

ULTRASONOGRAPHY—A DIAGNOSTIC TOOL IN DETECTION OF FETAL NEURAL TUBE DEFECTS

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SUMMARY

Ultrasonography is a non-invasive and precise diagnostic tool for early diagnosis of many congenital disorders of the central nervous system. Three hundred pregnant women were scanned in the 2nd and 3rd trimesters by real time ultrasound. Of these 9 cases were identified as anencephalic, 2 cases as hydrocephalic and 2 cases with meningocele. The pregnancies with anencephalic foetus were terminated. Considering the advances in neurosurgical technique to salvage hydrocephalic babies, the foetus with hydrocephalous were delivered by caesarean section. One of them is surviving after shunt operation, the foetus with meningocele was delivered vaginally and was found to have other associated congenital anomalies as well this baby expired within 24 hours.

Ultrasound provided an accurate diagnosis in all these cases and enabled us to manage these cases properly.

Introduction

The most important and devastating anomalies that can be recognised early by ultrasound are the open neural tube defects. In United States alone, 6000 infants are born with one of these anomalies, every year. Gross anomalies of the fetal skull are easily recognizable by ultrasound, but today with the advancement in instrument technology a detailed study of the fetal neuro-anatomy has become possible.

During the last 2 decades relatively safe techniques for second trimester abortions have been perfected and accepted by the medical and legal professions and by many societies.

Accurate diagnosis of neural tube defects early enough in the second trimester can allow pregnancy interruption after parental counselling.

Ultrasound, today, offers a safe, quick and reliable diagnostic tool for antenatal screening of open neural tube defects.

Material and Methods

Three hundred pregnant women were scanned by real time ultrasound in their 2nd and 3rd trimester of pregnancy for various indications.

The equipment used for scanning was Siemens Imager 2380. Wherever required and when interesting positive findings were observed a permanent record was made on the multiformat camera.

Observations

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Congenital Malformations

	No. of cases	%	Diagnosis missed
1. Anencephaly	9	3	—
2. Hydrocephalous	2	.66	—
3. Meningocele	2	.66	(.33%)
Total 300 cases	13	4.3	.33%

Anencephaly is not compatible with life, so prenatal diagnosis is desirable. In this study, 9 cases (3%) were detected out of a total of 300 cases. In this study there were no false positive results and no missed case, therefore ultrasound appears to be the method of choice in this condition (Fig. 1).

Hydrocephalus: Two cases of hydrocephalus were detected (0.66%) in the third trimester. Both the babies were delivered by caesarean section, keeping in mind the advances in surgical techniques. Out of the 2 cases one is surviving till date after shunt operation (Fig. II).

Meningocele: There were two cases of meningocele out of the 300 cases (0.66%). Out of these, 1 case was detected. Pre-

natal diagnosis is also desirable in cases of spina bifida as only about half of the infants born with an open neural tube defect will survive 5 years. In this study one case of spina bifida was missed (0.33%). The other was delivered vaginally and expired soon after birth as it had multiple congenital anomalies.

Discussion and Conclusion

Ultrasonar offers a safe, precise quick and accurate diagnostic tool for antenatal diagnosis of neural tube defects. Early prenatal diagnosis is desirable for planning the management.

In this study 4.3% open neural tube defects were diagnosed and 0.33% were missed.

See figs on Art Paper III