

APPARENT HALVING OF THE FETAL HEART RATE: A NEW CAUSE

By

SHASHANK V. PARULEKAR AND MINA S. BHATTACHARYYA

Introduction

Using ultrasound transducer for external fetal heart rate (FHR) monitoring, the electronic jargon results in halving of the fetal heart rate if above 240 beats per minute. A case is presented in which the FHR of about 140 beats per minute was intermittently halved. This is the first report of this type in the world literature.

CASE REPORT

Mrs. F.J., a 35 years old women, third gravida first para presented for antenatal care at 5 months of gestational period. Her last menstrual period had been on 23rd October 1985 and her due date was on 30th June 1986. She had one preterm delivery at 8 months of gestational age 3 years ago, and one spontaneous abortion at 6 months of gestational age 2 years ago. She had suffered from rheumatic fever in childhood.

On examination she was found to have rheumatic heart disease with aortic regurgitation and mild aortic stenosis in well compensated state. The uterine size was corresponding to the period of amenorrhoea. No other abnormality was detected. She was hospitalized and was treated with bed rest, digitalis, diuretics and hematinics. Subsequently she developed intra-uterine growth retardation, the uterine size being only that of 30 weeks of gestation while the gestational age was 36 weeks by dates. The diagnosis was confirmed by ultrasonography.

A nonstress test was performed using Corometrics 115 Fetal Monitor. The ultrasonic

transducer for external monitoring of the FHR was used (Fig.) The baseline FHR was about 140 beats per minute, which spontaneously dropped to about 74 per minute intermittently, 4 times in a period of 10 minutes. The whole of the maternal uterus was found to moving forwards and backwards with maternal aortic pulsations at a rate of about 74 per minute. The test was abandoned and was performed again the next day. This time a dead lateral position was used instead of the usual one with 15° lateral tilt. The uterus was also held away from the maternal aorta as far as possible. This time a satisfactory record was obtained because the powerful pulsations of the maternal aorta were away from the ultrasonic beam of the transducer and thus did not interfere with the recording of the FHR. The test was reactive.

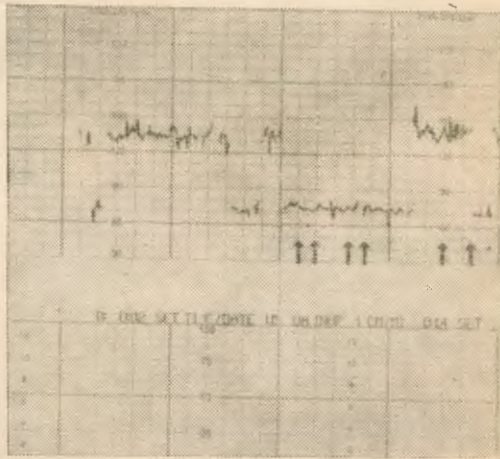


Fig. 1

From: Department of Obstetrics and Gynaecology, K.E.M. Hospital and Seth G.S. Medical College, Parel, Bombay 400 012.

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The patient delivered prematurely on 5th June 1986, four days after the nonstress test. The child weighed 1500 g and showed evidence of intrauterine growth retardation as well as prematurity. The mother and the child were

discharged from the hospital in good condition 12 days after delivery.

Discussion

The ultrasonic transducer of the fetal monitor picks up rhythmic pulsatile movement of the fetal heart, functioning on the Doppler principle. If there is another rhythmically pulsating structure nearby, and its pulsations are more powerful, the transducer will pick up these pulsations rather than fetal heart pulsations. In the case presented, the maternal aortic pulsations were quite prominent owing to the wide pulse pres-

sure caused by aortic regurgitation. Hence maternal pulse rate was intermittently recorded despite its slower rate. The apparent halving of FHR was in fact due to recording of the maternal heart rate which happened to be half the FHR. This interference with FHR recording was removed by adoption of dead lateral position and manual displacement of the uterus away from the maternal aorta.

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