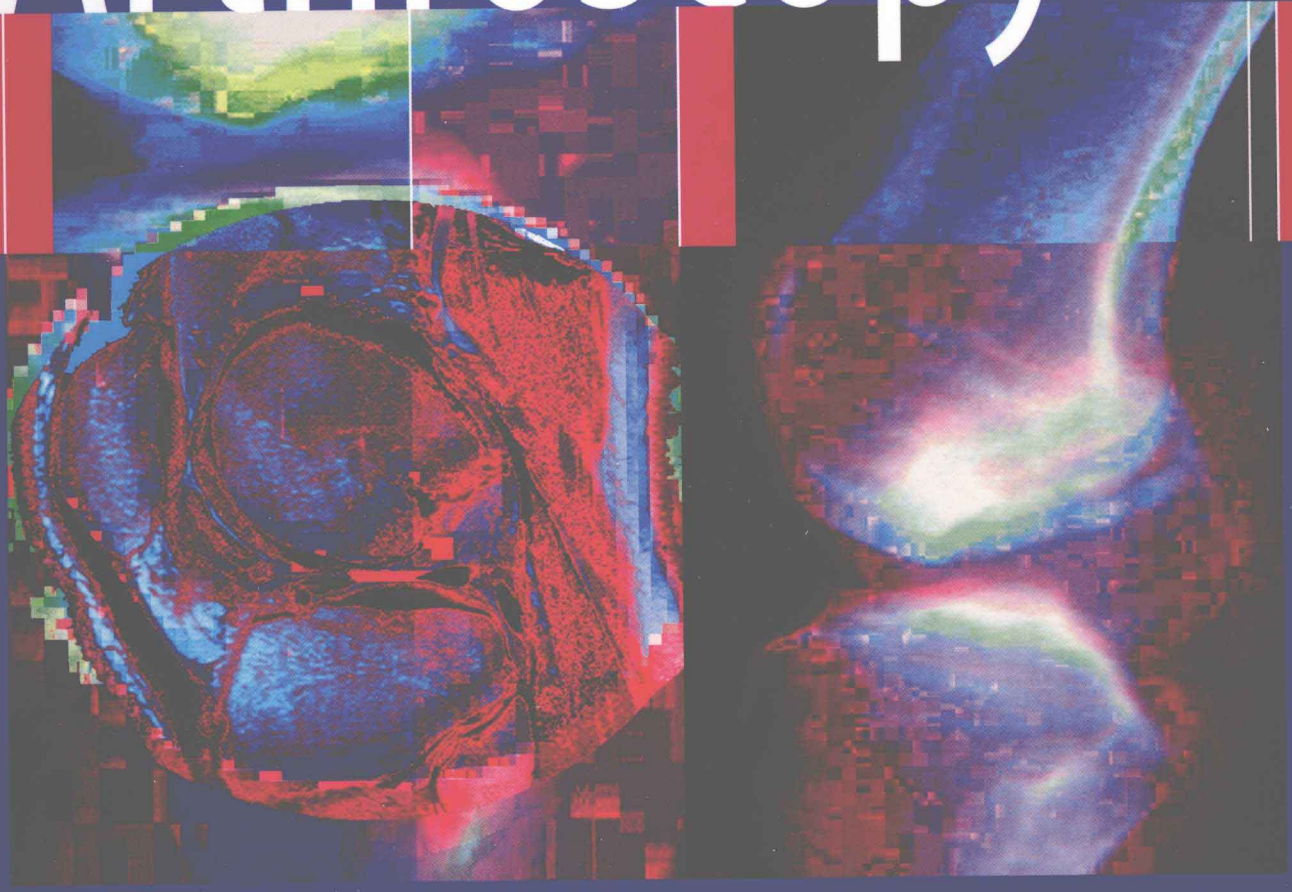
Brian P. McKeon
James V. Bono
John C. Richmond *Editors*

Knee Arthroscopy



Foreword by James P. Tasto

Springer

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John C. Richmond
Editors

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To my precious daughters, Molly and Nell, whose energy and passion for life are contagious.

