

BOY OR GIRL — BY REAL TIME ULTRASOUND

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SYNOPSIS

Trying to determine the sex of the unborn child has always been of great interest to the parents to-be. Medically, the serious hereditary sex-linked diseases such as pseudohypertrophic muscular dystrophy occasionally warrant an early diagnosis.

With the advent of ultrasonic scanning, the fetus can be visualized from an early stage with total safety.

This paper reports the use of a portable real time scanner which was found to be remarkably accurate in sexing the fetus. The lateness of its application in pregnancy however, precludes its use as an adjunct to the selective termination of pregnancy on genetic grounds.

MATERIAL AND METHOD

A Real Time Linear Array Ultrasonic Scanner (Model ADR 2130, Tempe, Arizona) was used with either a 3.5 MHz or 5 MHz transducer. As the ideal time for performing the scans was not known, patients were randomly scanned from 22 weeks gestation till term. A total of 45 patients were scanned and the minimum number of scans per patient was 1 with a maximum of 5 scans in some cases.

The scanning technique involved angulation of the transducer to show up the space between the fetal thighs. When this was reached, further angulation of the transducer enabled the region to be seen against a background of liquor. At 22 weeks the space is small (see Fig. 1) and in this photograph was found to be 12mm.

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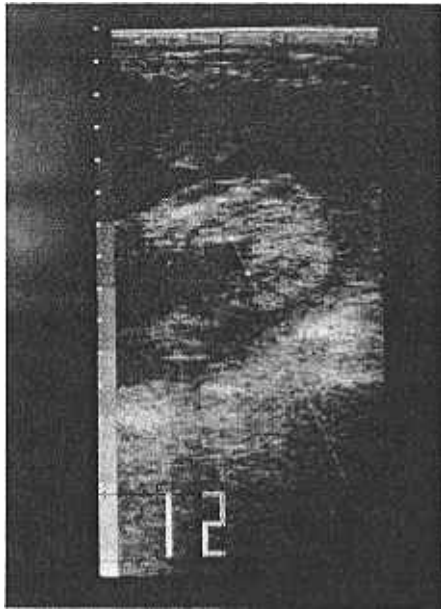


Figure 1. **FETAL BUTTOCKS** — Both thighs to left of picture. Space between thighs is 12mm.

With this technique it was found that the scrotum could be seen fairly readily and measured. Near term the measurement varies from 20 to 27mm. (Figs. 2, 3 and 4). These were found to correlate well with the actual scrotal diameter at birth (mean of 25mm.)

RESULTS

20 patients were diagnosed to have male babies. In 2 of these, the original scan at 30 weeks did not reveal the scrotum. However all subsequently could be seen on scanning and at delivery the diagnosis was confirmed in all cases. There are no false positives.

In 22 others no scrotum was seen. 2 of these were also scanned with a Diasonograph NE 4200 Scanner and no scrotum was seen. Of these 22 women, 21 delivered female babies and 1 had a dysmature male infant weighing 4 lb 8 oz. The scrotum was 17mm in diameter and had been missed. The accuracy was thus about 96% for females.

There were another 3 patients who were scanned rather late in pregnancy. All were over 36 weeks and the fetal spine was anterior. This caused a "echo free" zone or acoustic shadowing over the area of interest and it was not possible to see the sex. A repeat scan might have solved the problem but was not done in these. Hence, a small proportion of cases may prove to have technical difficulties.

DISCUSSION

The determination of fetal sex has been one of the less important functions of ultrasound in obstetrics. Some of the most eminent researchers in the field are not bothered by it as there are more pressing indications. The use of the static compound B scanner is difficult as the fetus may move during the examination. The picture however is much superior. The use of real time scanners was alluded to by Taylor (1978).

