Salwa Akl

بسم اللّه الرحمن الرحيم

مركز الشبكات وتكنولوجيا المعلومات

قسم التوثيق الإلكتروني

Salwa Akl

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم باللّه العظيم أن المادة التي تم توثيقها وتسجيلها

علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

Salwa Akl

بعض الوثائق الأصلية تالفة
وبالرسالة صفحات لم ترد بالأصل

PELVIC OSTEOTOMIES AROUND THE HIP JOINTS

Essay

Submitted for Partial Fulfillment
For Master Degree

IN

Orthopaedic Surgery

By

Mohamed Mohamed Badawy
M.B.B.Ch.

Supervised by

Pro.Dr. \ Hatem Mustafa Ashour
Professor of Orthopaedic-Benha Faculty of Medicine

Pro.Dr. \ Magdy El-Sayed
Professor of Orthopaedic-Benha Faculty of Medicine

Pro.Dr. \ Hassan Hussein
Professor of Orthopaedic-Benha Faculty of Medicine

Benha Faculty of Medicine
Zagazig University
2004

Acknowledgment

I would like to express my deep respect to Professor Hatem Ashour Prof. of Orthopaedic surgery for supervising my work, Professor Magdy El-Sayed Prof. of Orthopaedic surgery for participating in supervision. I greatly appreciate Professor Hassan Hussein Prof. of Orthopaedic surgery for his valuable advices and continuous support.

Contents

Introduction.....,....A
Anatomy of the hip joint.....1
Biomechanics of the hip joint.....14
Pathomechanics & Causes of Pelvic Incongruity.....27
Diagnosis of hip dysplasia.....36
Rational & Types of pelvic osteotomy..52
Indication of pelvic osteotomy.....74
Surgical technique.....80
Summary and conclusion.....102
Abbreviations list
References
Arabic summary

Introduction

Introduction

Hip dysplasia occurs due to inappropriate hip biomechanics, this can cause early OA, which make challenge to Orthopaedic surgeons in adult patients because of age limits for arthroplasty. The major role of osteotomy in dysplastic hip is to establish normal hip biomechanics by repositioning the hyaline cartilage surfaces (***Bombelli 1993***).

Osteotomies (whether femoral or pelvic) designed to prevent OA in patients, may be effective for many decades or even permanently, if normal anatomy restored (***Bombelli et al, 1984***).

Osteotomies around the hip can be divided into two broad categories: reconstructive and salvage, according to the severity of the disease. In general in reconstructive surgery the biochemical concepts of containment, coverage, congruence, center of rotation, abductor mechanics, version (torsion), mechanical axes and limb length should be considered.

Thus, The message is becoming clearer in the late 1990s: Hips that are not anatomically normal will not last lifetime, especially if there are any preexisting anatomic abnormalities.

All of these factors suggest that efforts should be made to identify anatomically abnormal hips before they become grossly arthritic and that, when feasible, the anatomic/biomechanical deficiency should be corrected.

Reorientation of the patient's own biologic tissue, rather than implanting a foreign material (Joint Replacement), seems prudent in the younger patient, particularly if the required surgical intervention is relatively safe and effective (*Rab 1978*)

The aim of the work is to review the literature of Pelvic Osteotomies around hip joint from some sides as:

- Anatomy of the hip joint.
- Biomechanics of the hip joint.
- Pathomechanics and causes of pelvic incongruity.
- Diagnosis of pelvic dysplesia.
- Rational and types of pelvic osteotomies.
- Indications of pelvic osteotomies.
- Surgical technique of pelvic osteotomies.

Anatomy of The Hip Joint

The os coxae (pelvic bones) are formed from three separate ossification centers—the ilium, the ischium, and the pubis. The innominate bone is ossified from these three primary centers as well as from secondary centers (Fig.1A).

The acetabulum has a mostly circular contour in its superior margin, but it has only enough hemispherical depth to allow for 170° coverage of the femoral head. Femoral head coverage within the acetabulum is augmented by the labrum, which runs circumferentially around its perimeter to the base of the fovea, where it becomes the transverse acetabular ligament (Fig.1B) (***Adila 1986***).

