



Editorial

So why does a little hole in the rotator cuff hurt so much? Unlike a torn knee ligament that has not pain after the joint inflammation settles. Even when the shoulder joint appears to be quiet, it still will keep you awake at night, unable to sleep on that side due to the continuous ache. Maybe it is hard to appreciate the ongoing inflammation due to the muscle envelope around the shoulder. This may explain the good results from a steroid injection into the joint during the recovery phase to speed up the rehab.

Suprascapular block for shoulder surgery

Weber et al reported on a randomized study on suprascapular nerve block for shoulder surgery. Their study did not show a significant reduction in pain, but the VAS was 20% better with the block. They further felt that the block should be administered with the patient awake and with a nerve stimulator for localization of the nerves.

Where to put the second tunnel in the double femoral tunnel PCL reconstruction?

There has been ongoing debate of where to put the second tunnel in PCL reconstruction.

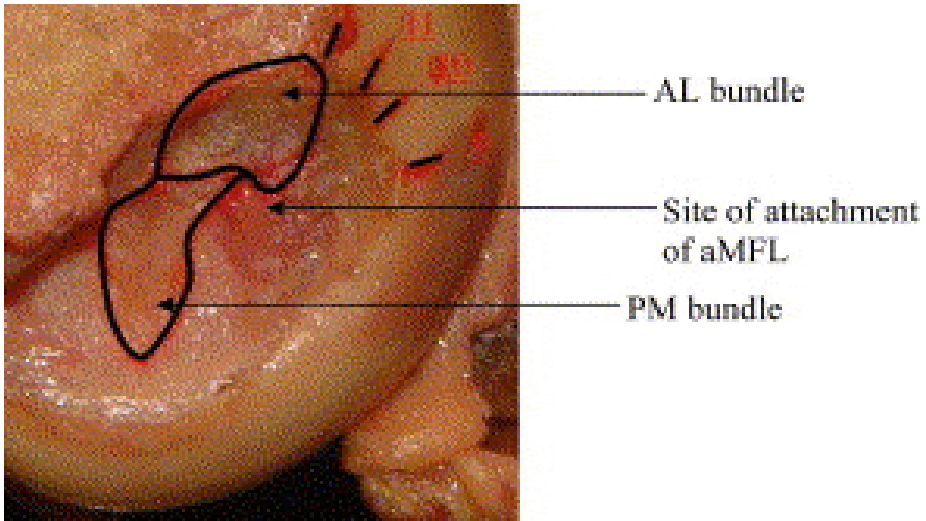


Fig 2. The anatomic sites of the AL and PM bundle as described by Andrew Amis in Arthroscopy 2007. The knee flexion is 90*.

But the literature has many other variations:

Bergfeld.

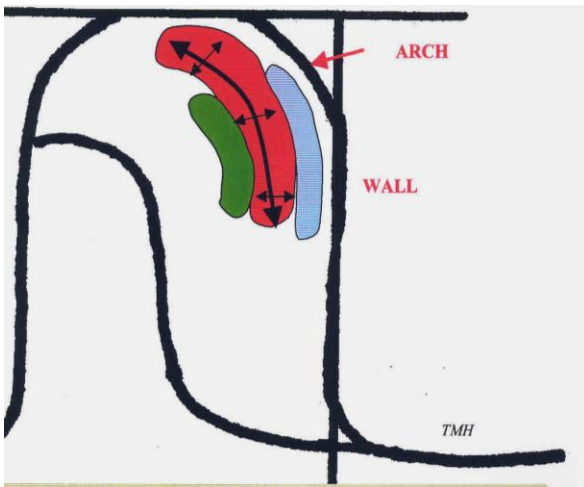


Fig 3. Bergfeld's anatomic dissection. What degree of knee flexion?

Harner

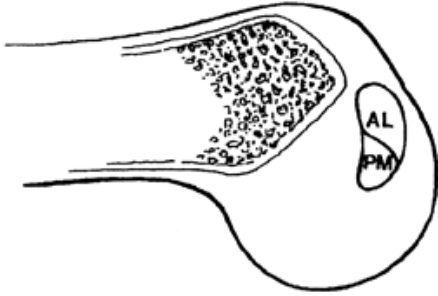


Fig 4. Harners published sites.

