Recent Advances in Hip Arthroscopy

Essay

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By

Mostafa Aly Ahmed Ibrahim

M.B, B.CH

Under Supervision of

Prof. Dr. Ahmed Mohammed Elsaid

Professor of orthopedic surgery, Ain Shams University

Dr. Ashraf Mohammed Elseddawy

Lecturer of orthopedic surgery, Ain Shams University

Faculty of Medicine

Ain Shams University

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ALAD……..acetabular labrum articular disruption

AL……....anterolateral

AP…….anteroposterior

ASF……..anterior synovial fold

ASIS…….anterior superior iliac spine

AVN…….avascular necrosis

CC……central compartment

CPM…….continuous passive motion

CT…….computerized tomography

DALA……...distal antrolateral accessory

FAI……femoracetabular impingement

LSF……lateral synovial fold

LT……..ligamentum teres

MAP……..midanterior portal

MRA…….magnetic resonance arthrography

MRI……..magnetic resonance imaging

MSF…….....medial synovial fold

NSAIDS.....non steroidal anti-inflammatory drugs

PALA……..proximal anterolateral accessory

PC……...posterior compartment

PL……...posterolateral

PLS…….perilabral sulcus

PMAP…….proximal midanterior portal

PSP…….peritrochanteric space portal

ROM……..range of motion

TAL……transverse acetabular ligament

ZO……..zona orbicularis

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Introduction

The twentieth century marked a revolution in open-hip surgical procedures. At the beginning of the century, the primary indication for a hip procedure was related to the management of tuberculosis. By the end of the century, hip operations, specifically total hip arthroplasty and fracture management, were 2 of the most common orthopedic procedures performed annually [1, 2].

Presently, there are many "safe" windows to access the hip joint. These include the 5 primary approaches: straight anterior, anterolateral, lateral, posterior/posterolateral, and medial. These exposures have been well studied and have a wide range of applications. They are all safe and reproducible by not violating basic surgical anatomic principles. However, they all lack a true exposure of the femoral head. Hence, they have limited utility to address intra-articular pathology [3].

During the last 10 years, recent advances in understanding the anatomical blood supply to the femoral head led Reinhold Ganz to champion a safe surgical dislocation of the hip. This procedure affords the "open" hip surgeon a tool to address directly intra-articular pathologies. This procedure, however, has a steep learning curve. It also has numerous potentially disastrous complications, including AVN, heterotopic ossification, and trochanteric nonunion [4, 5].

In contrast, hip arthroscopy, provides the surgeon a tool to diagnose and treat intra-articular pathology in a less-invasive fashion. Hip arthroscopy offers a less invasive

alternative for hip procedures that would otherwise require surgical dislocation of the hip. In addition, this procedure allows surgeons to address intra-articular derangements that were previously undiagnosed and untreated [6, 7].

Although Burman [8] first described arthroscopic visualization of the hip in 1931, it did not gain significant clinical utility as a diagnostic tool and treatment modality until the mid 1980s [9-10]. Because of several technical difficulties, it has only recently gained wider acceptance and use in the past decade [11-12].

Anatomical constraints have made arthroscopy of the hip significantly more challenging than similar surgery around the shoulder and knee. The femoral head is deeply recessed in the bony acetabulum and is convex in shape. The thick fibrocapsular and muscular envelope around the hip joint limits the amount of distention possible during hip arthroscopy; the relative proximity of the sciatic nerve, lateral femoral cutaneous nerve, and remaining femoral neurovascular structures make portal placement more challenging [13-14].

Recent advances in lateralizing distractors, quantitation of distension and traction forces, as well as the development of specific surgical instrumentation have allowed hip arthroscopy to gain wider recognition and clinical application [15]. With these improvements in technology a more detailed understanding of the arthroscopic anatomy of the hip has developed [3].

Current indications for hip arthroscopy include management of labral tears, osteoplasty for decreased femoral head neck junction offset (femoroacetabular impingement), rotational instability and capsular laxity,

ligamentum teres injuries, lateral impact and chondral injuries, osteochondritis dissecans, internal and external snapping hip, removal of loose bodies, synovial biopsy, subtotal synovectomy, synovial chondromatosis, infection, and certain cases of mild-to moderate osteoarthritis with associated mechanical symptoms. In addition, patients with long-standing, unresolved hip joint pain and positive physical findings may benefit from arthroscopic evaluation [6, 7].

Arthroscopy in trained hands offers the benefit of an outpatient procedure and circumferential access to the hip joint and does not hinder opportunities for future surgical interventions [15].

At the other end of the spectrum from "arthroscopists," traditional hip surgeons are emphasizing the role of "minimally invasive" surgery. Conceptually, this is simply a matter of lessening the surgical exposure necessary to accomplish a particular procedure. Less surgical violation of the soft tissue planes means shorter hospitalization, less postoperative pain, easier, shorter, and perhaps more reliable postoperative rehabilitation, and a quicker return to a productive lifestyle. Some of these advantages are offset by the technical challenges imposed by these evolving methods. It is likely that the arthroscope will find an expanding role as an adjunct tool in this migration towards less invasive techniques, and "arthroscopic assisted" methods should become more commonplace [16].