



# Neonatal Hemorrhagic Syndrome Complicated by Orbital Hematoma

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**Authors' contributions**

*This work was carried out in collaboration among all authors. 'Author A' designed the study, performed the statistical analysis, wrote the protocol, and wrote the first draft of the manuscript. 'Author B' and 'Author C' managed the analyses of the study. 'Author C' managed the literature searches. All authors read and approved the final manuscript.*

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**ABSTRACT**

This article explores in detail the mechanisms, causes, diagnosis, treatment, and long-term implications of this condition. We report the case of newborn A. S, 2 days old, with first-degree consanguinity, presenting with exophthalmos of the right eye since birth, general examination revealed diffuse petechiae, ecchymoses in the thighs, stage I exophthalmos, no ophthalmoplegia, normal anterior segment, fundus without particularities. In cases where the orbital hematoma exerts significant pressure on the eyeball or causes visual complications, surgical intervention may be necessary. The diagnosis of hemorrhagic syndrome of the newborn was retained, and treatment was instituted with vitamin K and corticosteroids, with good clinical progression.

*Keywords: Ophthalmoplegia; ecchymoses; visual complications; eyeball.*

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## 1. INTRODUCTION

Neonatal hemorrhagic syndrome is a concerning condition characterized by an increased susceptibility to bleeding in newborns. Among the various complications that may arise, orbital hematoma is a clinical emergency [1,2]. This article explores in detail the mechanisms, causes, diagnosis, treatment, and long-term implications of this condition.

## 2. CLINICAL CASE

We report the case of newborn A. S, 2 days old, with first-degree consanguinity, presenting with exophthalmos of the right eye since birth, general examination revealed diffuse petechiae, echhymoses in the thighs, stage I exophthalmos, no ophthalmoplegia, normal anterior segment, fundus without particularities, The other eye showed subconjunctival hemorrhage with no other abnormalities; an orbital CT scan was ordered, showing an intraorbital hematoma in the right eye with no compression of adjacent structures; a biological workup was ordered, with a low vitamin K level.

The diagnosis of hemorrhagic syndrome of the newborn was retained, and treatment was instituted with vitamin K and corticosteroids, with good clinical progression.



**Fig. 1. 2-day-old newborn presenting with exophthalmos of the right eye and subconjunctival hemorrhage of the left eye**

## 3. WHAT IS NEONATAL HEMORRHAGIC SYNDROME?

Neonatal hemorrhagic syndrome refers to a series of clinical conditions characterized by

excessive bleeding in infants. Causes may be congenital (hereditary coagulation disorders) or acquired (such as nutritional deficiencies). Clinical manifestations can include:

- Cutaneous hemorrhages: Bruising and purpura.
- Internal bleeding: Intracranial hemorrhages, hematomas.
- Mucosal bleeding: Nosebleeds, gum bleeding.

## 4. ORBITAL HEMATOMA: DEFINITION AND ETIOLOGY

An orbital hematoma is an accumulation of blood in the orbital cavity, often caused by trauma or coagulation abnormalities. This condition can arise due to:

### Traumatic Causes:

1. Difficult deliveries: Instrumental delivery methods, such as forceps, are the primary causes of orbital hematomas.
2. Accidental trauma: Though rare, trauma occurring after birth can also be responsible.

### Hematological Causes:

#### 1. Coagulation disorders:

- Vitamin K deficiency: Essential for the synthesis of coagulation factors, its deficiency can lead to bleeding.
- Hereditary diseases: Such as hemophilia or other blood coagulation disorders.
- Thrombopathies: Disorders affecting blood platelets.

### Other Risk Factors:

- Family history of bleeding disorders.
- Maternal medical conditions: For example, the use of certain anticoagulant medications during pregnancy.

## 5. Discussion

### Clinical Evaluation:

The diagnosis relies on a thorough clinical assessment. Key elements include:

- **Obstetric history:** Details regarding the type of delivery and interventions performed.
- **Clinical signs:**
  - Periorbital edema: Swelling and discoloration of the skin around the eye.

- Difficulty closing the eye: Indicating pain or discomfort.

#### Complementary Examinations:

##### 1. Medical Imaging

- Ultrasound: Useful for visualizing hematomas without radiation exposure.
- CT or MRI: In complicated cases, to assess the extent of the hematoma and rule out other pathologies.

2. **Coagulation tests:** Analysis of coagulation factors to identify potential underlying disorders.