To my loving wife, Heidi: You are my true guiding light and soul mate.

Finally, to my parents, Robert and Diane: Your dedication and sacrifices allowed me to explore all opportunities.

BPM

To my wife and best friend, Meg, for her unconditional love and support and for the everlasting joy she has brought to my life.

To our blessed little family: Andrew, Olivia, Caroline, and Thomas.

To my father, for the opportunities he has given me.

JVB

To all of my patients: Entrusting me with your care has permitted me to learn and teach the next generation of arthroscopists.

JCR

Foreword

With this book, *Knee Arthroscopy*, Dr. Brian McKeon, Dr. James Bono, and Dr. John Richmond and their selected contributors have carefully amassed a compendium of chapters well suited for the general orthopaedist as well as for the accomplished knee surgeon. Authoring and editing a textbook as well as contributing chapters reflect an unselfish dedication to the education of others. The inclusion of selected case reports in the chapters adds a unique feature that brings the reader back to the more pragmatic aspects of patient care.

The authors and editors have combined a careful and unbiased review of the literature on each subject with a synopsis of current thinking and suggested pathways for the reader. Comprehensive references and illustrations complement the text and add to the clarity of the topics.

The selection of topics represents a comprehensive and complete array of almost every knee condition from simple to complex. The reader is able to use selective components of the review to tailor his or her treatment regiments to a vast array of clinical conditions.

This book will be a stable and enduring reference for years to come.

University of California, San Diego, California James P. Tasto, MD

Preface

Knee Arthroscopy is intended to be a clinical text for the arthroscopic management of knee disorders and to be used as a practical reference for all health care professionals engaged in the treatment of the knee. Each chapter includes a discussion of relevant anatomy, indications, step-by-step descriptions of surgical techniques, rehabilitation, complications, clinical pearls, as well as case reports.

Knee Arthroscopy begins with a description of normal knee anatomy and traditional arthroscopic techniques. Separate chapters on meniscectomy, meniscal repair, and meniscal transplantation follow. Ligament reconstruction – including anterior cruciate ligament, posterior cruciate ligament, and posterolateral corner reconstruction – is described in detail. Individual chapters address the arthroscopic management of patellofemoral disorders, cartilage repair, arthrofibrosis and synovial lesions, knee fractures, articular cartilage injuries, and degenerative joint disease.

We are grateful to have received the support of so many recognized master surgeons who have contributed to the text, and we are honored to be able to present their combined experience in the ensuing pages.

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Boston, Massachusetts — James V. Bono
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Contents

Knee Arthroscopy: Technique and Normal Anatomy

Anthony Schena and Glen Ross

Introduction

Arthroscopy of the knee is the most common orthopaedic procedure performed in the United States [1–6]. Given the frequency of this procedure, it is hard to fathom that knee arthroscopy did not enter into the mainstream of orthopaedic surgery until the 1970s. In 1969, Masaki Wantanabe and colleagues published the *Atlas of Arthroscopy* [7]. In their seminal publication, they described the results of their first arthroscopic procedure, the removal of an intraarticular pigmented villonodular synovitis (PVNS), and provided pictures of their first arthroscopic meniscectomy. Jackson and Abe followed up on the work of their Japanese peers with the publication of their arthroscopic technique and outcomes in 1972 [8]. Arthroscopy of the knee became an accepted practice in the 1970s. Several forward-thinking orthopaedists contributed to the early evolution of knee arthroscopy, developing the techniques and tools that are still used today [9–12]. Over the past 40 years, knee arthroscopy has evolved from a rudimentary diagnostic tool to a state-of-the-art system of fiber optics and precision equipment. Knee arthroscopy has become a standard part of orthopaedics. It is the foundation for procedures ranging from the simple meniscectomy, to the multiligamentous knee injury, to cartilage restoration. First, the techniques of knee arthroscopy and the anatomy of the knee will be examined.

