

Evaluation of The Results of Dega Acetabuloplasty in Management of DDH in Walking Children under 4 Years

Thesis

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وما اوتيتم من العلم الا قليلا

صدق الله العظيم

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Lists of Abbreviations

Abbreviation	Meaning
DDH	Developmental dysplasia of the hip.
AVN	Avascular necrosis.
AI	Acetabular index.
CE angle	Centre edge angle.
Lt. OA	Left occipito-anterior.
OR	Open reduction.
FO	Femoral osteotomy.
VDO	Varus derotational osteotomy
AP	Antero-posterior.
Lat	Lateral.
3D	Three dimension.
U/S	Ultrasonography.
MRI	Magnetic resonance imaging.
CT scan	Computed tomography scan.
GA	General anaesthesia.
AIIS	Anterior inferior iliac spine.
ASIS	Anterior superior iliac spine.

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Abstract

Developmental dysplasia of the hip (DDH) refers to a complete spectrum of pathologic changes involving the developing hip.

Early diagnosis and management is critical to successful outcome and to avoid residual abnormalities and eventual early degenerative arthritis.

Over 18 months of age operative management is usually recommended and includes open reduction and suitable type of pelvic osteotomy.

There are different types of pelvic osteotomy either reorientation or reshaping osteotomies.

Dega acetabuloplasty is considered one of the favourable reshaping procedures and it is most valuable in severe dysplasia without need for internal fixation and for another surgery to remove the fixation.

Key words

Dega – pelvic osteotomy

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Aim of the work

The aim of this study is to evaluate the results of Dega acetabuloplasty in treatment of DDH in walking children under 4 years of age.

Introduction

Developmental dysplasia of the hip (DDH) refers to a complete spectrum of pathologic changes involving the developing hip, ranging from acetabular dysplasia to hip subluxation or dislocation.⁽¹⁾

DDH is the most common disorder of the hip in children. 10 in 1,000 children (1%) are born with hip subluxation or dysplasia. One in 1,000 children (0.1%) are born with a dislocatable hip. Eighty percent of affected children are females. The left hip is more commonly involved (60%).^(1, 2)

The exact etiology is largely unknown but is thought to be multifactorial (genetic, hormonal, and mechanical). DDH occurs more frequently in first child and with breech presentation (30% to 50%). Family history is a strong risk factor.^(1, 3)

Early diagnosis of DDH is critical to a successful outcome. Acetabular development will go to be abnormal if a hip is left subluxated or dislocated. Delay in management results in residual abnormalities and eventual early onset degenerative arthritis.⁽²⁾ The management of DDH is challenging. The objectives of management include early diagnosis, reduction of the dislocation, avoidance of avascular necrosis, and correction of dysplasia.^(1, 3)

In untreated cases over 18 months operative management is usually recommended. Surgical treatment of DDH includes open reduction plus capsulorrhaphy plus or minus a suitable type of pelvic osteotomy and or femoral osteotomy.^(1, 4, 5)

Selection of the pelvic osteotomy is based on the severity of the dysplasia and the age of the child .Regarding types of pelvic osteotomies there are reorientation procedures and reshaping procedures. ^(3, 6)

Dega osteotomy is considered one of the reshaping pelvic osteotomies. It is supraacetabular semicircular osteotomy in which semicircular cut through the lateral cortex of the ilium directed towards the inner cortex of the ilium just above the triradiate cartilage. ^(4, 6, 7)

Dega emphasized the importance of maintaining an intact sciatic notch and at least posterior 1/3 of the inner cortex of the ilium to act as a hinge for rotation of the acetabulum in addition to the horizontal limb of the triradiate cartilage and symphysis pubis. ^(4, 7)

Embryology and hip development

For normal growth and development of the hip joint to occur, there must be a genetically determined balance of growth of the acetabular triradiate cartilages and a well-located and centered femoral head. The femoral head and the acetabulum develop from the same primitive mesenchymal cells.

Periods of embryonic development:

Intrauterine life has been divided into phases according to certain characteristics of fetal development as follow:

1- Initial period (ovular phase):

Within two weeks after fertilization the ovum becomes well implanted into the endometrium.

2- Embryonic phase:

Begins from two weeks after fertilization till the end of the eighth week where the major differentiation of tissues and organs is accomplished.

3- fetal period:

It is the period from the eighth week after fertilization to the termination of pregnancy during which the tissues and organs attain maturity.

Four weeks after fertilization, the small lower limb buds begins on the anterior lateral body wall at the lumbar and first sacral segment levels. These buds contain mesenchyme, which differentiate to cartilage, bone, synovium, ligaments, muscles and tendons. During about the **seventh week** of intrauterine life, a cleft develops, defining the future hip joint,