Another variation:

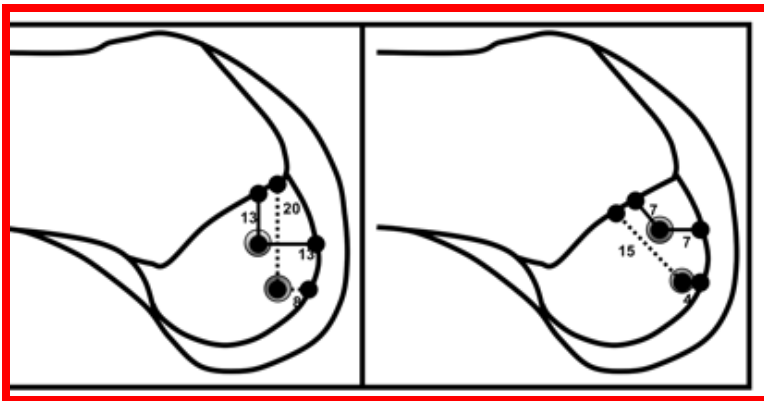


Fig 5. In this version the PM is very shallow in the notch.

Morgan

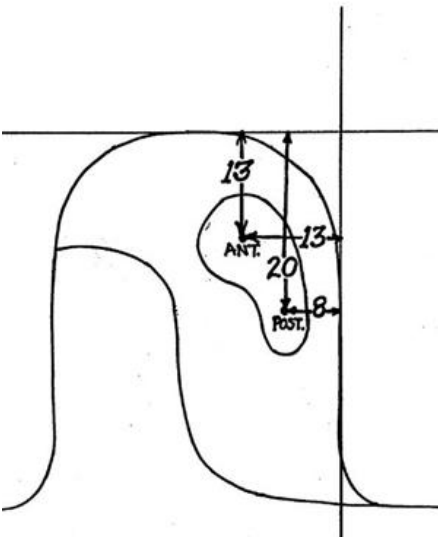


Fig 6 Morgan's measurements for the 2 bundles.

The real question is: do we really need 2 bundles?

What are the indications for a double bundle reconstruction?

The indications for reconstruction in the acute situation are a complete tear of the PCL, usually in association with other ligamentous structures. The indication in the chronic scenario is the combined ligamentous laxity. The patient is often not symptomatic, even with combined ligament injuries, but it is felt that these do poorly over the long term, and consideration should be given to reconstruction.

The trans-tibial tunnel is the traditional, and the most common reconstruction. The graft choice is usually Achilles tendon, but autogenous quads tendon is very similar in appearance and function. The bone block was initially left in the femur and the graft passed from proximal to distal. Markoff has shown that if the bone block is left at the very proximal part of the tibial tunnel, it reduces the forces on the graft at the 'killer turn'. [6] Clinical results by Chen, and Fanelli support the continued use of the trans-tibial tunnel approach. [7-9]

The current consensus is that for the acute reconstruction a single bundle reconstruction is adequate. This is based on Harner's review of his case series which showed good results in the acute situation, but less than satisfactory in the chronic cases. [10] The double bundle reconstruction in chronic cases is recommended.

The posterior inlay technique as originally described by Getscheler and Jacob in Europe, and Berg in North America was to avoid the 'killer tunnel angle' at the posterior edge of the tibia. [11] Bergfeld has shown in the lab there is attenuation and thinning of a trans-tibial graft as it passes around the back of the tibia. [12] The posterior inlay graft does not have this problem, and should be able to survive the posterior force of gravity as well as the forces applied during cyclic loading of the graft. However, Ahn has shown good results with both reconstruction and augmentation of the PCL remnant using the trans-tibial tunnel technique. In follow-up arthroscopy and MRI there was no attenuation of the graft around the back of the tibia.

Another reason to use the posterior inlay technique is to avoid injury to the neurovascular structures that occasionally happens when drilling the tibial tunnel. [13]

Conclusions:

Anatomical studies support 2 bundles.

Lab studies support improved kinematics with 2 bundles. Bergfeld has shown the superior kinematics in the double versus the single bundle posterior inlay technique. [15]

At present there is no clinical study to support 2 bundles.

Fanelli has compared two consecutive case series and found no difference with the addition of 2 bundles.

What about the clinical results of double bundle reconstruction?

