

## A rare cause of acute scrotum in a newborn: Adrenal hemorrhage

Cristiana Maximiano<sup>1</sup>, Albina Silva<sup>2</sup>, Jorge Correia-Pinto<sup>3</sup>, Angélica Osório<sup>3</sup>

<sup>1</sup>Hospital of Braga, Pediatric Department, Braga, Portugal

<sup>2</sup>Hospital of Braga, Neonatal Intensive Care Unit, Braga, Portugal

<sup>3</sup>Hospital of Braga, Department of Pediatric Surgery, Braga, Portugal

### ABSTRACT

The acute scrotum is usually due to testicular pathology, but, less often, it could be related to abdominal or retroperitoneal conditions, such as adrenal hemorrhage. The adrenal hemorrhage in the newborn is a rare condition with prevalence of 0.2%. We present a case report of an adrenal hemorrhage in a full-term neonate. The conservative management was performed, with periodic clinical and radiological follow-up. There was a favorable outcome with complete resolution of hematoma at 12 weeks. Within this unusual case, the authors want to emphasize the fact that in presence of acute scrotum it is imperative to exclude testicular torsion. The Doppler ultrasonography is a valuable resource but it should be allied with minicious physical examination. The conservative management is recommended in the majority of the cases of adrenal hemorrhage, avoiding unnecessary exploration.

**Key Words:** Acute scrotum, adrenal hemorrhage, newborn, patent vaginoperitoneal canal.

Copyright © 2019 [pediatricurologycasereports.com](http://www.pediatricurologycasereports.com)

Correspondence: Dr. Cristiana Maximiano  
Hospital of Braga, Pediatric Department, Braga,  
Portugal

E mail: [cristiana.maximiano@gmail.com](mailto:cristiana.maximiano@gmail.com)

ORCID ID: <https://orcid.org/0000-0001-9916-925X>

Received 2019-10-01

Accepted 2019-10-21

Publication Date 2019-11-01

### Introduction

The acute scrotum (AS) is defined as scrotal pain, swelling, and / or skin color changes. Usually it is due to testicular pathology, but, less often, it could be related to abdominal or retroperitoneal conditions, such as adrenal hemorrhage [1,8]. Neonatal adrenal

hemorrhage (NAH) occurs during the first weeks of life. The unique vascular supply and large size compared to body weight makes adrenal vulnerable to hemorrhage during this period. The hemorrhage occurs most often due to macrosomia, after a traumatic delivery or a neonatal course complicated by hypoxia, hypotension, or coagulopathy [2]. Usually the hemorrhage resolves completely, but it may calcify at the periphery. Other complications of NAH include adrenal pseudocyst and, more rarely, adrenal insufficiency, which can be fatal. The conservative management is recommended in the majority of the cases [4]. NAH has favorable prognosis with complete

resolution in a period of 3 weeks to 6 months without any complications [5]. We report a case of NAH presented in a full-term neonate as bluish discoloration of the scrotum.

### Case report

A full-term neonate was delivered by forceps with appropriate birth weight. At day-1, the neonate presented a bluish discoloration of the left scrotum (Fig. 1).



**Fig. 1.** Photograph captured on day-1, presenting bluish discoloration of the left scrotum.

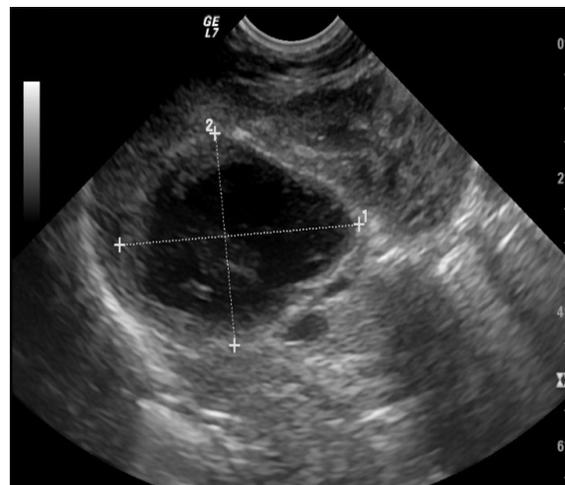
Physical examination was unremarkable - regular position and texture of left scrotum, without pain or swelling, and cremasteric reflex presented. On suspicion of testicular torsion, a Doppler ultrasonography was performed but it was inconclusive. The abdominal ultrasonography and complete blood count was normal. At day-7, the area of bluish discoloration was larger without any new signs or symptoms (Fig. 2).