Anatomy

External Anatomy

Most knees have palpable bony prominences that can be used to determine the topography of the knee (Fig. 1). The patella, patella tendon, and the medial and lateral joint line are usually accessible. The medial and lateral condyles are also useful for identifying and mapping out the knee

Fig. 1 Anterior knee anatomy and portal placement

Intraarticular Anatomy

Familiarity with the basic anatomy of the knee is essential for knee arthroscopy and treatment of knee pathology. In the patellofemoral joint, the patella should sit within the natural groove of the trochlea. There is a prominent medial and lateral facet. The inferior pole is generally nonarticulating. The patella should track well through the trochlea when brought through a range of motion. There should be no evidence of an overriding plica on the medial side of the normal knee.

In the medial compartment, the "C" medial meniscus is firmly attached to the joint capsule by the meniscotibial (coronary) ligament. The mid aspect of the meniscus is directly attached to the deepest fibers of the medial collateral ligament. The width of the meniscus from the capsule to the inner aspect is approximately 9–10 mm.

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The average thickness of the meniscus is 3–5 mm. The medial meniscus will bear 40% to 50% of the joint force in extension and up to 85% to 90% of the force in flexion [13]. In general, there should be less than 5 mm of translation of the intact meniscus [14]. Vedi et al. have demonstrated that the anterior horn of the medial meniscus moves 7.1 mm, the posterior horn moves 3.9 mm, and that there is 3.6 mm of mediolateral radial deviation [14]. They postulated from this that the posterior horn of the meniscus has less excursion and is thus prone to injury.

The medial femoral condyle has a notch anteriorly for the meniscus to settle into when the knee in is extension. The condyle has a curved shape to allow for medial tibial plateau external rotation in full extension: the screw-home mechanism.

In the intracondylar notch, the origin of the posterior cruciate ligament (PCL) should be noted just off the cartilaginous margin of the medial femoral condyle. The insertion of the anterior cruciate ligament (ACL) rests in line with the anterior horn of the lateral meniscus. The notch should easily accommodate both cruciate ligaments and is usually obscured by the ligamentum mucosum. The meniscofemoral ligaments, when present, should also be identified and inspected. Seventy percent of knees will have either the anterior (Humphrey) or posterior (Wrisberg) ligaments; 6% will have both [15]. The ligament of Humphrey is approximately one third the diameter of the PCL. It is attached to the posterior horn of the lateral meniscus, runs anterior to the PCL, and inserts on the distal edge of the femoral attachment of the PCL. The ligament of Wrisberg is larger, approximately one half the diameter of the PCL, and runs from the posterior horn of the lateral meniscus to the medial femoral condyle [16, 17].

In the lateral compartment, the elongated C-shaped lateral meniscus is firmly attached to the capsule by the coronary ligament, except along the hiatus for the popliteus tendon. The posterior horn of the meniscus has attachments to one or both of the meniscofemoral ligaments when present. The lateral meniscus can have up to 11 mm of excursion. The anterior horn has 9.5 mm of excursion, the posterior horn 5.6 mm of excursion, and there is 3.7 mm of radial displacement [14]. It is slightly larger than the medial meniscus, with a width of 10–12 mm and a thickness of 4–5 mm [13]. As noted on the medial side, the lateral meniscus will bear up to 90% of the joint forces in flexion and from 50% to 70% of the force in extension [13, 18].

As noted in the medial compartment, there is a notch along the lateral femoral condyle to accommodate the lateral meniscus when the knee is in extension. There is also a sulcus for the popliteus tendon. This intraarticular aspect of the sulcus creates a gap in the attachment of the meniscus to the tibia.

Preoperative Preparation

Most knee arthroscopies are carried out in conjunction with another procedure. In these instances, the primary procedure, such as an ACL reconstruction, will need to be prepared for. All necessary x-rays, magnetic resonance imaging (MRI) scans, and other ancillary studies should be present and displayed for easy access during the procedure.

