

Calcified Cephalohematoma: an unusual case

Cefalohematoma calcificado: um caso invulgar

DOI:10.34119/bjhrv7n1-177

Recebimento dos originais: 15/12/2023

Aceitação para publicação: 15/01/2024

Joana Patrícia Pereira Ramos

Mestre em Medicina

Instituição: Serviço de Pediatria, Centro Hospitalar Médio Tejo E.P.E.

Endereço: Avenida Xanana Gusmão 2350-754 Torres Novas Portugal

E-mail: joana_pramos@hotmail.com

Ana Maria Marques Moura de Almeida Figueiredo

Mestre em Medicina

Instituição: Serviço de Pediatria, Centro Hospitalar Médio Tejo E.P.E.

Endereço: Avenida Xanana Gusmão 2350-754 Torres Novas Portugal

E-mail: ana.figueiredo@chmt.min-saude.pt

Patrícia Neves Cardoso

Mestre em Medicina

Instituição: Serviço de Pediatria, Centro Hospitalar Médio Tejo E.P.E.

Endereço: Avenida Xanana Gusmão 2350-754 Torres Novas Portugal

E-mail: patricia.cardoso@chmt.min-saude.pt

Maria Emília Figueiredo e Rosa

Licenciada em Medicina

Instituição: Serviço de Pediatria, Centro Hospitalar Médio Tejo E.P.E.

Endereço: Avenida Xanana Gusmão 2350-754 Torres Novas Portugal

E-mail: emilia.rosa@chmt.min-saude.pt

Maria Julieta Rodrigues Morais Varandas Fernandes

Licenciada em Medicina

Instituição: Serviço de Pediatria, Centro Hospitalar Médio Tejo E.P.E.

Endereço: Avenida Xanana Gusmão 2350-754 Torres Novas Portugal

E-mail: julieta.fernandes@chmt.min-saude.pt

ABSTRACT

Introduction: A cephalohematoma is characterized by a collection of serosanguineous fluid localized in the sub periosteum space, being the most common birth injury to the head. It occurs in up to 2.5% of all live births. Rarely a cephalohematoma persists and may calcify. We present a case that illustrates a calcified cephalohematoma that was reabsorbed. **Case report:** A two-month-old infant presented to the Pediatric Consultation at a first level hospital with a history of persistent right parietal mass, with no other symptoms. He was born from instrument-assisted delivery with vacuum and about 72 hours after birth a right parietal tumefaction associated with cutaneous erythema was observed. At the physical examination on the first Pediatric Consultation, he presented with a 3-centimeter-long right parietal mass with hard consistency and no other alterations. Cranial X-rays were requested and showed images compatible with a

calcified cephalohematoma, without apparent internal lamina alterations. A wait and see approach was conducted. At twelve-month-old, the mass had been completely reabsorbed and the child's neurodevelopment was globally adequate. Currently, with four-years-old, the neurodevelopment remains adequate. Discussion and conclusion: Even though cephalohematoma is the most common birth injury to the head, in most cases it is reabsorbed in two to four weeks. Rarely a cephalohematoma persists and may calcify. An adequate medical history and physical examination are very important for a correct diagnosis. Cranium radiography is usually the first line imaging strategy and this patient radiographies were particularly evocative of the diagnosis. In this case a wait and see approach was conducted, the calcified cephalohematoma spontaneously reabsorbed, and the patient showed a good outcome.

Keywords: infant, hematoma, calcification, skull.