Imaging evaluation was performed revealing a volumous hematoma of right adrenal gland measuring 45x32mm (Fig. 3). It was decided maintain clinical vigilance with serial ultrasonography and there was a favorable

outcome – complete resolution of the hematoma of right adrenal gland at 12 weeks without any sequelae.



**Fig. 2.** Photograph captured on day-7, showing a larger area of bluish discoloration of the left scrotum.



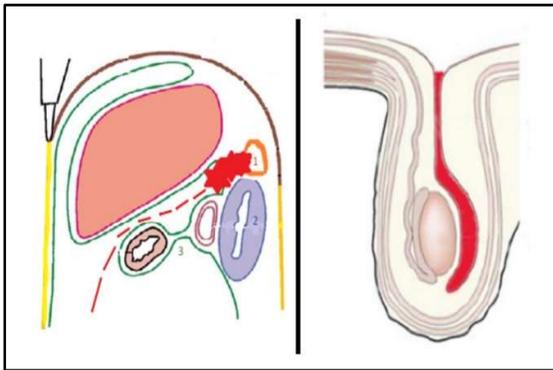
**Fig. 3.** Adrenal ultrasonography showing right adrenal hematoma measuring 45x32mm.

### Discussion

NAH usually affects the right adrenal gland (about 70% of cases) while it involves the bilateral adrenal gland only in 10% of cases. The usual explanations for susceptibility of the right adrenal gland is that it is more likely to be

compressed between the liver and spine and, the right adrenal vein usually drains directly into the inferior vena cava, so it is prone to changes in venous pressure [2]. Clinical symptoms of poor feeding, vomiting, persistent jaundice, anemia, and abdominal mass are usually noted with jaundice as the most frequently; the presence of bluish discoloration of scrotum is an uncommon manifestation of this entity. NAH may occur also from asphyxia, shock, septicemia or preexisting hematologic disorders [3,7].

The authors hypothesized this physiopathology mechanism to this case: the adrenal hematoma compression through the peritoneal membrane forced the blood into the peritoneal cavity and the presence of a patent vaginoperitoneal canal (PVPC), allowed the passage of the blood into the scrotum causing the typical signs of AS. The PVPC was in the left side and this explain the bluish discoloration only in the left scrotum (Fig. 4).



**Fig. 4.** On the left, schematic image representation of the retroperitoneal massive adrenal hemorrhage; the large amount of blood pierced the peritoneum and filled the peritoneal cavity. Legend: 1- adrenal gland, 2- kidney, 3- peritoneal cavity.

On the right, a sagittal schematic image representing a patent processus vaginalis in which the blood from the peritoneal cavity

accumulated giving the scrotum the bluish discoloration seen in Figures 1 and 2.