Two strong osseous columns of bone surround the acetabulum, transmitting the stresses between the trunk and lower extremities (Fig.2) (***Wasielewski et al 1996***)

HIP JOINT CAPSULE AND LIGAMENTS

The articular capsule of the hip is strong and dense (Fig. 3, 3B).

The femoral neck is intracapsular anteriorly, but posteriorly the basicervical portion and intertrochanteric crest are extracapsular.(Fig. 3B,C).

By eight centers { *Three primary (Ilium, Ischium, and Pubis)*
Five secondary

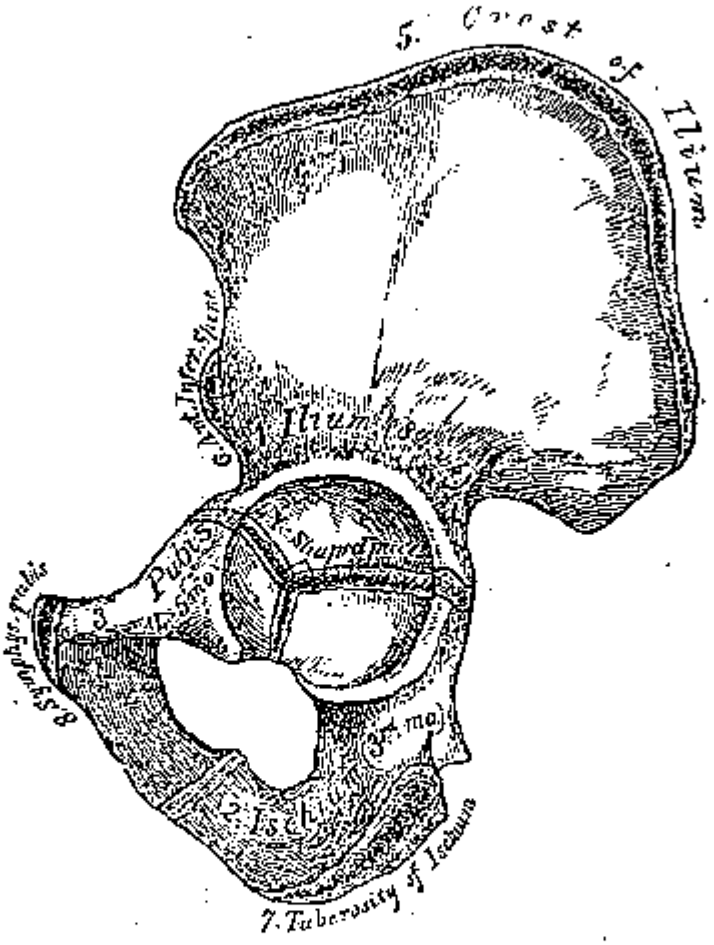

FIG. 1A: Ossification centers of hip bone

(Adila 1986)