Techniques

Operating Room Setup

The room is set up for maximum efficiency and ease (Figs. 2 and 3). Anesthesia is located at the head of the bed. The monitor and stack setup is placed on the contralateral side of the patient. A Mayo stand can be brought in from the contralateral side once the patient is prepared and draped to provide a resting place for shavers, probes, and biters. The surgical scrub technician is set up at the foot of the bed, usually on the contralateral side. Suction canisters and fluid can be set up on the ipsilateral side of the bed. Prior to the start of the surgery, the monitor should be on, the fluid line flushed, the suction set up, and the power to the shaver on. The camera should be set for the proper number of pictures, and any recording device, such as a CD-ROM device, should be in place. Be sure that the surgical staff has allowed proper time between sterilization of the equipment and the start of surgery to avoid fogging of the lens.

Anesthesia

The majority of our knee arthroscopies are performed under general anesthesia with the use of an laryngeal mask airway (LMA). This allows for the maximum amount of patient relaxation and access to the compartments. Prior to the surgery, the patient receives 650 mg acetaminophen and, if able, 400 mg celecoxib. Preoperative celecoxib has reduced the need for perioperative narcotics and the incidence of adverse opioid effects in the ambulatory knee surgery patient [19]. Once in the operative suite, general anesthesia is induced and the LMA is placed. The portal sites are then preinjected with 10 mL of 1% lidocaine with epinephrine (1:200,000). Local anesthetic injection limits the somatosensory afferent signals created by the surgical incision, thus decreasing the postoperative pain and opioid need [20]. At this point, the patient is positioned for the surgery. There are other reports in the literature focusing on the perioperative

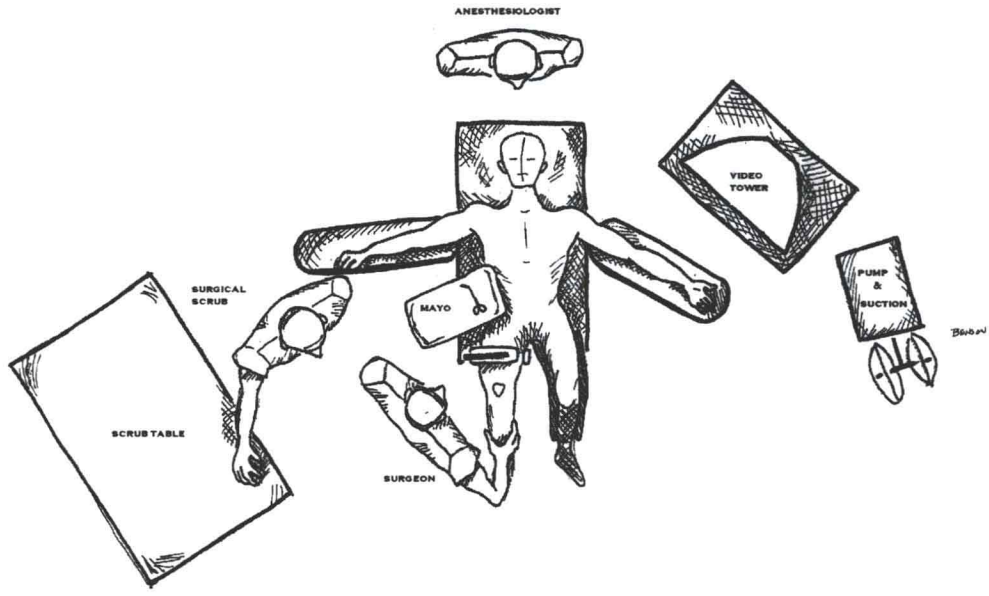

Fig. 2 Operating room setup. (Courtesy of Emily Benson, MD, Ventura County Medical Center, Ventura, CA.)

