

Folic Acid Awareness: A Crucial Step Towards Preventing Anencephaly

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ABSTRACT

This case report aims to shed light on the critical importance of folic acid intake not only during pregnancy but also before conception. The focus is on preventing anencephaly, a devastating neural tube defect that can be avoided through proactive measures such as incorporating folic acid-rich foods into one's diet and supplementation. Anencephaly is a congenital condition that cannot be cured, making prevention the key to sparing both infants and mothers from the emotional and physical burdens associated with this tragic disorder. The report emphasizes the need for increased awareness and education about the role of folic acid in prenatal health to empower individuals in taking a small yet impactful step towards a healthier future.

KEYWORDS: Anencephaly, folic acid, fetal anomaly

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INTRODUCTION

Anencephaly is a severe neural tube defect that occurs in early fetal development, leading to the absence of a major portion of the brain and skull. Unlike many congenital disorders, anencephaly is preventable through adequate folic acid intake. While the significance of folic acid during pregnancy is widely recognized, this report underscores the importance of preconception folic acid supplementation and dietary modifications.

MATERIALS AND METHODS

A pregnant woman of G2P1L1 aged 26 years presented 29 weeks of gestation without any prior antenatal checkups. Previous history shows one vaginal delivery at home with a normal child. On examination, abdomen was over-distended with fundal height of 36 weeks/37 cm, abdominal girth was 83 cm. On sonography live fetus with anencephaly was detected. There was no history of iron and folic acid intake. No history of any chronic

illness, drug or radiation exposure identified. Labor was induced with prostaglandin E1 and she delivered vaginally a stillborn anencephalic female baby with cephalic presentation, weighed 1200 g. The baby died 12 hr later. The postpartum period was uneventful and the patient was discharged.

OBSERVATION

Fetus with anencephaly are correctly identified at 12-13 weeks of gestation. Ultrasound findings can be normal until the onset of ossification has definitely failed. A first-trimester scan definitely allows a reliable diagnosis and active management of anencephaly. On the observation, the fetus showed absence of calvaria, short neck, low-set ears and spina bifida (Figure 1). Ultrasound scan showed incomplete development of frontal and occipital bone, well-developed maxillary, zygomatic, mandibular bone, Thoracic cage was normal, there was spina bifida in the region of C1, L4-5 and S1-5. Confirmed the

sonographic findings following the dissection of the head, spinal cord, thorax and abdomen. Spina bifida occulta was confirmed, which can be correlated with embryological basis of teratological insult during 3-4 weeks of intrauterine life involving the development of neural tube before the closure of anterior and posterior neural pores. There was the absence of brain tissue with normal spinal cord. Abdominal organs were normal, and there was no other associated congenital anomaly.



Figure no :1

DISCUSSION :

Folic acid has been shown to be important in neural tube formation since at least 1991¹ and as a subtype of neural tube defect folic acid may play a role in anencephaly. Studies have shown that the addition of folic acid to the diet of women of child-bearing age may significantly reduce, although not eliminate, the incidence of neural tube defects. Therefore, it is recommended that all women of child-bearing age consume 0.4 mg of folic acid daily² especially those attempting to conceive or who may possibly conceive, as this can reduce the risk to 0.03%.³ It is not advisable to wait until pregnancy has begun, since, by the time a woman knows she is pregnant, the critical time for the formation of a neural tube defect has usually already passed. Neural tube defects can follow patterns of heredity with direct evidence of autosomal recessive inheritance.⁴

In a normal human embryo, the neural plate is formed approximately 18th days after fertilization. During the 4th week of development, the neural plate invaginates to form the neural groove.⁶ The neural tube is formed due to closure of the neural groove by fusion of neural folds. The process is initiated at a single site and extends towards the rostral and caudal

neuropores. Closure completed by day 24 for the cranial end and day 26 for the caudal end. Anencephaly results from the failure of neural tube closure at the cranial end of the developing embryo leading to incomplete development of calvaria and brain. Babies with anencephaly are either stillborn or die shortly after birth. The incidence of anencephaly shows a multifactorial pattern of inheritance, with interaction of multiple genetic and environmental factors. The specific genes which cause the neural tube defects are not been identified still.

The primary objective of this case report is to raise awareness among the general population about the critical role of folic acid in preventing anencephaly. By emphasizing the need for consistent folic acid intake before and during pregnancy, we aim to empower individuals with the knowledge to take proactive measures against this devastating disorder

CONCLUSION

The findings highlight the correlation between folic acid intake and a reduced risk of anencephaly. Case studies resulting in positive outcomes, as opposed to situations where folic acid deficiency led to tragic consequences. The results underscore the urgency of disseminating information about the importance of folic acid, not only during pregnancy but also before conception. By encouraging individuals to incorporate folic acid-rich foods into their diets and consider supplementation, we can take a small yet crucial step towards reducing the incidence of this devastating disorder and sparing mothers from the emotional turmoil associated with anencephaly.

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