

Case Report

A pregnant with markedly elevated alkaline phosphatase: a case report

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Abstract

Alkaline Phosphatase (ALP) is produced from the liver, kidney, bone and placenta. During pregnancy, ALP may raise markedly with no clear reason. Here, we present a rare case of highly elevated ALP in a 21 years old pregnant woman during the third trimester who had no important past medical history. It was 2800 U/L. Bone, renal, or liver was all normal. Close monitoring of the fetus and his mother until birth was the way of treatment. We had seven weeks postpartum to decline in ALP concentration but did not return to the normal range. The placenta showed lesions of chronic villitis. The extreme incline in ALP during the gestational stages is riskier because the threat here is posed to 2 lives. In such conditions, constant monitoring of ALP in the maternal serum backed with necessary medication is required.

Introduction

Alkaline Phosphatase (ALP) is an enzyme found in all tissues throughout the human body. It is concentrated highest in bone, liver, kidney and intestinal and placental tissue, many of which have their own specific isoenzyme [1].

During pregnancy, at the end of the second trimester, most ALP activity comprises placental ALP isoenzymes (90% of which are P1 type and 10% P2 type) produced by syncytiotrophoblasts and appearing in maternal blood between the 15th and 26th weeks of pregnancy [2].

ALP increases with increasing gestational age, with contributions likely from both placental isoenzymes. ALP peaks in the third trimester and usually reaches a level double that of a nonpregnant individual but normalizes postpartum. However, it is important to exclude other causes of elevated ALP out of proportion to what is expected when detected during pregnancy, including malignancy, drugs and bone, renal and hepatic diseases [3].

Few cases of extremely elevated levels of ALP have been

reported in the literature, and ALP has been associated with adverse outcomes.

Here, we reported a rare case of markedly elevated levels of ALP in the third term of pregnancy. A full workup showed no clear reason.

Case presentation

A 21-year-old woman presented who was at 34 weeks of her first pregnancy presented to our clinic for a routine prenatal check-up. Past medical history was unremarkable. On examination, there was slight tenderness on the right upper quadrant. She had no headaches or visual disturbances. Her vital signs were in normal ranges. Serial readings of the blood pressure were all acceptable. Laboratories showed minimal proteinuria. Workup demonstrated a gross elevation of alkaline phosphatase (ALP) at 2800 U/L (normal range 33 – 120 U/L). Her previous values of ALP were no more than 170 U/L. A detailed history showed no previous history of bone, renal, or liver diseases. Hepatic, endocrine and renal functions were all in normal ranges. Abdominal and pelvis ultrasound showed a vital fetus. There were no pathological findings such

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as biliary stones or biliary duct dilatation. Serial monitoring for alkaline phosphatase revealed a high peak at 4001 U/L on the day of delivery. Our patient had an uneventful vaginal delivery. Her baby was in a good state Apgar's score was 7 and 9 in 1 and 5 minutes. Close contact between the patient and her baby was encouraged. A full workup for the baby showed no important findings. Postpartum monitoring alkaline phosphatase showed a decline to the normal range on week 7 (103 U/L). The pathology of the placenta revealed mild chorioamnionitis and no significant infarction.

Discussion

ALP is a membrane-associated enzyme and participates in membrane transport mechanisms that may be imperative for placental metabolism. An unusually high or acutely rising ALP is a useful tool to identify high-risk pregnancies and predict underlying placental damage. Furthermore, an increasing ratio of PALP to ALP may be used as an index of placental function, suggesting an abnormally functioning placenta [4].

Despite the fact that there have been few reported cases of markedly raised ALP during pregnancy, it has been suggested that it could be a marker for placental insufficiency, low birth weight and preterm delivery

Similarly, elevated circulating ALP may be a marker of placental injury [5].

Another case reporting an unusual elevation in ALP levels of placental origin in the last trimester of pregnancy was described. In this case, the only positive finding was that there was infarction in 15% of the placenta. However, this insignificant degree of placental infarction is quite common and this did not explain the significant elevation of ALP levels [6].

We reported a rare case of markedly elevated ALP during the third trimester of pregnancy in a previously healthy woman. Physical examination and serum laboratories were insignificant. Close monitoring until birth for the woman and her baby was eventful.

The pathologist reported mild chorioamnionitis and no significant infarction.

Most cases of elevated alkaline phosphatase resolved within six to 12 weeks postpartum [7-10].

Continuous monitoring for ALP revealed a decline after seven weeks postpartum.

Conclusion

Serum ALP concentration may be elevated during pregnancy. We should exclude liver, bones, kidney, small intestines and placental pathology at first. More research should be performed to clear the main cause of this elevation.

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