

Ultrasound-Based Screening of Hip Development in Infants at a Tertiary Hospital in Veracruz, México: A Descriptive Cross-Sectional Study

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ABSTRACT

Developmental dysplasia of the hip (DDH) is a major cause of long-term disability if not detected early. Ultrasound has become a valuable screening tool for evaluating hip development in infants. This descriptive cross-sectional study included 210 infants aged 30–100 days screened between April and August 2025 at a tertiary hospital in Veracruz, Mexico. Hip ultrasound was performed using the Graf classification method. Most hips were classified as Graf type I (71.9%), while 28.1% were Graf type IIa. Breech presentation was the only risk factor significantly associated with hip immaturity ($p = 0.024$). Ultrasound screening identified clinically silent hip immaturity, supporting its value as an early screening tool.

KEYWORDS: Developmental dysplasia of the hip; Hip ultrasound; Screening; Graf classification; Breech presentation

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I. INTRODUCTION

Developmental dysplasia of the hip encompasses a spectrum of abnormalities that may lead to functional impairment if not detected during early life. Clinical examination alone may fail to identify subtle or immature hip morphology, making ultrasound a valuable adjunct in screening programs.

II. MATERIALS AND METHODS

A descriptive, cross-sectional study was conducted at Hospital General Regional No. 1, IMSS, Veracruz, Mexico. A total of 210 infants aged 30–100 days underwent hip ultrasound screening using the Graf method. Associations between perinatal risk factors and ultrasound findings were evaluated using chi-square analysis.

III. RESULTS

Among the 210 infants, 71.9% were classified as Graf type I and 28.1% as Graf type IIa. No pathological hips were detected. Breech presentation showed a statistically significant association with immature hips ($p = 0.024$).

IV. DISCUSSION

This study demonstrates that ultrasound screening can detect hip immaturity in clinically normal infants. The significant association with breech presentation supports targeted screening strategies in high-risk populations.

V. CONCLUSIONS

Ultrasound screening is effective in identifying physiologically immature hips in asymptomatic infants. Breech presentation remains the most relevant associated risk factor, supporting the clinical value of ultrasound-based screening programs.

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