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Case Report

Subgaleal Hematoma Without Obvious Cause in a Child: A Case Report

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Abstract

Subgaleal hematoma in children beyond the neonatal period is generally caused by external factors, such as head trauma, or internal factors, such as coagulation disorders. Occurrence without an obvious cause is uncommon. A 5-year-old girl presented with swelling in the left parietal region. Computed tomography revealed a subgaleal hematoma, which spontaneously disappeared within 28 days. This report describes a rare case of subgaleal hematoma without an obvious cause in a child beyond the neonatal period that resolved without invasive treatments like needle aspiration, drainage, and surgery. Clinicians should consider conservative treatment as an alternative to invasive procedures in such cases.

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Introduction

Subgaleal hematoma comprises an accumulation of blood in the space between the galea aponeurosis and the periosteum.[1] Although most cases of subgaleal hematoma occur in the neonatal period, older children are also at risk.[2] In children beyond the neonatal period, traumatic subgaleal hematoma is caused by external factors, such as head trauma, hair pulling, and tight hair braiding,[3–6] while nontraumatic subgaleal hematoma arises through internal factors, such as aneurysm rupture, arteriovenous malformation failure in the scalp, and coagulation disorders.[7] Placement of a compressive bandage around the head and surgical procedures such as needle aspiration, drainage, and surgery, are often employed for treatment.[2,3,8] In the present case, a subgaleal hematoma occurred without an obvious cause in a 5-year-old child and spontaneously disappeared without any treatment.

Case Report

A 5-year-old girl presented with a soft, fluctuant swelling in the left parietal region (Figure 1). The swelling had appeared 10 days before her first visit and gradually increased. She and her parent denied any history of trauma or hair-related events. They did not seem to tell the false history.

Physical examination and vital signs revealed no other notable abnormalities, and the Glasgow Coma Scale was E4V5M6. The complete blood count, prothrombin time, and activated partial thromboplastin time were normal, suggesting that there were no underlying conditions that could cause bleeding disorders. Computed tomography (CT) was conducted to investigate the swelling contents and intracranial condition.

Figure 1. Photographs of the head. Swelling was observed in the left parietal region (arrowheads).

The examination revealed a large hematoma (70-mm thickness) in the subaponeurotic space without skull fracture or intracranial abnormality (Figure 2). The hematoma crossed the suture line, suggesting a subgaleal hematoma rather than a cephalohematoma.

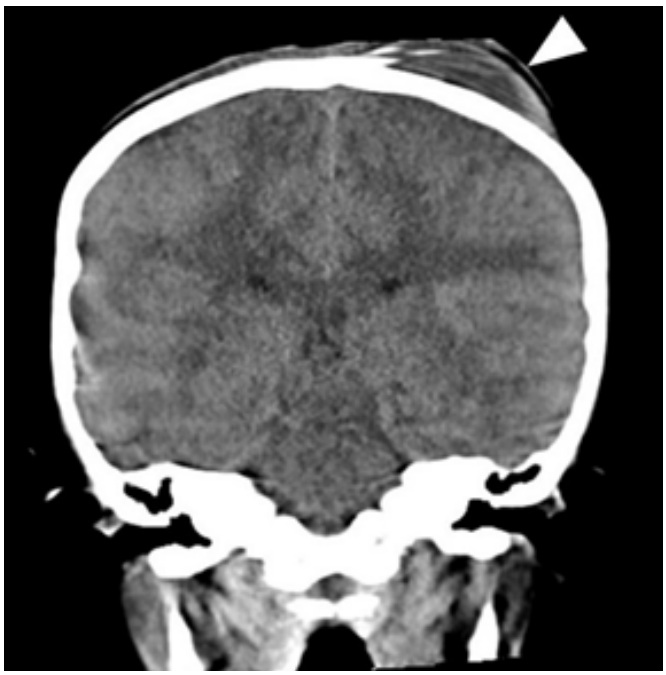

Figure 2. Head CT on Day 10. The cranial image revealed a massive subgaleal hematoma in the left parietal region (Arrow head).

Ultrasonography revealed a hypoechoic lesion of up to 70-mm thickness on the skull (Figure 3).

Regarding the therapeutic strategy, surgical treatments, such as needle aspiration, drainage, and surgery, would become applicable if the swelling continued to enlarge. We considered wrapping a compressive bandage around the head but concluded that the patient may not be able to retain the bandage. Thus, the patient received no treatment other than refraining from hard exercise. A second CT examination on Day 17 revealed that the subgaleal hematoma had decreased in size (8-mm thickness; data not shown). The swelling continued to spontaneously decrease and completely resolved within 28 days. No recurrence has been observed to date.

