ORIGINAL ARTICLE

Prenatal Diagnosis of CTEV

IRM IRFAN, IRFAN MEHBOOB

ABSTRACT

Objective: To establish prenatal diagnosis of club foot and compare it with post natal findings.
Study Design: Observational study.
Study Place: Teaching hospitals of Lahore, private hospitals.
Patient and Methods: The study was conducted at multiple centers in Lahore. We did pre natal ultrasound of 1000 mothers for anomaly scan between 18-24 weeks.
Results: 1000 patients were included in the study. In 8 expected mothers congenital club foot anomaly was detected in prenatal anomaly work up. The incidence in this study is 0.8 % or 8 per thousand live births.
Conclusion: Prenatal anomaly scan must be done during 18-24 weeks to find congenital anomalies for early post natal management.

Key Words: CTEV Prenatal diagnosis. Prenatal Diagnosis of CTEV.

INTRODUCTION

Club foot is a multiplanar deformity of the lower limb with a prevalence of 1 to 3 per 1000 live births. The condition varies in severity from mild forms which include a flexible postural deformity to isolated club foot to club foot associated with other deformities in the body. Flexible postural deformity often requires no treatment; isolated club foot, needs casting and possible surgery, usually with a favourable outcome. The severest form is complex club foot which is associated with neuromuscular or chromosomal conditions causing major disability.

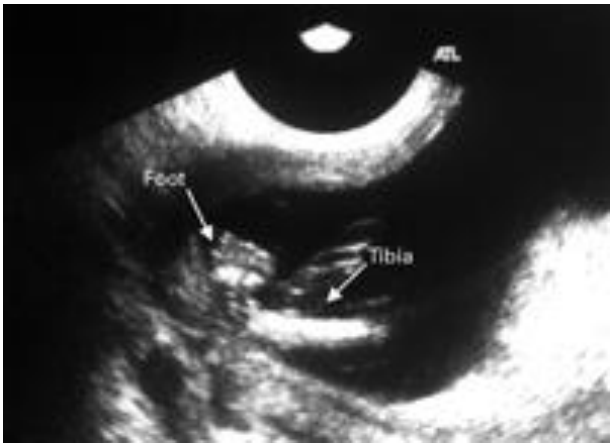
The widespread use of ultrasonography during pregnancy and improved techniques have greatly increased the rate of diagnosis of deformities. This has led to the establishment of pre-natal diagnosis in which expectant parents are informed about the outcome and long-term consequences of the condition, thereby helping them to decide upon the continuation of the pregnancy and cope with the deformity postnatally..

PATIENTS AND METHODS

A survey was done over 3 years in various hospitals and clinics in Lahore, in which more than 1000 expecting mothers were assessed at the time of the anomaly scan (ranging from 18 weeks to 24 weeks) and the lower limb was included in a routine exam looking especially for club foot. Club foot was diagnosed by ultrasonography in 12 feet. Feet were classified as normal, positional deformity, isolated club foot or complex club foot.

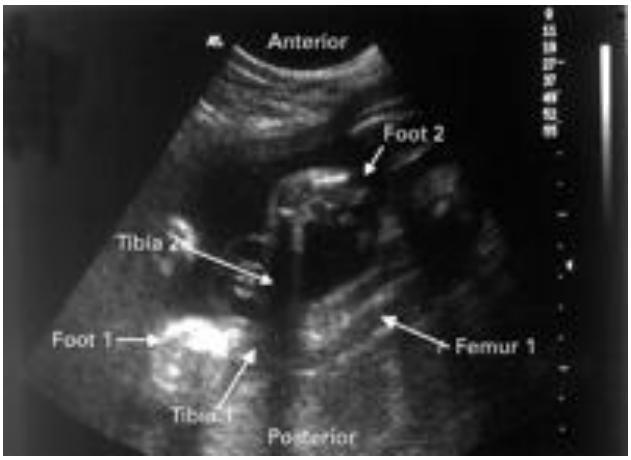
On a review scan after 6 weeks, two patients were informed that a misdiagnosis was interpreted and the fetus was normal. Possibilities for error were postioning of fetus coupled with observer misinterpretation

In the remaining 10 cases, there was one complex club foot associated with other anomalies, 6 isolated club foot deformities, and 3 positional deformities.



An ultrasound at 15 weeks showing a club foot deformity. Additional findings were a small penis and hydronephrosis; karyotype was XYY.

Correspondence: Dr. Irm Irfan, Assistant Professor of Radiology, AIMC, Lahore.
Email: irmirfan39@yahoo.com



The women underwent an average of 3 ultrasonographic scans . The women were identified by review of the pregnancy follow-up notes and the children's records. Women who had follow-up and treatment at other centres were interviewed by telephone. Data were collected on details of each sonogram.

RESULTS

At birth, club foot was found in 8 feet in infants for a positive predictive value of 66%. All 8 women were counseled.

The accuracy of the diagnosis of club foot by stage of pregnancy has been the subject of several reports. Bar Hava et al described a transient club foot-like deformity in early pregnancy. Treadwell et al reported a high rate of false-positive results in third trimester sonograms following earlier normal results in the second trimester and concluded that positional factors may cause a false positive sonogram in the third trimester. . We, therefore, do not believe false-positive results were caused by transient malpositioning but rather by other factors which obscured the diagnosis.

The gestational age where club foot was most accurately initially assessed was during the 20-24 week period.

Changes in diagnosis during pregnancy were addressed by Bakalis et al who reported that 19% of fetuses initially diagnosed as isolated club foot were reclassified as complex club foot when other defects were found on subsequent scans. Thus there is a 25% margin of error of overassessing or underassessing club foot. These findings emphasise the need for sequential ultrasonograms after initial diagnosis.

DISCUSSION

The need for karyotyping after prenatal diagnosis of isolated club foot is controversial.

Shipp and Benacerraf found that 5.9% of 87 fetuses with isolated club foot had an abnormal karyotype and concluded that amniocentesis is indicated after that diagnosis.

Other investigators have a different view, having found no pathological karyotypes in those fetuses with isolated club foot which they examined. Their research has shown that these additional tests do not yield any additional information regarding club foot.

Our study did not include amniocentesis and karyotyping, due to financial restraints and inability to access the labs for our patients.

Also, a literature and genetic database search revealed 14 chromosomal aberrations causing club foot. Nine have characteristics easily identifiable on ultrasonography and the remaining four are extremely rare. Therefore, research shows that it is not necessary to perform amniocentesis and karyotyping after ultrasonographic diagnosis of isolated club foot as it will not be substantially beneficial:; ie the costs outweighs the benefits

REFERENCES

1.