

SHORT COMMUNICATION

PRENATAL DIAGNOSIS OF SPINA BIFIDA: THE FETAL HEAD SHAPE AS A CLUE

D. Hauschild¹, T.R. Gollop¹, A. Eigier¹ and J. Guidugli Neto²

ABSTRACT

During a routine ultrasonography in the 24th week of pregnancy on a 22-year-old primigravida, the fetus was found to have an abnormal head shape. We repeated the ultrasonography in the 26th week and confirmed the narrowing of the anterior cranium and a spina bifida in the lumbo - sacral region. Both anomalies were confirmed in the anatomopathologic study after termination of pregnancy.

INTRODUCTION

Unfortunately not all neural tube defects can be detected by the combination of alpha-fetoprotein and ultrasound examination. Identification of spinal lesions may be difficult, especially if the lesion is in the low lumbo-sacral region, occurs in only a few segments or only involves the neural arches with minimal or no vertebral anomalies.

Search for additional indicators that may contribute to diagnose neural tube defects are of great value in prenatal diagnosis. Furness *et al.* (1987) described the narrowing of the anterior cranium, with an apparent constriction in the approximate region of the coronal sutures in an ultrasound image, as a warning sign of the presence of spina bifida in the second trimester. This observation was corroborated by Chambers

¹ Serviço de Genética Humana da Associação Maternidade de São Paulo, Rua Ofélia, 248, 05423 São Paulo, SP, Brasil. Send correspondence to T.R.G.

² Serviço de Anatomia Patológica do Hospital Israelita Albert Einstein, Av. Albert Einstein, 665/701, 05652 São Paulo, SP, Brasil.

et al. (1988) in a series of 12 fetuses with spina defects, 9 of which presented an ultrasound observation of flattening of the fronto-parietal region with pointing of the frontal bones anteriorly. These authors called this anomaly a "bullet"-shaped head. The purpose of our report is to describe a correct ultrasound diagnosis of spina bifida suspected during a routine examination in a primigravida in which the "bullet"-shaped head was detected.

CLINICAL REPORT

A 22-year-old primigravida was referred to our prenatal diagnosis unit in the 24th week of pregnancy because an abnormal fetal head shape was found in a routine ultrasonography. Before our evaluation the patient underwent amniocentesis which demonstrated a normal 46,XX karyotype and 25 ng/ml alpha-fetoprotein in the amniotic fluid, which was considered normal.

During our ultrasound examination we noticed a biparietal diameter of 59 mm and normal measurements of long bones, but the fetal head had a narrowing at the fronto-parietal region and a pointing of the frontal bone (Figure 1). A very mild ventriculomegaly was also noticed. The fetal spine was carefully followed and a widening of the lumbo-sacral part of the spinal channel was noticed. At that point, the vertebral bones were U shaped and the skinline showed a mild elevation (Figure 2).

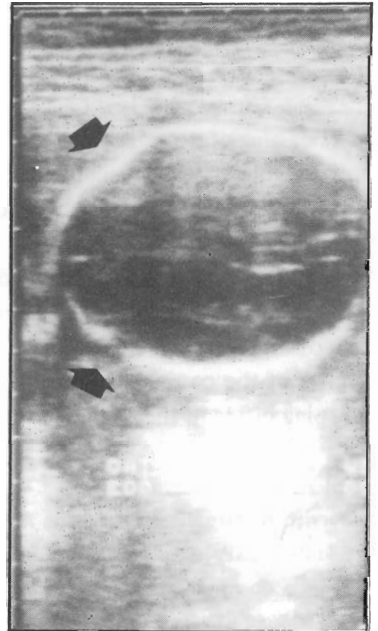


Figure 1 - Ultrasound view of the fetus at the biparietal level. Arrows show a fronto-parietal narrowing.

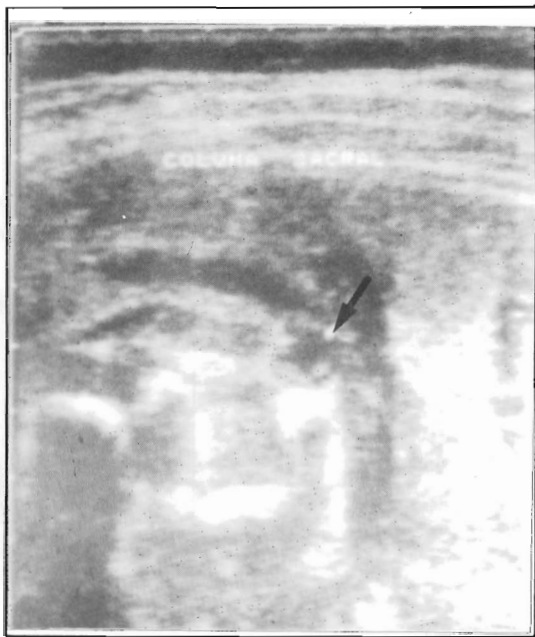


Figure 2 - Transverse view of the lumbosacral region showing the spina bifida and soft tissues defect.

Our diagnosis was a probably closed neural tube defect. After counseling, the couple decided to interrupt the 26th week pregnancy. Induction of labor was performed with vaginal E_2 prostaglandin eggs. A female fetus weighing 860 g confirmed at macroscopic examination the abnormal head shape and an open neural tube defect (Figure 3). Autopsy showed a constriction of the fronto-parietal region with a thickening of frontal bones at this point. Examination of the lumbosacral region determined a meningomyelocele. Ventricles were considered normal for the gestational age.

DISCUSSION

The fetal head is usually well examined during routine ultrasound. The finding of a "bullet"-shaped head is a warning sign of great practical value obligating the physician to perform a detailed scanning of the neural axis. In our case it was difficult to explain why alpha-fetoprotein was within normal values. This kind of biochemical amniotic analysis is not routinely done in Brazil and it is possible that wrong results were obtained due to technical problems. Very small neural tube defects may be overlooked even in a very careful ultrasound study (Elejalde and Elejalde, 1985) and they can be associated with normal alpha-fetoprotein levels. Exactly in these cases, such an ultrasound sign as described above can be an indication of spina bifida. We must point out that normal fetal head shape can have a similar appearance



Figure 3 - Aborted fetus with meningomyelocele.

in some cuts and this should be taken into account to avoid over-estimating the significance of fetal head shape.

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RESUMO

Realizamos uma ultra-sonografia de rotina durante a 24^a semana de gestação de uma primipara de 22 anos, demonstrando-se uma anomalia do formato do crânio fetal. Repetimos a ultra-sonografia na 26^a semana tendo sido confirmado um estreitamento na fossa anterior do crânio e

uma espinha bífica na região lombo-sacra. As duas anomalias foram confirmadas no estudo anatomopatológico do feto. Ressaltamos a importância do sinal ultra-sonográfico descrito uma vez que, no Brasil, as dosagens de alfafetoproteína, quer no líquido amniótico ou no soro materno, não exibem padrões de confiabilidade para fins de diagnóstico pré-natal.

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