

# A case of transplacental transmission of EDTA-dependent pseudothrombocytopenia

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## ABSTRACT

We report a case of neonatal jaundice due to fetomaternal incompatibility in the ABO system, the investigation of which demonstrated thrombocytopenia ( $69 \times 10^9/l$ ) without evidence of hemorrhage. Further investigations revealed a maternal platelet count of  $16 \times 10^9/l$  with multiple platelet clumps in the peripheral blood smear. The ethylenediaminetetra-acetic acid (EDTA)-dependent nature of the thrombocytopenia was confirmed both in the mother and in the neonate. After 45 days, the infant's platelet count returned to normal even in the presence of EDTA, whilst thrombocytopenia persisted in the mother. This case poses the need to consider this possibility in neonates with low platelet counts without hemorrhagic symptoms, in order to avoid additional investigations and inappropriate treatments.

## INTRODUCTION

Ethylenediaminetetra-acetic acid (EDTA)-dependent pseudothrombocytopenia consists of a falsely low platelet count due to *in vitro* platelet clumping in the presence of this anticoagulant<sup>1,2</sup>. This phenomenon is often due to the presence of autoantibodies reacting to platelet antigens expressed on the platelet membrane in the presence of EDTA<sup>1</sup>. It is a rare event with an incidence of 1 : 1000 dependent on time and temperature. The platelet clumps are not recognized by automatic counters, which can count them as white blood cells. This is less evident when citrate or oxalate are used as anticoagulants<sup>1,2</sup>.

We report a case of transplacental transmission of EDTA-dependent pseudothrombocytopenia.

## CASE REPORT

A newborn female infant (aged 35 h) was admitted to the intensive care unit with neonatal jaundice due to fetomaternal incompatibility in the ABO system. She was born at 41 weeks by spontaneous delivery with Apgar scores of 9 and 10 at 1 and 5 min, respectively. Phototherapy was needed for 96 h (maximum total bilirubin 20 mg/dl).

Laboratory studies revealed unexpected thrombocytopenia ( $69 \times 10^9/l$ ), without any evidence of hemorrhage. A peripheral blood smear exhibited platelet clumps (Figure 1a). The mother's blood count demonstrated a more severe thrombocytopenia ( $16 \times 10^9/l$ ) with no history of bleeding tendency. Multiple platelet clumps were also observed in the blood smear (Figure 1b).

Investigation of EDTA-dependent pseudothrombocytopenia was performed in the mother and the newborn. In the mother, the platelet count on the EDTA-anticoagulated blood sample was  $88 \times 10^9/l$  just after sampling. Counts performed consecutively in the same test tube kept at room temperature showed a progressive reduction in platelet number ( $35 \times 10^9/l$  3 minutes later and  $16 \times 10^9/l$  1 h later). At the same time, the mother's platelet count on citrated blood was  $317 \times 10^9/l$  and showed only a slight fall 90 min later