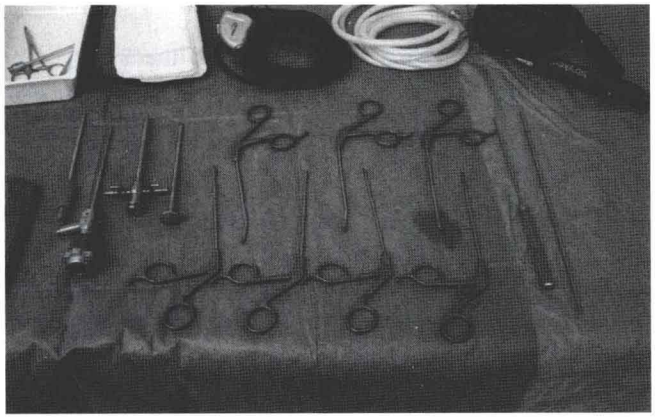

Fig. 3 Arthroscopic instruments

pain. Miskulin and Maldini reported the usefulness of local anesthesia and intravenous diclofenac [21], and others have reported less favorable results with use of local anesthesia only [22–24]. In those patients undergoing simple knee arthroscopy, Denti et al. reported the success of preoperative morphine as a means of reducing the noxious stimuli created by surgery and thus reducing the opioid need [20].

Patient Setup

Prior to surgery, the patient is seen in the preoperative holding area, and the correct extremity is identified and marked. In the operative suite, the patient is positioned supine on the table. After general anesthesia is induced, the portal sites are injected with 1% lidocaine with epinephrine (1:200,000). The patient's well leg is placed in a padded leg holder. This leg is wrapped in an elastic bandage to limit blood pooling in the nonoperative limb. The operative extremity is placed in a commercially available leg holder (Fig. 4). If a post is going to be used for the arthroscopy, it should be set up to ensure that it will be at the right level. A tourniquet, if desired, should be applied prior to placing the leg in the leg holder. To provide maximum mechanical advantage, the leg holder should be placed as close to the knee joint as possible. However, if the surgery will involve procedures beyond a simple meniscectomy, such as an ACL reconstruction or meniscal repair, great care should be taken to provide enough room for the passage of surgical instruments around all aspects of the knee. In these instances, a hand breadth of distance is

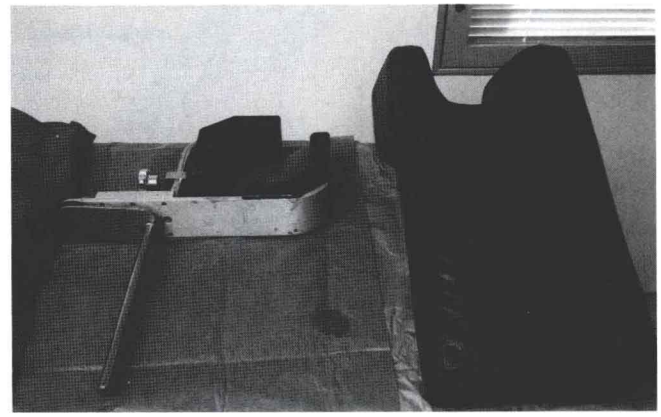

Fig. 4 Leg holders for operative and nonoperative legs

Fig. 5 Patient positioning

needed between the superior aspect of the patella and the leg holder. Once the leg is in the leg holder, the bed is placed into a reflexed position to relax the hamstrings and the lower back, and the foot of the table is dropped (Fig. 5). The knee is then prepared and draped. Draping involves use of an adhesive, impervious U-drape, a standard knee arthroscopy drape, impervious stockinet, and a Coban wrap, 3M (St. Paul, MN)

Portals (Fig. 6)

Anterolateral Portal

The anterolateral portal is the primary viewing portal for knee arthroscopy. With the knee flexed to 90 degrees, the inferior pole of the patella, the lateral border of the patella, and the lateral joint line are palpated. An incision is made with a no. 11 blade approximately 1 cm above the joint line and in line with the lateral border of the patella. A vertical incision angled toward the intracondylar notch is used unless a horizontal portal is preferred. In either case, great care is taken to protect the meniscus and intraarticular structures. Once the joint capsule has been incised, a blunt trochar is advanced into the notch. The knee is then brought into extension while gently advancing the trochar into the suprapatellar pouch. The trochar is removed, and the 30-degree camera is placed into the knee.

