DOCTORAL THESIS
SUMMARY

Total hip arthroplasty in developmental hip dysplasia. Technical improvement possibilities.

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Key words: hip osteoarthritis, dysplasia, osteotomy, tenotomy, arthroplasty, revision, loosening, wear particles disease.
A. General section:
Introduction and brief history.

Hip osteoarthritis is a chronic degenerative disease of the adults and represents 90% of the hip affections.

He is characterized by destructive lesions of the articular cartilage, associated with destructive and proliferative lesions of the subcondral bone tissue.

Chapter I:

The coxofemural joint is the link between the coxal bone and the pelvic member and it is a perfect spherical joint with 3 movement axis and is very important for statics and movement. The iliofemoral ligament (Bertin) has a triangular shape and is composed of two parts: an oblique one and a vertical one. He is the strongest ligament of the coxofemoral joint and he can support up to 350-500 kg.

Chapter II:

The movements around the hip are: flexion, extension, abduction, adduction and internal and external rotations.

Chapter IV:

Classification

Etiological, the hip osteoarthritis are primitives and secondary. The hip dysplasia is included among the secondary ones.

Chapter VI:

The pain is the main symptom that brings patient to the doctor and also, the most important factor that convinced the patient and the doctor to operate that hip. The limp (with positive Trendelenburg sign), the
vicious attitude (in flexion, adduction and external rotation) are also important signs that lead us to positive diagnose of hip osteoarthritis.

Chapter VII:

The radiographic diagnoses of the hip dysplasia most used includes: the femoral head coverage angle <20 °; the acetabulum inclination angle >10-12°; the interruption of the cervico-obturator line (Shenton); the dynamic radiological test of femoral head centrage.

Chapter X:

The treatment in hip osteoarthritis includes: tenotomy, osteotomy (medialisation, varus, valgus) and, finally, when all other resources are exhausted, total hip arthroplasty.

B. Personal part:

Chapter XI:

In this chapter I discuss about the benefits of the McMurray oblique medialisation osteotomy who, in very well designed cases can give a good relief and mobility of the hip, even for 12-15 years or so. The indication is for a painful hip but with a good flexion of minimum 60° and a minimum abduction of 25°. In association with a varus intertrohanterian osteotomy, it gives the best results.

Chapter XII and XIII are about the primary arthroplasty for hip dysplasia (20 cases between 2001-2010) and revision arthroplasty in 25 cases, between 2001 – 2010, what were the causes and how I manage to solve the problems occurred during the operation.

Also, I treated the physiopathology of the aseptic loosening of hip arthroplasty, with wear particles disease as the main pathogenically
cause of this. The experimental part has three models for the right coxofemurale hip, the kinematic one, in four positions, the finite elements one for a normal coxofemurale joint and for a dysplastic one, the third model.

The Bertin ligaments were taken into account in tension at first and then without tension, and we could see how the pression about the femur (proximal part) and acetabulum decreases when the ligament was decontracted, a good point of view for the operations that decreases the tensions about the acetabulum and femoral head, for a longer salvation of the local cartilage.

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