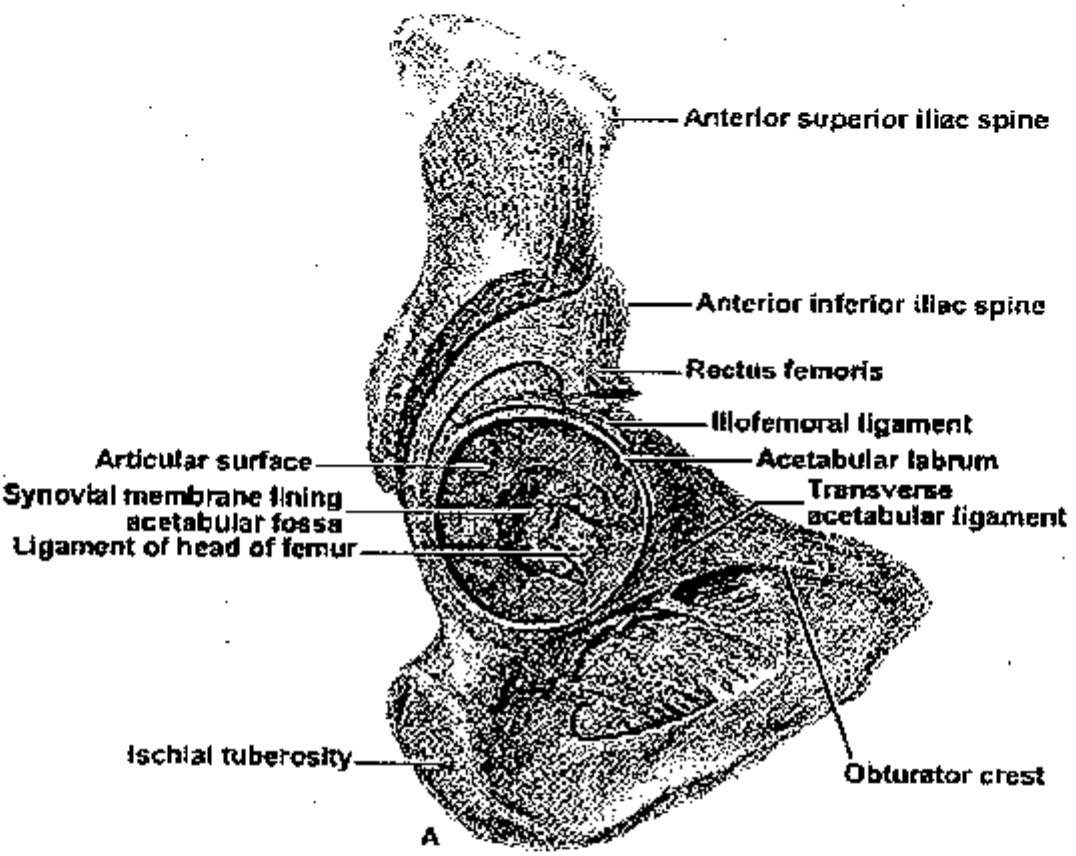

FIG. 1B: Extratrapelvic view of the right pelvic bone

(Adila 1986)

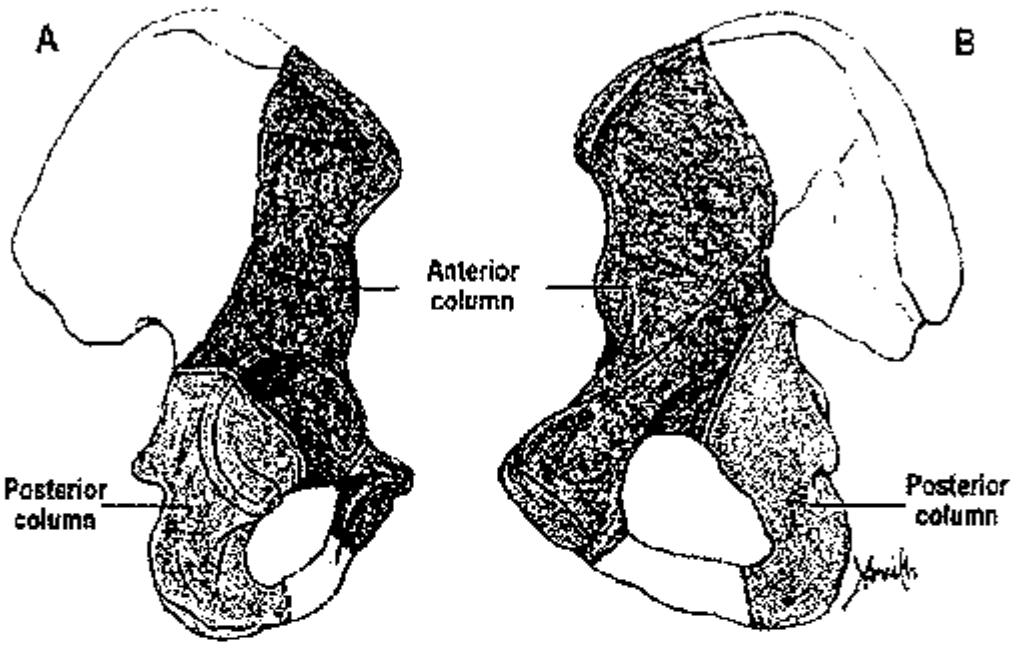

FIG. 2. **A:** Schematic of the extrapelvic view of the pelvic bone, demonstrating the anterior and posterior columns. **B:** Schematic of the intrapelvic view of the pelvic bone demonstrating the anterior and posterior columns. ***(Wasielewski et al 1996)***

Two strong accessory ligaments, the iliofemoral and the pubofemoral ligaments reinforce the anterior portion of the capsule. The ischiofemoral ligaments reinforce the posterior capsule (Fig. 3A,B,C) (*Williams & Warwick 1985*).