Prior to establishing the anteromedial portal, a preliminary inspection can begin. The patella and trochlea are both inspected for cartilage wear or damage. The medial and lateral gutters are inspected for loose bodies and impinging osteophytes. The medial-sided synovium is inspected for a large, engaging plica (Figs. 7 and 8). Once this initial inspection is complete, the arthroscope is passed along the medial femoral condyle and into the medial compartment.

Anteromedial Portal

The anteromedial portal is created with the knee at 30 degrees of flexion. The 30-degree scope needs to be rotated to obtain an unobstructed view of the anterior aspect of the medial meniscus and anterior capsule. The soft spot just medial to the medial border of the patella tendon is palpated. An 18-gauge spinal needle is used to find the most appropriate spot for this portal. Medial meniscal pathology requires a portal that will allow unencumbered access to the posterior horn. Lateral meniscal pathology requires clearance of the tibial spines to gain access to the lateral compartment. The 18-gauge spinal needle is very helpful in establishing this portal. The portal is created using the no. 11 blade

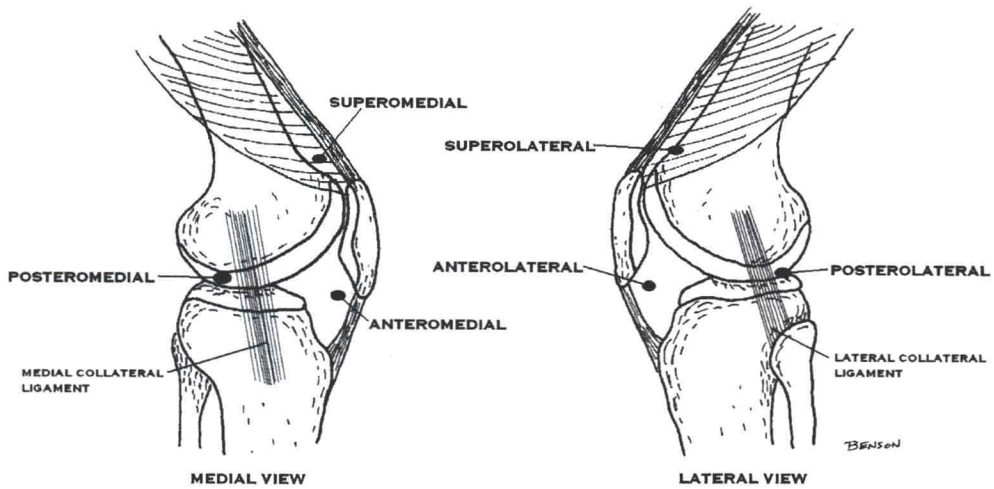

Fig. 6 Portal placement for knee arthroscopy. (Courtesy of Emily Benson, MD, Ventura County Medical Center, Ventura, CA.)

Fig. 7 Arthroscopic view of the patellofemoral joint

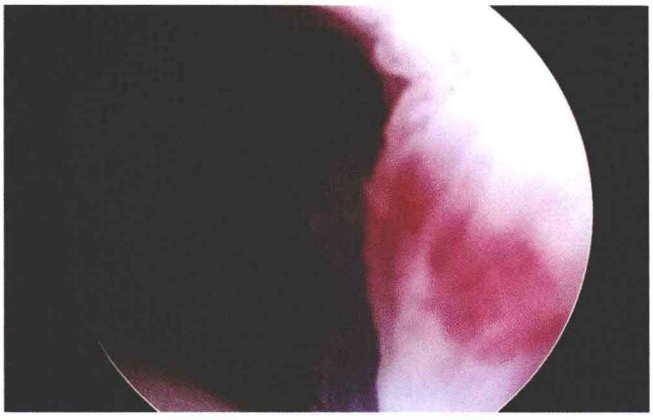

Fig. 8 Medial plica

placed parallel to the tibial plateau. Once the capsule has been penetrated, the blunt trochar can be used to establish the portal.

