


Stiffness after fracture


How I do an Arthroscopic arthrolysis

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IML
Institut du Mouvement et de l'Appareil Locomoteur



4th Advanced Course on
Knee Surgery
January 22nd – 27th 2012



Aix-Marseille
universite



DEFINITION

« All knee with a flexion lower than 90° » Jean Judet

- Flexion limitation (<90°)
- Extension Limitation (=flessum, ?)
- Both in flexion and extension

Stiffness after fracture Arthroscopy

Where is the problem?
No extra-articular deformation

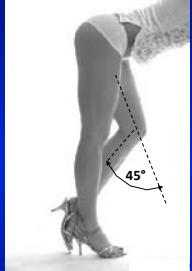
Stiffness after fracture What was the story?

Infection ! Always
Bad reduction or no reduction
Rehab problem?
If yes why, pain, fear ...



Arthroscopic Arthrolysis

- Jackson 1975
- Conti 1979: 4 failures / 22
- DeHaven 1982: 3/15
- Sprague 1984: 6/24
- Mean Gain 45-55°^{1,2,3,4}



1. Beaufils, P. - L'arthroscopie opératoire dans la pathologie mécanique du genou. Apports et limites. Expansion scientifique française. Conférences d'enseignement n°45, 91-108.

2. Christel, P. et al. - L'arthrolyse percutanée sous contrôle arthroscopique et la mobilisation sous anesthésie dans le traitement des raideurs postopératoires du genou. Rev. Chir. Orthop., 1989, 74, 517-525.

3. Dupont, J.-Y. - Arthrolyse du genou sous contrôle arthroscopique. 5e rencontre de chirurgie osseuse. Brest, 10-11 septembre 1992.

4. Sprague, N.F. et al. - Arthroscopic treatment of post operative knee fibroarthrosis. Clin. Orthop., 1982, 166, 165-172.

I take the time with the patient

=> Provide a typical Orthopaedic information
"It's going to be long and hard"

- Patient evaluation: motivation, working occupation
- Medical evaluation:
 - bone quality
 - unknown inflammatory disease
 - Infection
- Modesty +++

Why?

Intra-articular fibrosis :

- Supra-patellar pouch and quadriceps
- Condylar ramps

Global Capsular retraction

- Retinaculum (20°)
- Fat pad
- Post capsule

Anterior stop effect: cut-off

- Anterior osteochondral Fragment

Beaufils et al. EMC. Arthrolyse arthroscopique du genou

Arthroscopic acces

Lack of flexion

« Anterior »

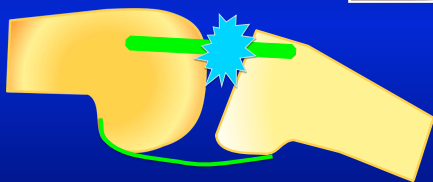


Lack of extension

« Anterior »

Flessum cut-off effect

⇒ Osteochondral Fragment



I do not deal with posterior retraction arthroscopically

When ?

Around 3 months

OK up to 6 months

Sometimes more but....

Before starting: check-list

- Infection
- Patient information
- I'm not in Val d'Isere the day after the surgery
- Anesthesiologist and Catheter
- Arthroscopic tools
- Casting
- Manual rehabilitation scheduled

What I'm going to do ?

Step by step

1. Exam under GA => What do we really have + pictures
2. Sub-quad and suprapatellar pouch
3. Lateral retinaculum section
4. Condylar ramps
5. Fat pad
6. Medial retinaculum
7. ACL if required

Pictures Post=> +++ Psychologic effect



First step Find an Anesthesiologist

Catheter




Result
mean (kg). The statistic
(14-45)
animation entitled 'orthopedics vs anesthesia' had received more than half a million hits at the time of writing. Several comparisons of orthopaedic surgeons to primates have been accepted intelligence quotient (IQ). By definition, the IQ of the general population is 100 and the standard deviation is 15. We used the Mensa Brain Test version 1.1.0 (B...

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Standard Tool Box

- Tourniquet
- Arthro pump
- Shaver
- Viper
- Mayo ciseaux




32 years old ladie, former fencing french team skiing injury

Patient set-up

- Tourniquet
- Knee positioner
- Catheter ready



Portals and Approaches

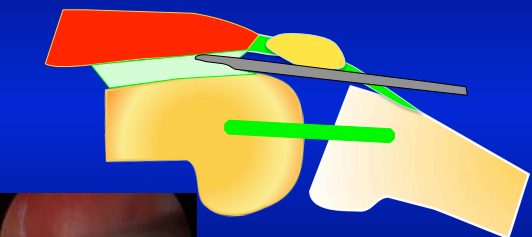

results
Steadman et al⁴ described the results of isolated anterior interval release in a series of 25 consecutive patients with scarring of the anterior interval. Patients failed a minimum of 6 months of physical therapy and non-steroidal anti-inflammatory drugs. Following arthroscopic release, the average Lysholm improved from 81 postoperativ International K Committee scor

medial than the
The shaded are

November 2011, Vol 18, No 11

1. Work in extension

Liberation under the quad: see the red fibers


How much did I learn?