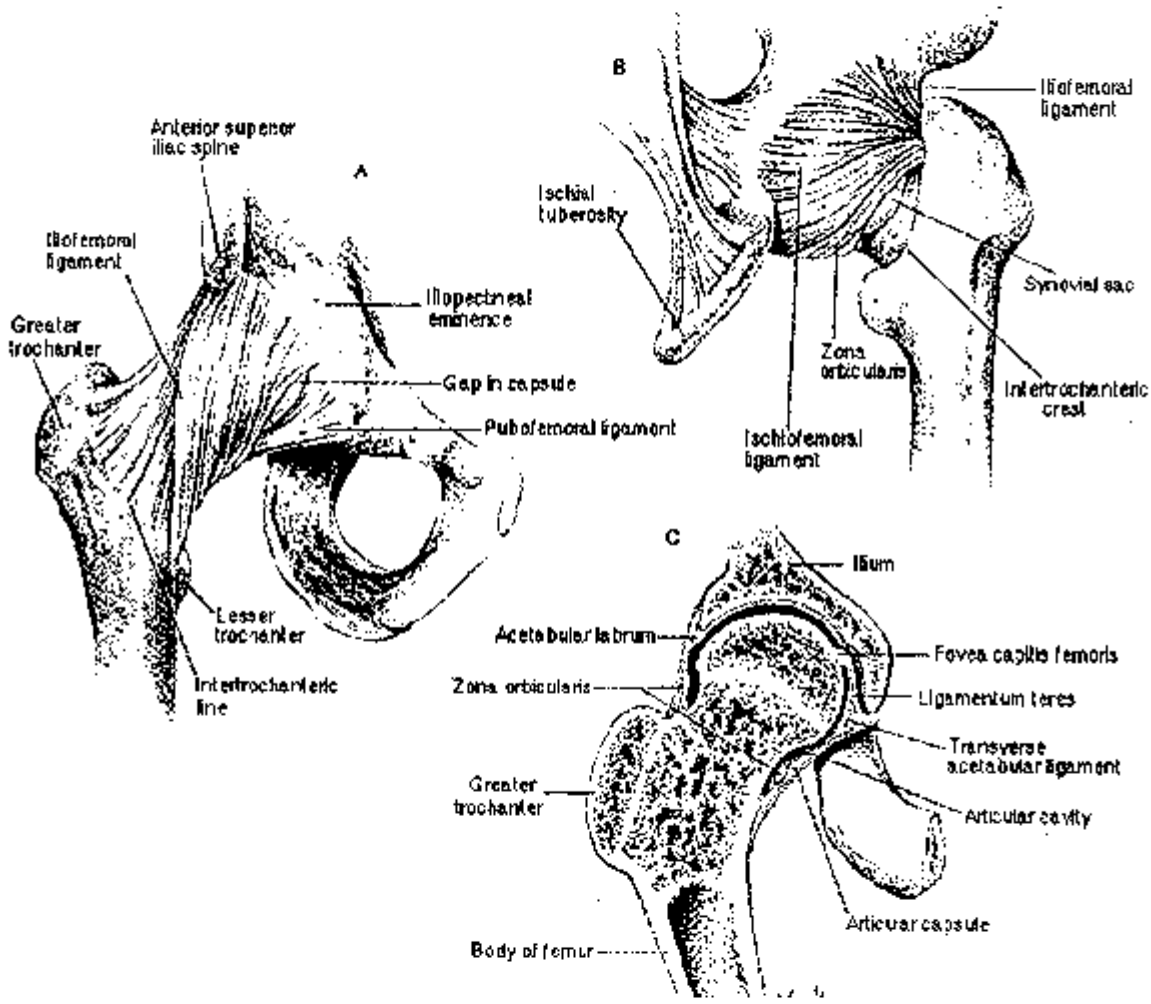

FIG. 3. Ligaments of the hip joint.

(Williams & Warwick 1985)