ULTRASOUND SCREENING OF HIGH-RISK NEWBORN INFANTS FOR CONGENITAL DYSPLASIA OF THE HIP

THESIS

Submitted for partial fulfillment of

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By

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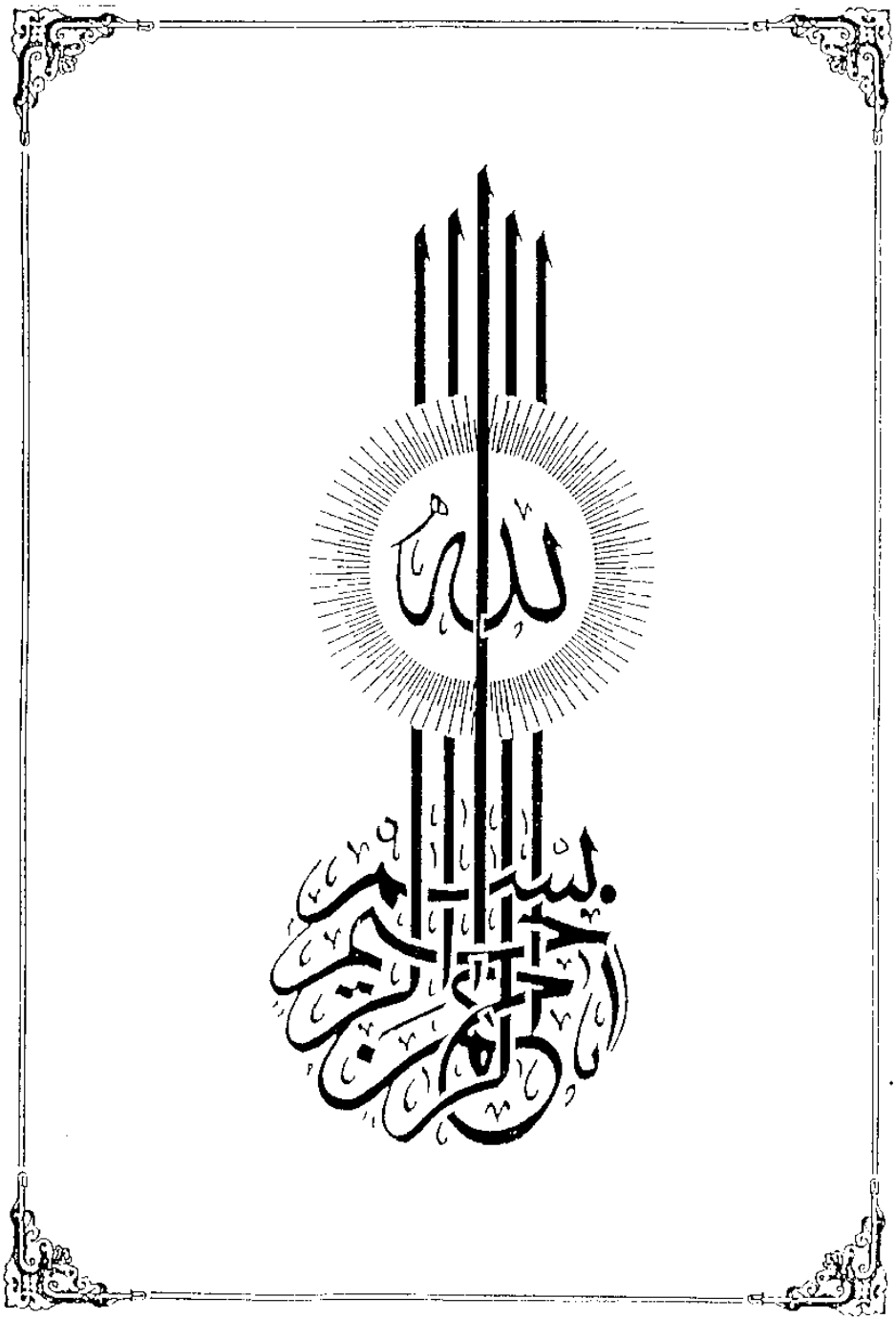
بسم الله الرحمن الرحيم

« ربِّ أوْزِعنى أن أشْكُرَ نِعـمْتَكَ الَّتى أنعـمتَ علىَّ وعلى والدىّ وأن أعـمل صـالحًا ترضـاهُ وأدْخلنى برحمتكَ فى عبادِكَ الصَّالحين »

صدق الله العظيم

سورة النمل ، آية (١٩)



To...

My family.

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LIST OF ABBREVIATIONS

CDH	Congenital dysplasia of the hip
CS	Cesarean section
CT	Computed tomography
MG	Multigravida
NVD	Normal vaginal delivery
PG	Primigravida
U/S	Ultrasound
U/S–ve	Ultrasound negative for CDH
U/S+ve	Ultrasound positive for CDH

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INTRODUCTION

Congenital dysplasia of the hip results from abnormal development of one or all of the components of the hip joints, the acetabulum, the femoral head and the surrounding capsule and soft tissues (*Ogden,* 1988).

It is well established that early diagnosis and treatment improves the outcome in CDH. If CDH is detected in the first months of life, outpatient treatment with a soft harness is safe, inexpensive and effective (*Tachdjian,* 1990). However, delay in the diagnosis of CDH often necessitates inpatient traction and casting or operative intervention often with a suboptimal outcome (*Harcke and Grissom,* 1990). In addition, up to 25% of adult hip osteoarthritis requiring surgery has been attributed to the late effects of mild CDH (*Tonnis et al.,* 1990).

CDH continues to be missed by routine physical screening examinations in the early months when treatment is most effective. It has been estimated that up to 50% of CDH are undetected at paediatric neonatal clinical screening. Thus improved methods of increasing early diagnosis are needed (*Ilfeld et al.,* 1986).

Real time ultrasonography (U/S) is valuable in the detection of CDH in the young infant (*Boal and Schwentker,* 1985). Ultrasonography allows visualization of the cartilaginous femoral head and its functional anatomic relationship to the bony and cartilaginous acetabulum (*Harcke et al.,* 1984).

Aim of the Work

This work was carried out to study the role of clinical and ultrasound screening for CDH among high risk newborn infants aiming at early diagnosis and treatment of this condition and decreasing the number of missed cases.

Review of Literature

ANATOMY OF THE HIP JOINT

The hip joint is a synovial joint of the ball and socket variety.

The stability of the hip is largely the result of the adaptation of the articulating surfaces of acetabulum and femoral head to each other and its great range of mobility, results from the femur having a neck that is much narrower than the equatorial diameter of the head (*Pansky*, 1984).

In general it can be said that in all joints stability and range of movement are in reverse proportion to each other. The hip joint provides a remarkable example of high degree of both.

The Acetabulum

The three elements of the hip bone, the pubis, the ileum and the ischium meet in the acetabulum at a triradiate synchondrosis (*Mcvay*, 1984).

The acetabular cartilage surface covered with hyaline cartilage is a C-shaped concavity. Its peripheral edge is deepened by a rim of fibrocartilage which encloses the femoral head beyond its equator thus increasing the stability of joint. This rim is named the labrum