Ultrasonography is the modality of choice for the evaluation of an adrenal mass in a neonate. In neonates, the normal adrenal glands are clearly visualized at ultrasonography and consist of a hypoechoic cortex and a thin, echogenic medulla. The pattern of echogenicity of an adrenal hematoma depends on its age. An early-stage hematoma appears solid with diffuse or inhomogeneous echogenicity. As liquefaction occurs, the mass demonstrates mixed echogenicity with a central hypoechoic region and eventually becomes completely anechoic and cyst like [3]. The ultrasonography exam using color Doppler can demonstrate the presence or the absence of a known vascularization into the mass; this is a fundamental criterion in the differential diagnosis with malignant masses as neuroblastoma [10]. The hemorrhage usually resolves completely, but may also be calcified at the periphery. Other complications of NAH include adrenal pseudocyst and, more rarely, adrenal insufficiency, which can be fatal [4,6]. The conservative management is recommended in the majority of the cases. NAH has favorable prognosis with complete resolution in a period of 3 weeks to 6 months without any complications. Abdominal ultrasonography is the modality of choice for initial diagnosis and follow-up of NAH [5,7,9].

### **Conclusion**

The authors want to highlight the importance of including neonatal adrenal hemorrhage in the differential diagnosis of the acute neonatal scrotum is emphasized, as is the value of ultrasonography in making this diagnosis. It is crucial a high level of clinical suspicion, combined to a complete medical observation, to avoiding an unnecessary surgical

exploration but carrying out serial sonographic follow-up, as the literature affirmed.

### **Compliance with ethical statements**

*Conflicts of Interest:* None.

*Financial disclosure:* None.

*Consent:* All photos were taken with parental consent.

### **ORCID ID of Authors**

*Cristiana Maximiano-0000-0001-9916-925X*

*Albina Silva-0000-0001-9050-1519*

*Jorge Correia-Pinto -0000-0002-9265-6896*

*Angélica Osório -0000-0002-2210-8800*

### **References**

- [1]Lai LJ, Chen LM, Chu PY, Tseng MH, Chang CC, Lu CW. Neonatal adrenal hemorrhage associated with scrotal hematoma: an unusual case report and literature review. *Pediatr Neonatol.* 2012; 53(3): 210-12.
- [2]Qureshi U, Ahman N, Rassol A, Choh S. Neonatal adrenal hemorrhage presenting as late onset neonatal jaundice. *J Indian Assoc Pediatr Surg.* 2009; 14(4): 221–23.
- [3]Toti M, Chirri P, Bartoli A, Caputo C, Laudani E, Masoni F et al. Adrenal hemorrhage in newborn: how, when and why- from case report to literature review. *Ital J Pediatr.* 2019; 45(1): 58.
- [4]Martins T, Martins R, Matos A, Fraga A, Ferreira M. Hematoma escrotal neonatal: um caso clínico. *Acta Pediatr Port.* 2014; 45: 160-62.
- [5]Singh J, Dalal P, Bhalla K, Rattan K. Neonatal adrenal hemorrhage presenting as prolonged hyperbilirubinemia. *J Neonat Surg.* 2016; 5(2):22.
- [6]Zessis N, Noicholas J, Stone S. Severe bilateral adrenal hemorrhages in a newborn complicated by persistent adrenal insufficiency. *Endocrinol Diabetes Metab Case Rep.* 2018; pii: EDM-17-0165.
- [7]Rumińska M, Welc-Dobies J, Lange M, Maciejewska J, Pyrzak B, Brzewski M. Adrenal haemorrhage in neonates: risk factors and diagnostic and clinical procedure. *Med Wieku Rozwoj J.* 2018;12(1):457-62.
- [8]Adorisio O, Mattei R, Ciardini E, Centonze N, Noccioloi B. Neonatal adrenal hemorrhage mimicking an acute scrotum. *J Perinatol.* 2007; 27(2): 130–32.
- [9]Demirel N, Baş A, Zenciroğlu A, Taşçı-Yıldız Y. Adrenal bleeding in neonates: report of 37 cases. *Turk J Pediatr.* 2011; 53(19): 43-47.
- [10]Miele V, Trinci M (Eds). *Neonatal Adrenal Hemorrhage. Imaging Non-traumatic Abdominal Emergencies in Pediatric Patients* 2016; Springer, Cham: pp 181-19.

Access this article online

<http://pediatricurologycasereports.com>

Quick Response Code