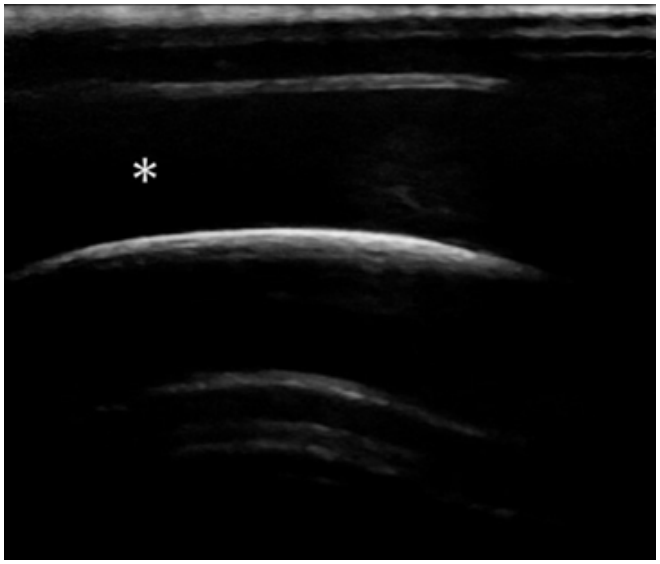

Figure 2. Ultrasonography of the subgaleal hematoma. The examination revealed a hypoechoic lesion (*)

Discussion

Two important clinical issues are highlighted in the present case. First, subgaleal hematoma occurred without an obvious cause in a child beyond the neonatal period. Second, the subgaleal hematoma in this child spontaneously resolved without any treatment.

Regarding the first issue, subgaleal hematoma, which mostly occurs in the neonatal period, can also be observed in children beyond the neonatal period.[2,6] These hematomas tend to be classified as traumatic or non-traumatic based on the underlying mechanism. Traumatic subgaleal hematoma is caused by external factors such as head trauma, hair pulling, and tight hair braiding.[3,6] Our patient had not experienced any trauma or hair-related events. Non-traumatic subgaleal hematoma arises through internal factors such as aneurysm rupture, arteriovenous malformation failure in the scalp, or coagulation disorders.[7] We did not detect either bruit or palpable aneurysm in the superficial temporal artery in our patient. A red birthmark and complex vascular network indicate that the presence of a congenital scalp arteriovenous malformation.[7] No characteristic findings suggestive of scalp arteriovenous malformation were observed in our patient. Thus, we considered that the subgaleal hematoma was not caused by an aneurysm or arteriovenous malformation, although an angiographic examination was not performed. Furthermore, the patient had no familial history of coagulation disorders and normal blood test findings (platelet count, prothrombin time, and activated partial thromboplastin time). Thus, there were no underlying conditions that could cause the subgaleal

hematoma. Therefore, we concluded that the subgaleal hematoma occurred without an obvious cause. However, our experience is limited to one patient. Further studies are needed to determine whether subgaleal hematoma without an obvious cause can become a major differential diagnosis for swelling on the head in children beyond the neonatal period.

For the second issue, a compressive head bandage, needle aspiration, drainage, and surgery are often employed for subgaleal hematoma.[2,3,8] According to the literature review regarding subgaleal hematoma in children beyond the neonatal period, most groups employed a compressive bandage and / or surgical procedures, while a few groups did not require any treatment.[2] However, most children require sedation or general anesthesia for conduction of invasive procedures. Children also tend to be restless and often remove a dressing or compressive bandage placed around the head. Meanwhile, needle aspiration, drainage, and surgery are associated with a risk of infection. In our patient, the subgaleal hematoma spontaneously disappeared within 28 days, and she did not require any treatment other than refraining from hard exercise. Thus, conservative treatment appears to be a valid alternative to invasive procedures in children beyond the neonatal period.

The subgaleal area links the cranial periosteum and galea aponeurosis. It consists of loose connective tissue and emissary vessels connecting the extracranial and intracranial venous sinuses.[9] Subgaleal hematoma involves profuse bleeding in the subgaleal layer that leads to excessive blood accumulation.[8] Differential diagnosis of subgaleal hematoma and cephalohematoma is often difficult. Cephalohematoma is limited by the bone margins and does not cross the suture lines, while subgaleal hematoma extends more widely and can cross the suture lines.[1] While ultrasonography can differentiate between these two conditions, only trained clinicians and technicians can achieve the differentiation.[10] When differentiation by ultrasonography is difficult, CT is useful. We diagnosed the subgaleal hematoma in our patient by CT because we could not detect the suture lines on ultrasonography.

Subgaleal hematoma is a more serious condition than cephalohematoma, and can be followed by life-threatening conditions. Acute anemia, infection, hypovolemic shock, orbital compartment syndrome, and airway compression are potential complications.[1,2] Our patient had a benign course because these complications did not appear.

Conclusions

In conclusion, subgaleal hematoma can occur without an obvious cause in a child beyond the neonatal period. Subgaleal hematoma in a child can spontaneously resolve without treatment. For subgaleal hematoma in a child beyond the neonatal period, clinicians should consider conservative treatment as an alternative to invasive procedures.

Conflict of Interest: None

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