## 6. MANAGEMENT

#### Initial Approach:

1. **Observation:** In many cases, especially if the hematoma is limited and does not compress ocular structures, simple observation may be sufficient.
2. **Assessment of the infant's overall condition:** Monitoring vital signs and comfort level.

#### Medical Treatment:

##### 1. Correction of coagulation disorders:

- Administration of vitamin K: If deficiency is suspected.
- Specific coagulation factors: In cases where disorders are identified.

2. **Anti-inflammatory medications:** To manage pain and inflammation.

#### Surgical Intervention:

In cases where the orbital hematoma exerts significant pressure on the eyeball or causes visual complications, surgical intervention may be necessary [3,4]. This can include:

- Surgical drainage of the hematoma: To relieve pressure and improve blood flow.

## 7. FOLLOW-UP AND LONG-TERM IMPLICATIONS

#### Clinical Follow-Up:

Regular follow-up is essential to assess the resolution of the hematoma and monitor for potential complications [5,6]. This includes:

- Ophthalmological evaluations: To ensure that the infant's vision is not affected.
- Growth and developmental assessments: To monitor for any delays or complications.

#### Psychological Implications:

Birth trauma can have psychological repercussions for parents, including concerns about their child's future health. Psychological support may be beneficial [7-10].

## 8. CONCLUSION

Neonatal hemorrhagic syndrome, especially when complicated by orbital hematoma, requires immediate medical attention. A thorough understanding of the causes, appropriate diagnostics, and effective management are essential to ensure the safety and well-being of affected newborns. Prevention, through the management of obstetric risks and parental education, also plays a key role in reducing the incidence of this condition.

#### Ethical Approval:

As per international standards or university standards written ethical approval has been collected and preserved by the author(s).

#### Consent

As per international standards, parental written consent has been collected and preserved by the author(s).

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## COMPETING INTERESTS

Authors have declared that no competing interests exist.

## REFERENCES

1. Allen RW, Ogden B, Bentley FL, Jung AL. Fetal hydantoin syndrome, neuroblastoma, and hemorrhagic disease in a neonate. *JAMA*. 1980 Sep 26;244(13):1464-5.
2. Volpe JJ. Neonatal intracranial hemorrhage: Pathophysiology, neuropathology, and clinical features. *Clinics in Perinatology*. 1977 Mar 1;4(1):77-102.
3. Lee M, Wu K, Yu A, Roumiantsev S, Shailam R, Nimkin K, Sagar P. Pulmonary hemorrhage in neonatal respiratory distress syndrome: Radiographic evolution, course, complications and long-term clinical outcomes. *Journal of Neonatal-perinatal Medicine*. 2019 Jan 1;12(2):161-71.
4. Salem N, Monastiri K, Bacha K, Guirat N, Sboui H, Jaidane S, Skouri H, Snoussi N. Neonatal hemorrhagic syndromes. *Archives de Pédiatrie: Organe Officiel de la Société Française de Pédiatrie*. 2001 Apr 1;8(4):374-80.
5. Arkin N, Wang Y, Wang L. Establishment and evaluation of nomogram for predicting intraventricular hemorrhage in neonatal acute respiratory distress syndrome. *BMC pediatrics*. 2023 Jan 28;23(1):47.
6. McCauley RG, Beckwith JB, Elias ER, Faerber EN, Prewitt Jr LH, Berdon WE. Benign hemorrhagic adrenocortical macrocysts in Beckwith-Wiedemann syndrome. *AJR. American Journal of Roentgenology*. 1991 Sep;157(3):549-52.
7. Shernazarov F, Tohirova J, Jalalova D. Types of hemorrhagic diseases, changes in newborns, their early diagnosis. *Science and Innovation*. 2022;1(D5):16-22.
8. Guyot L, Thiery G, Salles F, Dumont N, Chossegros C. Post-operative orbital haematomas over a 12-year period. A description of three cases among 280 orbital procedures. *Journal of Cranio-Maxillofacial Surgery*. 2013 Dec 1;41(8):794-6.
9. Ganesan K, Fabbroni G, Loukota R, Craggs L. Traumatic subperiosteal hematoma of the orbit: a report of 2 cases. *Journal of Oral and Maxillofacial Surgery*. 2008 Jun 1;66(6):1266-9.
10. Louati H, Hedhli M, Chebbi A, Hassine B, Douira W, Lahmar L, Ayed S, Bellagha I. Spontaneous orbital hematoma: two case reports. *Journal Francais D'ophtalmologie*. 2012 Jul 12;35(7):533-e1.

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