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RISK FACTORS OF ANENCEPHALY: A CASE REPORT

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ABSTRACT

This case report discusses the risk factors of anencephaly, a severe neural tube defect characterized by the absence of brain tissue and the skull. The study highlights the role of maternal obesity and folic acid deficiency as contributing factors. A 22-year-old woman (G3P0A2H0) at 26-27 weeks of gestation was diagnosed with an anencephalic fetus during an ultrasound examination, showing the 'frog face' sign. The patient had a history of two spontaneous abortions, a BMI of 30.4, and no folic acid supplementation. Pregnancy termination was planned and conducted using misoprostol, resulting in the delivery of a stillborn male fetus weighing 1500 g, with Apgar Score 0/0. The findings emphasize the importance of early folic acid supplementation and weight management in preventing neural tube defects. Pregnancy termination remains a viable option due to the poor prognosis associated with anencephaly.

Keywords: anencephaly; neural tube defect; folic acid deficiency; maternal obesity; pregnancy termination

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INTRODUCTION

Anencephaly is defined as total or partial absence of the brain tissue and skull. Etiology of anencephaly is likely to be multifactorial, including folic acid deficiency, environment, genetic disorders, maternal and fetal conditions.1 Anencephaly occurs in 0.9 per 1000 births in US2 and 1.3 per 1000 in UK.3 This defect result when the neural tube failed to closed during the 3rd to 4th weeks of fetal development.4 This case demonstrate choice of termination due to mayor congenital abnormality and to discussed the anencephaly risk factors.

CASE ILLUSTRATION

A 22-year-old patient, G3P0A2H0 with a gestational age of 26-27 weeks, presented with ultrasound results of anencephalic fetus. The patient had 1x ANC to Obgyn and told that the fetus did not have calvarium and the prognosis is extremely poor. The patient planned to terminate the pregnancy. The patient has prior history of spontaneous abortions 2x. It may be suspected that obesity (BMI was 30.4) and folic acid deficiency are the risk factors. On Leopold's examination, it's difficult to know the head position, the fetus back is on the right side, and small parts on the left side. US examination revealed 'frog face' sign.

Figure 1. Frog eye sign in US examination (left), Another US view (right)

The patient was given ¼ misoprostol tablet every 6 hours. Baby was born dead, male gender, with a weight of 1500 grams, PB 32 cm, Apgar score 0/0.

Figure 2. Absence of cranium, smaller brain lobe (left). Frog face look due to protruded eye and absence of

DISCUSSION

A study found that termination frequency of anencephalic pregnancy was 83%, ranging from 59% to 100%.5 In another study, Jaquier et al6 found that 72% babies were alive and 20% died during birth. Sixty seven percent of the living baby died within first 24 hours. Twenty five percent were 2-5 days old, the oldest was 28 days. Termination was done due to bad prognosis of anencephaly.Patient had BMI> 30 kg/m2 which was associated with an increased risk of the fetus with neural tube defects.7 The patient had history of two spontaneous abortus in previous pregnancy, it may also become the risk factor. A study found a 2-10% risk of anencephaly in women with prior history of anencephalic pregnancy.8. Patient's knowledge about folic acid was not good, so she never took folic acid supplement. Whereas low levels of folic acid during 3-4 weeks of gestation greatly affect the formation of the neural tube. To prevent recurrence of anencephaly in this patient, folic acid supplementation up to 4g/day should be given since 3 months before conception.

CONCLUSION

Knowing the risk factors of anencephaly is also an important thing in management of anencephalic pregnancy to prevent the recurrency. Termination can be a good choice in anencephaly to prevent the birth of a child with a very severe disability.

REFERENCES

Cunningham G., Leveno K., Bloom S., J.C J. H, Rouse D., Spong C., et al. Williams Obstetrics. 25th ed. USA: McGraw-Hill Company; 2018.

Cragan JD, Gilboa JD. Including prenatal diagnosis in birth defects monitoring; Experience of the Metropolitan Atlanta Congenital Defect Program. Birth Defect Res A Clin Mol Teratol, 2009, 85(20)

Dolk H, Loane M, Garne E; The prevalence of congenital anomalies in Europe. Adv Exp Med Biol, 2010, 686:34

Moore L. Anencephaly. Journal of Diagnostic Medical Sonography, 2010, 26(6): 286–289

Johnson CY, Honein MA, Dana Flanders W, Howards PP, Oakley GP Jr, Rasmussen SA. Pregnancy termination following prenatal diagnosis of anencephaly or spina bifida: a systematic review of the literature. Birth Defect Res A Clin Mol Teratol, 2012, 94(11): 857–863.

Jaquier M, Klein A, Boltshauser E: Spontaneous pregnancy outcome after prenatal diagnosis of anencephaly. BJOG 2006;113:951–953.

Barron S. Anencephaly: an ongoing investigation in Washington State. Am J Nurs, 2016, 116(3):60–66

Agopian AJ, Tinker SC, Lupo PJ, Canfield MA, Mitchell LE; National Birth Defects Prevention Study. Proportion of neural tube defects attributable to known risk factors. Birth Defects Res A Clin Mol Teratol, 2013, 97(1):42–46.