RESUMO

Introdução: Um cefalohematoma é caracterizado por uma coleção de fluido sero-hemático localizada no espaço subperiosteal sendo a lesão decorrente de traumatismo craniano no parto mais comum. Ocorre em até 2,5% dos nascidos-vivos. Raramente um cefalohematoma persiste e pode calcificar. Apresentamos um caso que ilustra um cefalohematoma calcificado que foi reabsorvido. **Relato do caso:** Um lactente de 2 meses foi enviado à Consulta de Pediatria de um hospital de nível I com uma história de massa parietal direita, sem outra sintomatologia acompanhante. Nasceu de parto instrumentalizado por ventosa e cerca de 72 horas após o parto foi observado uma tumefação parietal direita com eritema cutâneo associado. Ao exame objetivo na primeira Consulta de Pediatria, apresentava uma massa parietal direita com 3 centímetros de comprimento e consistência dura, sem outras alterações. Foram pedidas radiografias do crânio que mostraram imagens compatíveis com cefalohematoma calcificado, sem alterações aparentes da lâmina interna. Foi assumida uma atitude vigilante. Aos 12 meses de idade, a massa tinha sido completamente reabsorvida, sendo o neurodesenvolvimento da criança globalmente adequado. Atualmente, com 4 anos de idade, o neurodesenvolvimento permanece adequado. **Discussão e conclusão:** Apesar do cefalohematoma ser a lesão craniana mais comum ao nascimento, na maioria dos casos é reabsorvido em duas a quatro semanas. Raramente, um cefalohematoma persiste e pode calcificar. Uma história clínica e exame objetivo adequados são de extrema importância para um diagnóstico correto. A radiografia do crânio é geralmente o exame de imagem de primeira linha e no caso deste doente as radiografias eram particularmente sugestivas do diagnóstico. Foi assumida uma atitude vigilante e o cefalohematoma calcificado reabsorveu espontaneamente apresentando o doente uma boa evolução.

Palavras-chave: lactente, hematoma, calcificação, crânio

1 INTRODUCTION

A cephalohematoma is characterized by a collection of serosanguineous fluid localized in the sub periosteum space (1-8) and it is the more common birth injury to the head, occurring in up to 2.5% of all live births (1,3-5,7,8).

This condition is more common in instrument-assisted deliveries (1-8), prolonged expulsion stage, macrosomic fetus (2,3,5,8), primiparous mother (2,7), scalp fetus electrode

(3,5,7), poor or inefficient uterine contractions, abnormal fetal presentation (5,7), coagulation disorders (3), multiple pregnancy or conversion from vaginal to caesarean delivery (5).

The most common localization is within the parietal bone (1–5,7) and the right side is involved twice as often as the left. Unilateral cephalohematomas are five times as likely as bilateral ones (4) and this injury is twice times more prevalent in male infants (4,5,7).

It occurs due to bleeding from the subperiosteal vessels (3,4,7,8). Since this bleeding occurs slowly (4,5,8), the cephalohematoma is generally not present at birth and can appear from the first few hours to days after delivery (2-5,7,8).

In most cases, the cephalohematoma is reabsorbed within two to four weeks (1-4,7,8). Rarely, it has been described in the literature that the cephalohematoma can persist beyond this period and calcify (1-8) through subpericranial osteogenesis (3,4).

Even after calcification, the cephalohematoma can still be resorbed (1-5,7) by unknown mechanisms (4).

We present a case of a calcified cephalohematoma that reabsorbed.

2 CASE REPORT

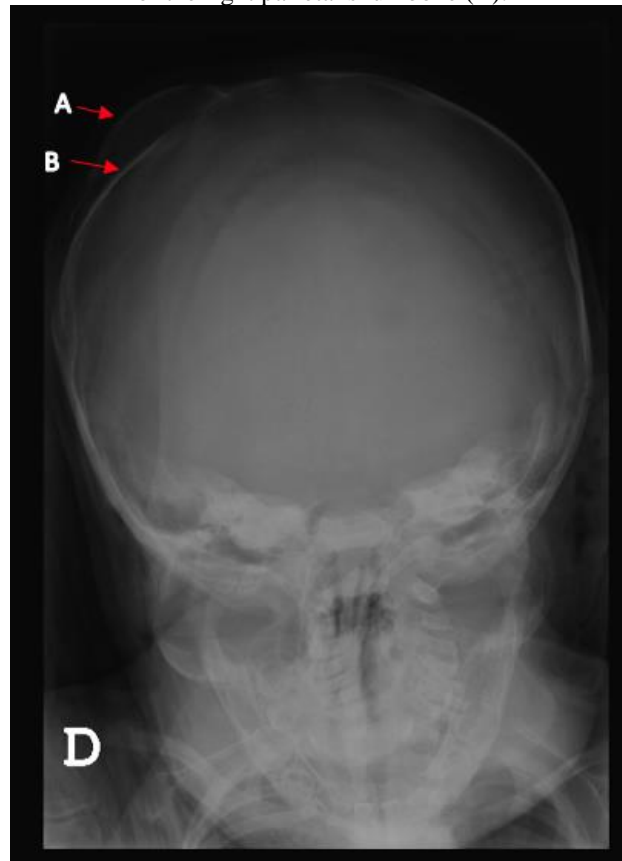
A two-month-old infant presented to the Pediatric Consultation at a first level hospital with a history of persistent right parietal mass.