Section of the lateral retinaculum

THE INTERNATIONAL ORTHOPAEDIC ASSOCIATION
 a series of 25 con
 with scarring of the
 Patients failed a
 months of physical
 steroidal anti-infla
 Following arthrosc

November 2011, Vol 18




Mayo ciseaux closed
From infero lat to the superolateral

Section of the lateral retinaculum

THE INTERNATIONAL ORTHOPAEDIC ASSOCIATION
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 Following arthrosc


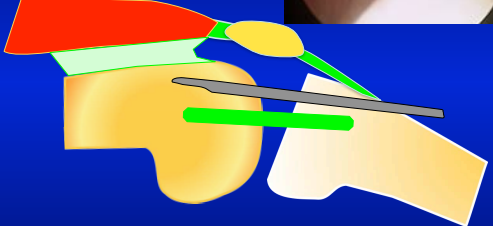
November 2011, Vol 18



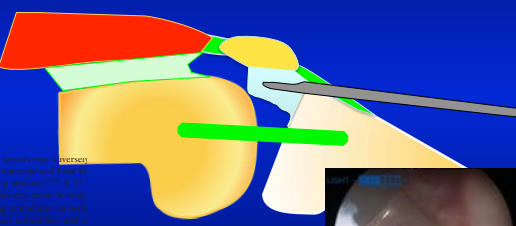
Mayo ciseaux open
Below the skin
Control of the hemostasis

Hemostasis and work into the condylar ramp


Up to down

• Fat pad liberation




Anterior interval release



Section of the Medial retinaculum


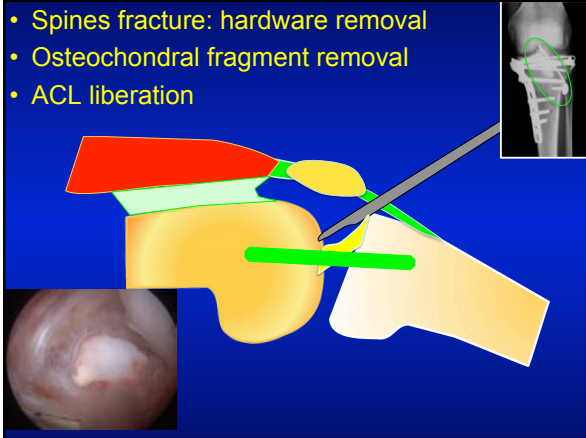
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Mayo ciseaux closed and open
From infero med to the superomed

- Spines fracture: hardware removal
- Osteochondral fragment removal
- ACL liberation



Pictures at the end Psychologic effect +++




Catheter +++




Casting

- Casting in flexion and extension
- Change every six hours during at least 5 days
- Drains+++



Manual Physiotherapy

- 2 hours in four sessions every day including the week-end



Results at three months



Results at one year

The slide shows two photographs of a patient's leg in a cast, one in a flexed position and one in an extended position. To the right are two X-ray images of a knee joint, showing the femur and tibia.

Experimental proprioceptive rehabilitation program

A large empty white box, likely a placeholder for a diagram or image related to the experimental program.

Tendinous Vibration : « A Proprioceptive fake stimulus »

Motion

Vibration

The graph displays two signals over time. The top signal, labeled 'Motion', is a smooth, oscillating wave. The bottom signal, labeled 'Vibration', is a high-frequency, high-amplitude square wave. A red arrow points from the vibration signal to the motion signal, and a blue arrow points from the motion signal to the vibration signal. A 1s scale bar is at the bottom right.

Albert F. Ribot E, Bergenheim M, Roll JP, 2004, 2006

We can work on the brain input « somesthetic intrusion »

The diagram shows a hand with a blue arrow pointing towards the wrist. Red dotted lines radiate from the wrist area, labeled 'Fake extension', representing a somesthetic intrusion.

Roll et al 2001

5 days immobilization + Illusory movements

5 days immobilization - No illusory movements

The slide compares two groups: '5 days immobilization + Illusory movements' (S1) and '5 days immobilization - No illusory movements' (S2). For each group, there are 'Pre' and 'Post' brain scans showing activation in the motor cortex. A hand cast with muscle and skin microvibrators is shown. A graph of 'Vibratory patterns' shows frequency (Hz) vs. amplitude (mm) for both groups.

Roll R, Kavounoudias A, Albert F, Gay A, Legré R, Fabre B, Roll JP. NeuroImage, under revision

Arc of motion

The bar chart compares the 'Arc of motion' (in degrees) for an 'UNTREATED GROUP' and a 'TREATED GROUP'. The Y-axis ranges from 0 to 60 degrees. The X-axis categories are ABDUCTION, ADDUCTION, FLEXION, and EXTENSION. For each category, there are two bars: 'PRE' (light blue for untreated, light green for treated) and 'POST' (dark blue for untreated, dark green for treated). Error bars are shown for each bar. Statistical significance is indicated by asterisks (**, ***, **).

Roll R. et al. NeuroImage, under revision

Key points

Intra-articular problems and lack of flexion

- Infection
- 3 to 6 months
- Patient information
- Anesthesiologist and catheter: pain+++
- Arthroscopic time: 7 steps
- Cast and drain
- Manual rehabilitation

The screenshot shows the website for the Centre de Chirurgie de l'Arthrose. The header includes the center's name and a logo. Below the header is a navigation menu with links for 'Préparation', 'Hospitalisation', 'Informations patients', 'Aide au centre', 'Lien utile', and 'Collaborateurs externes'. The main content area is divided into two columns. The left column, titled 'Nos missions', describes the center's focus on hip and knee surgery, mentioning a 7-step arthroscopic process and the use of a catheter and cast. The right column, titled 'Actualités Médicales', lists several medical topics such as 'Boulonnements de l'antérieur de la hanche', 'Chirurgie sans scarres et grande flexion', 'Chirurgie de la hanche et du genou assistée par ordinateur', 'Prothèse sans prothèse totale de genou adaptée au cas. Minimax', and 'Prothèse de hanche et de genou mobile de 2^e de génération'. The footer contains contact information for the Centre de Chirurgie de l'Arthrose, including the address, phone number, fax, and email.