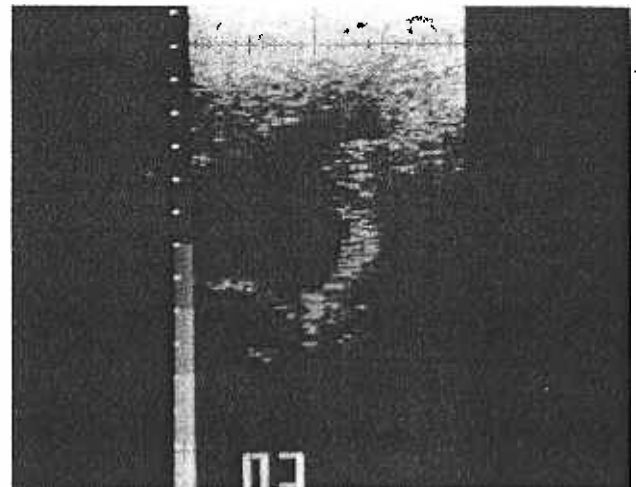


Figure 2. Scrotum seen in the centre of the photo silhouetted against the liquor.

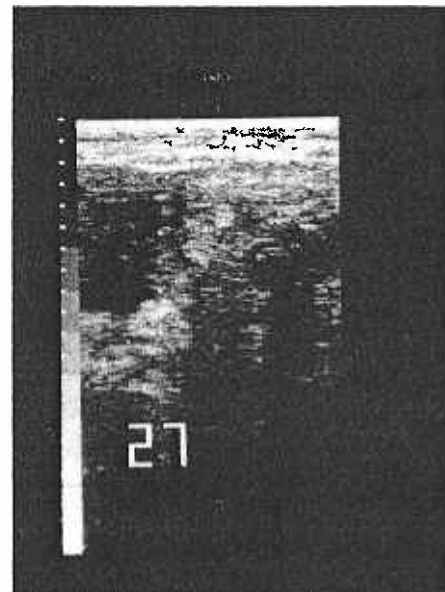


Figure 3. Scrotum (between dots) in left corner — 27mm.

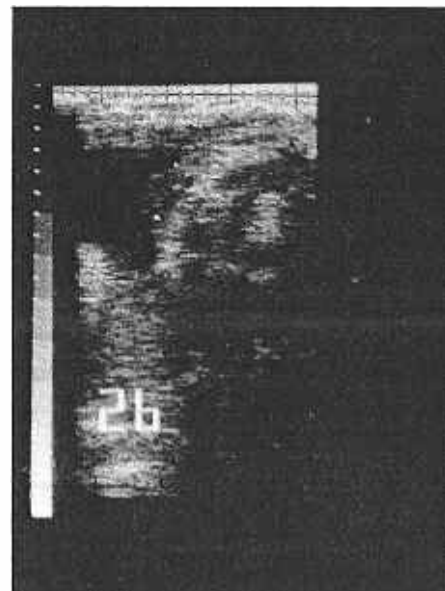


Figure 4. Scrotum between dots — 26mm.

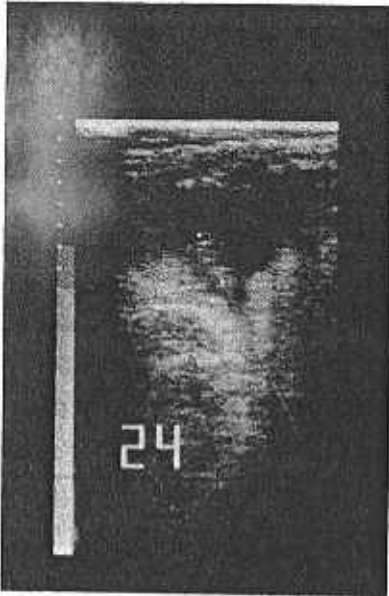


Figure 5. Scrotum between dots 24mm.

Either the penis or scrotum or both may be used as landmarks.

The fetal penis may sometimes be confused with the umbilical cord. By using a relatively large structure such as the scrotum, the risk of false positives is minimized. A possible mistake would be the fetal foot but by stimulating the fetus, the foot can be observed to withdraw. In this series there were no false positives.

The diagnosis of a female baby is by exclusion, hence it is a good practice to repeat as many scans as possible to ensure that the scrotum is not missed.

Using this equipment the scrotum was not readily seen in pregnancies below 32 weeks but with better equipment, it may be possible to make the diagnosis earlier.

However the high degree of accuracy was quite satisfying.

REFERENCES

1. Atlas of Gray Scale Ultrasonography K.J.W. Taylor Churchill Livingstone 1978 Page 292.