He was a second child of a monitored pregnancy in a health care center without complications. Instrument-assisted delivery with vacuum was performed at a first level hospital. The newborn present a 10/ 10/ 10 Apgar score ate the 1st, 5th, and 10th minutes respectively. Birth weight was appropriate-for-gestational-age. About 72 hours after birth a right parietal cephalohematoma associated with cutaneous erythema was described.

The infant attended periodic consultations on the local health care center. Due to persistent of the lesion, he was sent for Pediatric Consultation.

The first consult occurred at two-month-old and at physical examination he presented with a permeable fontanelle and 3-centimeter-long right parietal mass with hard consistency. The mass did not cross suture lines and was painless. No other cranial alterations were found on examination. A cranial X-ray was requested and showed a rim of calcification in the periphery of the right parietal skull bone without apparent internal lamina alterations, compatible with a calcified cephalohematoma (Figure 1 and 2). Weight, stature, and head circumference growth was adequate according to the World Health Organization charts (9) and neurodevelopment according to the Mary Sheridan development scale (9). A wait and see approach was made.

Figure 1. Anteroposterior cranial radiography at 2 months old showing a rim of calcification (A) in the periphery of the right parietal skull bone (B).



Source: Joana Patrícia Pereira Ramos.

Figure 2. Left lateral cranial radiography at 2 months old showing a rim of calcification (A) in the periphery of the right parietal skull bone (B).



Source: Joana Patrícia Pereira Ramos.

At six-month-old, a reduction of the mass was observed but the consistency was still hard. The staturoponderal evolution and neurodevelopment remained adequate. The child remained under surveillance.

At twelve-month-old, the mass was completely reabsorbed, and the staturoponderal evolution and neurodevelopment were globally adequate.

Nowadays, at four-years-old, the neurodevelopment remains adequate.

3 DISCUSSION AND CONCLUSIONS

Even though cephalohematoma is the more common birth injury to the head (1,3-5,7,8), in most cases it is reabsorbed within two to four weeks (1-4,7,8). Rarely, a cephalohematoma persists and may calcify (1-8).

The medical history and physical examination are extremely important for a correct diagnosis. A previous history of a firm and fluctuant mass that presents within 24-72 hours after birth, does not cross cranial suture lines and progressively hardens is typical of calcifying cephalohematoma (3-5,7,8).

Differential diagnosis includes caput succedaneum (subcutaneous hematoma), subgaleal hematoma (1-4), encephalocele, dermoid cyst and tumors such as myofibroma or neuroblastoma (1-5).

In this clinical case, the previous history and observation were consistent with the diagnosis of calcified cephalohematoma.

A cranial X-ray is the first line complementary exam and usually the enough to establish the diagnosis. Radiograph typically shows a rim of calcification in the periphery of a raised swelling skull bone (1,2,7). Calcified cephalohematomas can be classified in type 1 or type 2, a depression of the inner lamella into the cranial vault space can only be seen on type 2 (1-3,7). Radiograph in this case showed the typical alterations compatible with type 1 calcified cephalohematoma (Figure 1 and 2).

