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Adrenal Hematoma in Newborns: What to do?

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Abstract

Purpose: The adrenal gland is vulnerable to hemorrhage in the neonatal period because of its large size and its increased vascularity. The clinical manifestations are variable and non-specific. The aim of our work is to describe the clinical aspects, evolution and management of adrenal hemorrhage in the neonatal period.

Methodology: This report is based on a presentation of a newborn with an adrenal hematoma who was hospitalized in our neonatology unit.

Findings: The patient is a three-day old newborn female admitted in a state of shock. The anamnesis does not find any particular antecedent in antenatal or perinatal except an early rupture of membrane for more than 6 hours. The newborn was urgently transfused with phenotyped red blood cells and an antibiotic therapy was prescribed. The abdominal ultrasound showed a right adrenal hematoma measuring 42mm x 33mm.

Unique Contribution to Theory, Policy and Practice: The clinical manifestations of adrenal hemorrhage depend on the severity of the hemorrhage and the extent of which the adrenal cortex is involved. In extreme cases, the newborn can present a hypovolemic shock, as shown in our observation, requiring an emergency blood transfusion. Acute adrenal insufficiency is rarely reported in adrenal hemorrhage because the bleeding is mainly subcapsular and hormonal insufficiency does not occur below 90% of adrenal tissue damage.

Keywords: *Newborn, Adrenal hematoma, State of shock*

Introduction

The adrenal gland is vulnerable to hemorrhage in the neonatal period because of its large size and its increased vascularity. An adrenal hematoma is a rare condition that can be serious. Its prevalence during the neonatal period, as assessed by autopsy findings, is 1.7 per 1000 newborns [1]. The clinical manifestations are variable and non-specific. This report is based on a presentation of a newborn with an adrenal hematoma. The aim of our work is to describe the clinical aspects, evolution and management of adrenal hemorrhage in the neonatal period.

Clinical observation

The patient is a three-day old newborn female admitted in a state of shock. The anamnesis does not find any particular antecedent in antenatal or perinatal except an early rupture of membrane for more than 6 hours. On examination, the newborn had pallor, polypnea (Silverman score = 2/10), tachycardia (150 beats / min), cold extremities, hypothermia (36 °C), a capillary refill time more than three seconds and was severely hypotensive with a distended abdomen. Anthropometrically we notice a weight of 3800gr, a height of 51cm and a cranial perimeter of 35cm. After stabilization, the biological results revealed a severe normochromic normocytic anemia (hemoglobin 3g/dl), normal hemostasis results, CRP at 50 mg/l and a normal ionogram. The newborn was urgently transfused with phenotyped red blood cells and an antibiotic therapy was prescribed. The abdominal ultrasound showed a right adrenal hematoma measuring 42mm x 33mm (**figure1**) with stasis and vesicular microlithiasis. We didn't explore the adrenal insufficiency because the biologic test (ionogram) was normal and the patient remained under medical care.

Discussion

The clinical presentation of adrenal hematoma is highly variable, ranging from an asymptomatic presentation to specific signs. Some of the risk factors for adrenal hemorrhage include: perinatal asphyxia, birth trauma, high birth weight, renal thrombosis and sepsis [2,3,4]. There is no gender predominance. Most adrenal hemorrhages in newborns (70%) occur on the right side (vulnerable to trauma due to its anatomical position) and in 5 to 10% of cases, they are bilateral [5]. The phenomenon of ischemia-reperfusion leads to adrenal hematoma (venous stasis). The clinical manifestations of adrenal hemorrhage depend on the severity of the hemorrhage and the extent of which the adrenal cortex is involved. In extreme cases, the newborn can present a hypovolemic shock, as shown in our observation, requiring an emergency blood transfusion. At the same time, if the bleeding is heavy, we can observe an abdominal mass with lumbar contact which is one form of adrenal hematoma. Prolonged jaundice due to free bilirubin remains the most frequent presentation of adrenal hematoma. It follows post-hemorrhagic hemolysis, and requires phototherapy. It is important to consider adrenal hematoma as a differential diagnosis and to perform an abdominal ultrasound faced to unusual presentation of jaundice [6]. In other cases, a scrotal hematoma can be formed by the leakage of blood in the event of adrenal hematoma

towards the intraperitoneal or retroperitoneal spaces, blood then enters the scrotum through the peritoneo-vaginal canal, and thus forms a clinically characterizable scrotal hematoma [7]. Acute adrenal insufficiency is rarely reported in adrenal hemorrhage because the bleeding is mainly subcapsular and hormonal insufficiency does not occur below 90% of adrenal tissue damage. In addition, the adrenal gland has a great capacity for regeneration [8]. This reduces the indications of hormonal test. On the other hand, the occurrence of adrenal insufficiency in some patients may be linked to the association of adrenal hemorrhage with other underlying risk situations; such as sepsis, prematurity, intraventricular hemorrhage, disseminated intravenous coagulation, or perinatal hypoxia. Regarding the differential diagnosis, in the neonatal period, adrenal hemorrhage is essentially confused with neuroblastoma, the neonatal form of which accounts for only 5% of all neuroblastomas in children [9, 10]. Its diagnosis is based on imaging (CT) and urine catecholamine assays. It is currently possible to differentiate adrenal hematoma from neuroblastoma, especially if we use ultrasound.

The treatment of adrenal hematoma is mainly symptomatic: transfusion of red blood cells if patient suffers from anemia, correction of fluid and electrolyte disorders, and phototherapy in case of jaundice and antibiotic therapy in case of infection. The treatment of the underlying etiology and adrenal insufficiency, if present, is also an essential part of management. Glucocorticoid supplementation is always necessary in case of adrenal insufficiency [11]; with hydrocortisone (2 mg/kg per day) until the adrenal hematoma is absorbed and the hormonal test becomes normal. The child should be monitored and considered to be at risk of adrenal insufficiency in the event of stress (fever, trauma, surgery). Twice a week ultrasound monitoring is essential to monitor changes in the size and echostructure of the lesion. Complete resolution of adrenal hematoma usually occurs between 3 weeks to 6 months.

Conclusion

Adrenal hemorrhage is rarely objectified in the neonatal period. It can be dangerous if there are risk factors. The clinical manifestations depend on the extent of the bleeding, the extent of the adrenal cortex involvement and the bilaterality of the bleeding. Jaundice, anemia and lumbar contact remain the classic triad to look for. Abdominal ultrasound is the key diagnostic exam along with medical patient follow up.

Recommendations

- If a newborn has hemorrhagic shock, we must think of the adrenal gland and perform an abdominal ultrasound.
- In the neonatal period, adrenal hemorrhage is essentially confused with neuroblastoma.
- Search the underlying risk situations which can cause an adrenal insufficiency.
- Follow up the patients with an adrenal hematoma twice a week with a ultrasound monitoring until complete resolution usually from 3 weeks to 6 months.

Conflicts of Interest: no one

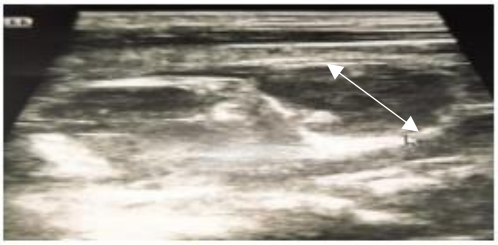

Figure 1 :right renal ultrasond : right adrenal hematoma (42mm x33mm)

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