



## **Postnatal Distal Arterial Thrombosis, Difficulties in Newborns: About Two Cases**

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### **Introduction**

The frequent use of intravascular catheters exposes newborns to a higher risk of thromboembolism, increased by several other contributing factors. Thrombophilia markers are known to be at risk for venous thromboembolism, but their association with arterial thrombosis is controversial, particularly in neonates. [1]

The clinical picture of vascular incidents in neonates is extremely variable and largely dependent on the location and the size of the thrombus. [2]

Potential benefits of antithrombotic therapy in these cases include complete or partial re-canalization of the obstructed vessel but with a great hemorrhage risk [2].

The scarcity of studies evaluating the exploration and management of postnatal arterial thromboses, combined with the potential risks of treatment, makes the management of newborns with postnatal thromboses difficult. [2]

Objective: We report two cases of arterial thrombosis, with different evolution

### **Observation No. 1**

Newborn female, admitted at birth for mild respiratory distress syndrome due to prematurity of 30 weeks + 5 days with disharmonious IUGR.

The newborn is the first of a young, non-consanguineous couple, without ATCD, born vaginally for pre-eclampsia with zero diastole. (Apgar 8-9/10).

On 12th day of life, he had a pale, cold left forearm with no distal pulses. The emergency Doppler ultrasound is inconclusive. Heparin therapy (LMWH) was undertaken at 150UI/Kg/12H without success. In front of the unfavorable progression towards necrosis and the absence of repermeabilization, a specialized surgical team performed a limb amputation on day 28 with good postoperative results.

The thrombophilia assessment found a reduced antithrombin level (16% (Normal: 61-128%)), that of the mother 58% (73-129%) and that of the father was without abnormality. The newborn was discharged after 66 days of hospitalization, recommending regular monitoring of his growth and psychomotor development as well as follow-up in orthopedic surgery, specialized functional rehabilitation and hematology or monitoring of his thrombophilia assessment. were recommended.

### **Observation No. 2:**

Newborn female, admitted at birth for prematurity of 34 weeks + 1 day with severe harmonious IUGR. The newborn is the first of a young non-consanguineous couple, whose mother is being monitored for hypertension with Methyldopa (Aldomet).

He was born via high delivery for IUGR with zero diastole (Apgar 8-9/10).

At day 16 of life, he presented a pale right forearm with no distal pulses. (FIG.1) The emergency Doppler ultrasound is inconclusive. Heparin therapy (LMWH) is undertaken at 200UI/Kg/12H under monitoring of anti-Xa activity, with good progress (recoloration of the limb) (FIG.2)

The Doppler ultrasound repeated on 30th day revealed moderately reduced ulnar and radial arteries and heparin therapy was maintained at 100UI/Kg/12H until complete repermeabilization verified by Doppler on the 48th day, then relay with AVK (Acenocoumarol) under INR monitoring. for 3 to 6 months.

The thrombophilia assessment found a reduced protein C level (to be monitored away from anticoagulant treatment).

The newborn is still hospitalized, he presented on day 7 under AVK a severe hemorrhagic syndrome at the puncture site with INR elevated to 7 requiring hematological resuscitation, Vitamin K with cessation of all anticoagulants.

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## Discussion

Few studies on thrombotic events have been reported in neonates.

Most of them focused on cerebral ischemia and thrombosis of the aorto-iliac junction. [1] Arshad and Mc Carthy in 2009 estimated the prevalence of limb ischemia in newborns at 1/4500 births.[2]

The main cause is arterial catheterization, followed by perinatal asphyxia and sepsis and conditions predisposing to hypercoagulability (dehydration, polycythemia, cyanogenic heart disease, diabetic mother), The involvement of abnormalities of coagulation proteins in thromboses arterial seems rare despite reported cases [2] as we reported in the 1st observation

The clinic differs depending on the site of the arterial thrombosis and its extent.

A cold, pale, cyanotic limb with diminished or absent pulses is the most common picture which already indicates an established thrombosis. [1]

Doppler ultrasound is the most used method to confirm the diagnosis of arterial thrombosis but its results are uncertain in premature and low birth weight newborns. [4]. We used duplex ultrasound in our two patients for diagnosis and follow-up.

Magnetic resonance angiography with gadolinium injection can give better results, especially in the diagnosis of aortic thrombosis, even in premature and low-weight newborns. [4]

Therapeutic indications are not codified by a precise treatment protocol; they depend on the extent of the thrombosis and its location, the habits of the healthcare team and the availability of the different treatments.

Different anticoagulants were prescribed [5,6] Heparin and AVK were used in the second case while the first received only heparin therapy.

The outcome is often favorable when the diagnosis is made early and treatment is initiated at the best time [7,8], as reported in the 2nd case, whereas in the 1st case the functional prognosis was brought into play by the limb amputation, despite early diagnosis and treatment

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## Conclusion

Neonatal arterial thromboses are rare and their association with hereditary thrombophilia must be established by several concordant assays, especially in the presence of an iatrogenic risk factor. Their appropriate assessment and appropriate management are difficult, because few studies have been devoted to them. Current recommendations and dosing regimens in newborns are extrapolated from studies conducted in older children and adults, making management poorly codified.

The possibility of serious complications inherent to anticoagulant treatment must be considered so that the benefit of this treatment outweighs its risks, especially in premature babies.



FIG 1



FIG 2

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