage direct compression was performed. The patient was then admitted for close observation for 1 week. At outpatient follow-up, the scalp swelling and ecchymosis on bilateral eyelids subsided gradually within another 2 weeks. No recurrent hematoma or abnormal subcutaneous lesion was noted in the following 3 months.

## DISCUSSION

The human scalp consists of five layers. The skin is the outer layer, followed by the connective tissue, galea aponeurotica, loose areolar tissue, and periosteum. A caput succedaneum is formed by collection of serosanguinous fluid under the superficial layer of the scalp and above the galea aponeurotica, and may cross the midline and bone suture lines. It is a diffuse and edematous swelling of the scalp area that formed commonly after vertex delivery and causes ecchymosis usually. In most cases, caput succedaneum improve within the first week of life. Cephalohematoma is quite different from caput succedaneum and forms beneath the periosteum of the skull, in the so-called "subperiosteal space." However, due to the connection between the periosteum and bony structure, a cephalohematoma is always limited to the surface of one cranial bone and the cranial sutures (Figure 2). Nevertheless, it is quite different from caput



**Figure 1.** Air component (yellow arrow) over the right frontal region, caused by traumatic laceration post-primary closure (right). The subgaleal hematoma progressed to the left orbital region and cheek (red arrow) over the course of several hours (left).

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