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Congenital Limb Ischemia: A Case Report

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Abstract **Case Report**

Although rare, neonatal limb ischemia can have disastrous effects on the patient. Early identification, the underlying cause, and the pace of treatment are all necessary for successful management. The amputation of affected limb should be delayed as long as possible; we report a case of a newborn presenting at birth with acute left upper limb ischemia.

Keywords: Acute, congenital, limb, ischemia, thrombolysis, heparin, gangrene, amputation.

BACKGROUND

Congenital ischaemias of the limbs are exceptional and of ill-defined etiology, however they must be detected early in order to allow optimal treatment. In this article we report an observation of a newborn admitted to the pediatric emergency presenting at birth with acute left upper limb ischemia and whose evolution was satisfactory while receiving medical care and without the requirement of amputation.

OBSERVATION

A full-term, mature female newborn from a non-consanguineous marriage and an unmonitored pregnancy, weighing 2380 g was born to a primiparous 18-year-old mother. The mother had no history of illness or medication use prior to her pregnancy. Without any manipulation, a caesarean section was used to deliver the baby due to dystocia. At 5 minutes from delivery, the baby's Apgar score was 10/10, in whom left upper extremity ischemia was noted. On examination, presence of necrotic plaque in the left upper limb (Figure 1) with rigidity of the hand and retraction of the fingers, onset of gangrene, cold extremity, with motor and sensory deficit. Brachial, radial, and ulnar pulses were hardly perceived; only the axillary artery pulse could be felt. Doppler ultrasound showed a patent ulnar and radial artery with demodulated flow and soft tissue infiltration. Biological analysis reveals an infectious syndrome and an etiological assessment were requested, in particular ant-thrombin III, protein S and protein C, echo cardiology and cardiac assessment with no detected abnormality. The treatment consists of necroscopy combined with heparin therapy, antibiotics, great hydration, and prevention of hypothermia. Over the first few hours after the start of the treatment procedure, improvement was seen, and over the next 24 hours, favorable progress was gradually observed.

Figure 1: Acute limb ischemia

DISCUSSION

Neonatal limb ischemia is characterized by a sudden loss of limb perfusion that might damage the viability of muscles and nerve fibers if reperfusion is not carried out within the first six hours [1]. It is occurs in one in 4500 births annually, making it comparatively rare. Neonatal limb ischaemia can result from intrauterine or post-natal inciting factors. It is possible to further subclassify intrauterine limb necrosis into compression ischaemia, which is brought on by an external source, and thrombo-embolic events [2]. Prenatal thrombosis results from the interaction of specific risk factors, including dehydration, sepsis, congenital heart disease, and congenital thrombophilia, with physiological neonatal hypofibrinolitic condition (anti-thrombin III, protein S and protein C deficiencies) [8]. Other factors that raise the risk of thrombosis include maternal (prime-parity, pre-eclampsia, thyroid disease, diabetes, significant maternal trauma, ovarian stimulation drugs), intra-partum (oligohydramnios, decreased fetal movements), and post-partum (cord abnormalities, interventions during delivery) [2, 3]. The clinical picture in the newborn is extremely variable, pallor; cold extremities, pulselessness, and sensory and motor deficit are some of the clinical indicators of acute limb ischemia [4, 5]. Doppler ultrasonography is a rapid, non-invasive test that can find lesions and evaluate stenosis levels, but it cannot see the entire circulatory system. Nonetheless, it offers adequate details to develop treatment protocols and helpful non-invasive clinical follow-up evaluation. Digital subtraction angiography, computed tomography angiography, magnetic resonance angiography, and arteriography are further popular tests for limb ischemia [6].

The anatomical site, the mechanism of the ischemia, the patient's general health, and their physiological state all has a role in how to manage ischemic consequences. Also, if the patient is in severely bad condition, medical therapy with thrombolysis is the chosen initial management. In the past two decades, a number of management plans for newborn limb ischemia have been proposed; however, the current standard of care centers on an escalating regimen of anticoagulation, thrombolysis, and thrombectomy along with revascularization, saving surgical interventions for limbs in immediate danger of necrosis. Delaying an amputation as long as feasible [4, 7, 8].

CONCLUSION

Congenital limb ischemia is favored by malformative, infectious, obstetrical and metabolic factors. Maternal diabetes is most often incriminated. The diagnosis is clinical and echo-Doppler and arteriography can confirm it. The most conservative form of treatment, based on heparin therapy and anti-thrombotics (early phases), is ineffective at the gangrene stage. Amputation is reserved for outdated forms. Thus, early and interdisciplinary management are crucial.

CONFLICT OF INTEREST

The authors have no conflicts of interest to declare.

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