Once the diagnosis is established, surveillance of the cephalohematoma progression with neurological(1,2), neurodevelopment (1,2,5) and signs of infection evaluation are mandatory (2).

Some of the previously described complications are: infection (3-5,7,8), hyperbilirubinaemia (3-5, 10-11), skull fractures, anaemia and intracranial damage (3-5).

Indication for surgery can be controversial, and main reason for surgery is if the cephalohematoma is aesthetically concerning or if doubts regarding the diagnosis remain (1-4,7).

In large volume cephalohematomas which persist after two to four weeks the aspiration could be tried, followed by the use of a modeling helmet in order to prevent permanent lesions (1–4,7). Aspiration could be associated with infectious complications (1–5,7).

In the vast majority of the cases a calcified cephalohematoma is a benign condition with no implications to the child (1–5). Even after calcification, cephalohematoma may undergo spontaneous remodeling and disappear within three to six months (7,8).

In this case a wait and see approach was conducted as the patient neurological and neurodevelopment assessment remained adequate. The calcified cephalohematoma spontaneous reabsorbed and the patient showed a good outcome without the need for any intervention.

This case aims to raise awareness of calcified cephalohematoma as a rare entity, despite the higher prevalence of cephalohaematoma after childbirth. It also aims to draw attention to the importance of the medical history, physical examination, and follow-up of the patient after diagnosis, with particular emphasis on assessing the neurological status (1,2), neurodevelopment (1,2,5) and signs of infection (2).

REFERENCES

1. Oliveira Pereira C, Fernandes A, Cunha FI. Cefalohematoma Ossificado: Um Caso Raro. *Acta Pediatr Port.* 2017;48:358–9.
2. Carvalho F, de Medeiros I, Correa F, Sousa Pontes F, Amado M, Medeiros D, et al. Hard cranial mass: cephalohematoma? *J Pediatr Neonatal Individ Med.* 2019;8(1):e80107.
3. Wong C-H, Foo C-L, Seow W-T. Calcified Cephalohematoma. *J Craniofac Surg.* 2006;17(5):970–9.
4. Nicholson L. Caput succedaneum and cephalohematoma: the cs that leave bumps on the head. *Neonatal Netw.* 2007;26(5):277–81.
5. Raines DA, Krawiec C, Jain S. Cephalohematoma [Internet]. StatPearls Publishing. 2023. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK470192/>. Accessed September 18; 2023
6. Mathes E, Lalor L. Skin lesions in the newborn and infant [Internet]. UptoDate. 2023. Available from: [https://www.uptodate.com/contents/skin-lesions-in-the-newborn-and-infant?search=Skin lesions in the newborn and infant&source=search_result&selectedTitle=1~150&usage_type=default&display_rank=1](https://www.uptodate.com/contents/skin-lesions-in-the-newborn-and-infant?search=Skin%20lesions%20in%20the%20newborn%20and%20infant&source=search_result&selectedTitle=1~150&usage_type=default&display_rank=1). Accessed September 18; 2023
7. Rangel M, Loureiro G, Pinto M. Imaging case. *Nascer e Crescer.* 2018;27(1):61–4.
8. Ojumah N, Ramdhan RC, Wilson C, Loukas M, Oskouian RJ, Tubbs RS. Neurological Neonatal Birth Injuries: A Literature Review. *Cureus.* 2017;9(12):0–4.
9. Direção Geral da Saúde. Programa Nacional de Saúde Infantil e Juvenil. Direção Geral da Saúde, Ministério da Saúde. 2013.
10. Nóbrega Júnior G, Vieira W, Guedes Júnior J. Icterícia: uma doença comum entre os recém-nascidos. *Braz. J. Hea. Rev.* 2019;2(4):2343-2350.
11. Nogueira E, Miranda G, Silva J, Ordonho L, Camargo L, et al. Os fatores associados à Icterícia neonatal e seu tratamento: uma revisão bibliográfica. *Braz. J. Hea. Rev.* 2022;5(5):18695-18705.