The results of the double bundle posterior inlay technique have been reported by Richards, Noyes, and Stannard.[17-19] The technique of double bundle posterior inlay has been described by Noyes. [20]

Zhoa has published good results using double bundle reconstruction using 8 strands of hamstring graft and four tunnels. [21]

Summary: The conventional wisdom is that a single bundle reconstruction is adequate for the acute reconstruction, but in the chronic combined situation, a double bundle tunnel is preferred by PCL surgeons. (but at present there is no evidence to support this)

Functional Knee Bracing in Sports Medicine. Part 1

Introduction

Bracing of the ACL deficient knee and the post ACL reconstructed knee is fairly common in sports medicine. Most ACL injuries are surgical candidates and the indications to operative on a torn ACL depend upon several factors:

- Age

- Activity level and frequency of sporting activities.
- Degree of laxity as measured by the KT-1000.
- Associated meniscal or chondral damage

There are a small number of patients who are copers, and can function without the use of a brace. This group is fairly small, perhaps 10% of all the patients who sustain an ACL injury. There is another small group of partial tears or single bundle tears who may be stable enough, and function at a low level of activity, to be able to continue with conservative treatment, which may include bracing.

What are the current indications to brace after an ACL injury?

- Acute ACL injury waiting for surgery
- Chronic ACL injury that does not have significant meniscal or chondral damage and wants to continue some recreational activities.
- Post ACL reconstruction for return to sport
- Prophylactic bracing

I have had a long standing interest in the use of functional knee braces. In the 70's I was involved in the development of the Ottawa Brace. This was made from a cast of the lower leg and used orthotic principles and knee hinges from that era.



Fig 1 and 2. The Ottawa Brace – Circa 1974.

A few years later we developed the off the shelf K-99 brace. These braces both had bilateral uprights with a firm pad over the anterior tibial to prevent anterior subluxation of the tibia during activities.



Fig 3. The K-99 off the shelf knee brace circa 1979.

We then went to the DonJoy, and eventually the Breg brace for function support of the ACL deficient knee and the ACL reconstructed knee.



Fig 4The DonJoy brace.

This brace uses a soft strap across the front of the tibia to prevent a-p motion.

This strap must be kept tight for the brace to be effective.



Fig 5. The Breg X2K functional brace.



Fig 6. The CTI brace.

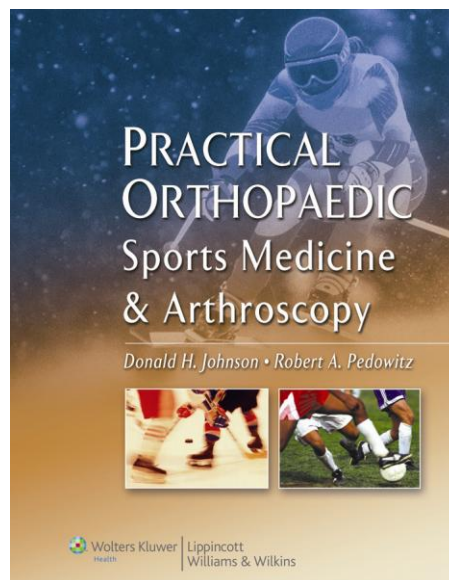
The CTI brace has been an excellent brace for skiers. However there are more fitting problems as the brace is very rigid. The rigid anterior panel is connected to the hinge and does a good job in reduced a-p motion.

This is similar in concept to the Breg X2K brace with a rigid anterior panel connected to the hinges.

Bracing is to be continued in the next issue.

Practical Orthopaedic Sports Medicine and Arthroscopy

Donald H Johnson and Rob A Pedowitz PhD



Written by noted experts in orthopaedic sports medicine, this book is a comprehensive, practical guide to diagnosis and treatment of sports-related injuries. It covers all the material required for the American Board of Orthopaedic Surgery's new Subspecialty Certificate in Sports Medicine examination. Emphasis is on detailed, step-by-step descriptions of surgical techniques for treating sports-related injuries, including the latest arthroscopic procedures. These techniques are illustrated with over 800 full-color original drawings and photographs. The authors describe their preferred methods for treating each injury. Bulleted key points appear at the beginning of each chapter.

Available at: <http://www.lww.com/product/?978-0-7817-5812-3>

Upcoming Meetings

- American Orthopaedic Society of Sports Medicine Annual Meeting
 - July 12-15, 2007 Calgary Alberta Canada
 - Contact www.aossm.org
- AANA fall course
 - Marriott Grand Lakes Orlando FL. Nov 1-3, 2007
 - Contact AANA www.aana.org
- Deadline for submission of papers to the AANA spring meeting 7 Sept 2007