CASE REPORT

A Case of Folic Acid Allergy in Pregnancy

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Introduction

Folic acid allergy is an extremely uncommon condition [1]. Severe anemia is expected to occur in such cases since folic acid is essential for heme synthesis. The condition is difficult to treat because most of the available hematinics contain folic acid.

Case Report

A 29-year-old gravida 2 para 0 lady presented at 9 weeks of pregnancy for booking (on May 18, 2009) with the history of a first trimester miscarriage. Her LMP was on March 12th, 2009. She mentioned her allergy to folic acid which she noticed in her pre-pregnant state and again in her first pregnancy. She had no other medical/surgical/family history. She had a normal thyroid function test (serum TSH 1.90 mU/l). The patient was clinically moderately anemic. She was prescribed a multivitamin preparation containing methylcobalamin, pyridoxine, and folic acid 5 mg. The lady reported back within 3 days with generalized pruritic maculopapular rashes. The medication was stopped and she was given an oral iron preparation without folic acid. There

was no allergic reaction this time. She was also advised to eat folate-rich food (e.g., spinach, etc.).

Her Hb was 6.3 g/dl at 19 weeks of gestation and an ultrasound scan at that time revealed an appropriately grown fetus with normal anatomy and adequate liquor. She was followed up at ANC periodically and was kept on the above medication.

At 32 weeks of gestation, her Hb was 6.7 g/dl. The platelet count was 2,72,000/cmm. All other screening investigations including plasma glucose, serological tests for hepatitis B and C as well as HIV and syphilis were negative. She had an ultrasound scan on October 23, 2009 (32 weeks+), showing a 31-week-sized baby with AFI of 9.37 and a normal umbilical artery waveform (A/B –2.0). A specialist physician reviewed her at that time and a battery of tests was performed. Hemoglobin electrophoresis showed mild prominence of HbA₂/HbE suggesting the HbE trait or an iron deficiency state. Serum iron was normal (124.92 mcg/dl), and total iron binding capacity was high (583.8 mcg/dl). Her serum folate level was found to be normal (viz. 9.12 ng/ml) and so was the vit B₁₂ (259.2 pg/ml). Her liver enzymes were mildly raised (ALT –47.7 U/l, AST –56.5 U/l) and serum albumin was normal (3.49 g/dl). Serum bilirubin was 2.9 mg/dl. Hematologic investigations showed a reticulocyte count of 8.20 %, a leukocyte count of 12,600/cmm (polymorphs 83 %, lymphocytes 14 %, and eosinophils 3 %), PCV 24 %, MCV 80 fl, MCH 22.23 pg, and MCHC 27.74 gm/dl. Peripheral film revealed moderate to severe anisocytosis with microcytes, target cells, and hypochromia.

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At 35 weeks and 1 day of gestation (November 13, 2009), a routine ultrasound scan showed a 33-week 6-day-sized baby with mildly reduced AFI (8.01). The umbilical artery A/B was 2.29–2.53 (approx. 5th–10th centile). She developed generalized pruritus without any rashes at about this time of pregnancy and a clinical diagnosis of obstetric cholestasis was made. She was started on ursodeoxycholic acid 300 mg twice daily and inj. Vitamin K 10 mg IM once in a week. However, she complained of reduced fetal movements and was admitted on November 20, 2009, with a view to deliver the baby. Her cervix was unfavorable for induction of labor (Bishop's score 4). The Hb was 6.09 g/dl at that time. Four units of group A rhesus-positive blood were transfused over 2 days and a planned Cesarean section was performed on November 23, 2009. A live female baby was born weighing 2 kg, 150 g in good condition (APGARs 8 and 10 at 1 and 5 min, respectively). She made an uneventful recovery. Her Hb was 8.6 g/dl on the 3rd postoperative day. She was discharged on the 4th postoperative day. Breast feeding was fully established. At the time of discharge, she was prescribed the same hematinic.

Discussion

Folate allergy is very rare, with only eight cases having been reported so far [1]. To our knowledge, this is the second case to be described in pregnancy. The present patient had an allergy to pharmaceutical preparations of folic acid, but had no difficulty in tolerating folate from

natural sources. This is borne out by the fact that her allergic symptoms disappeared completely on discontinuation of therapy and returned promptly on resumption of folate-containing medication. This leads us to speculate that the active principle, viz., folic acid in natural foodstuff, may have been rendered nonallergenic by food processing (most commonly boiling) or that the antigenic determinants responsible for evoking the immune response are absent or occult in naturally occurring folate [1]. Sparling [2] speculates that the dietary folates are present in the polyglutamate form as opposed to pharmaceutical preparations which contain folic acid as monoglutamate. At a high concentration, monoglutamates may exhaust the body's capacity for methylation and reduction to 5-ethyltetrahydrofolate and hence present an abnormally high concentration of monoglutamates to the plasma, facilitating an immediate hypersensitivity reaction.

Though folate allergy is very uncommon, it should be suspected in cases of chronic urticaria and a proper evaluation started as subsequent exposure to folic acid may prove fatal.

References

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