With the establishment of the anteromedial and lateral portals, diagnostic arthroscopy commences. The probe is brought into the medial compartment. The leg is slightly flexed (10–30 degrees), and a valgus force is placed on the knee joint. The tibia should be externally rotated. The entire medial meniscus is probed. If there is difficulty getting to the posterior horn of the meniscus, the knee can be gently brought into extension, with great care taken to avoid scuffing the condyle with the camera. This usually opens up the posterior aspect of the joint and allows for probing of the horn and posterior meniscus. If there is difficulty assessing the posterior horn of the meniscus, then a posteromedial portal can be established or a 70-degree camera can be used. After thorough inspection of the posterior meniscus, the remainder of the meniscus is inspected. Once the meniscus has been probed, the medial femoral condyle and tibial plateau is inspected. The condyle is viewed as the knee is brought through a full range of motion. Once the inspection of the medial compartment is complete, the arthroscope is brought into the intracondylar notch (Figs. 9 and 10).

In the notch, the ACL, PCL, meniscofemoral ligaments, and ligamentum mucosum are identified and probed. The morphology of the notch, its depth and width are noted, especially in the case of a ligamentous injury. The ligamentum mucosum is noted running from the superior aspect of the notch to the fat pad. It may be excised if it impedes thorough evaluation of the ACL, PCL, or other intraarticular structures. Often, the arthroscope must be passed up and over the ligamentum to establish a view of the ACL. An intraoperative Lachman test at 30 degrees can be carried out if ACL pathology is questioned. In cases involving an old ACL injury or loss of extension after ACL reconstruction, the footprint of the ACL should be inspected for a remnant of the ACL (Cyclops lesion). Once these structures are inspected, the probe should be placed along the lateral side of the ACL, and the knee should be brought into a varus position or a figure-four position if a post is being used (Fig. 11).

In the figure-four/varus position, the lateral compartment is inspected. A varus force of the leg just above the knee

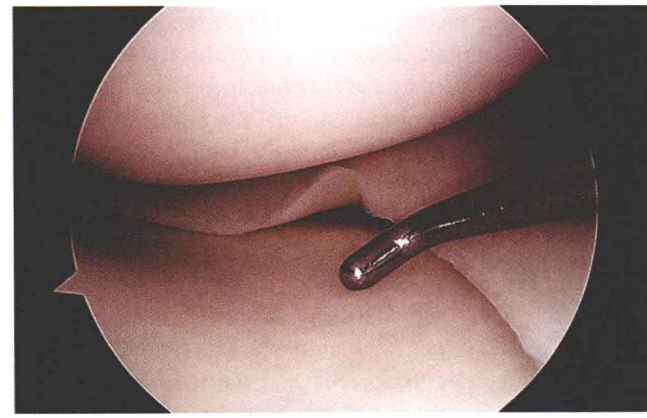

Fig. 9 Normal medial meniscus

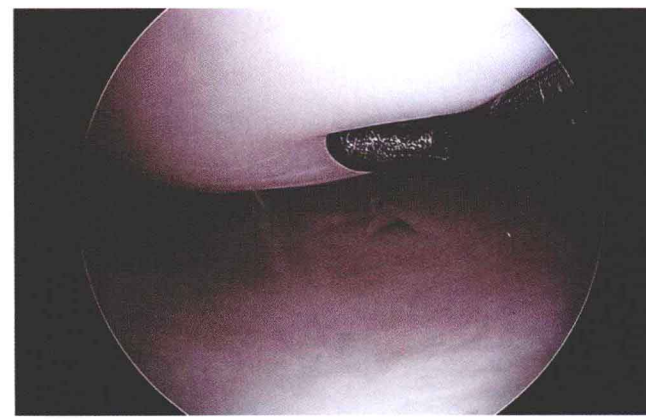

Fig. 10 Medial femoral condyle

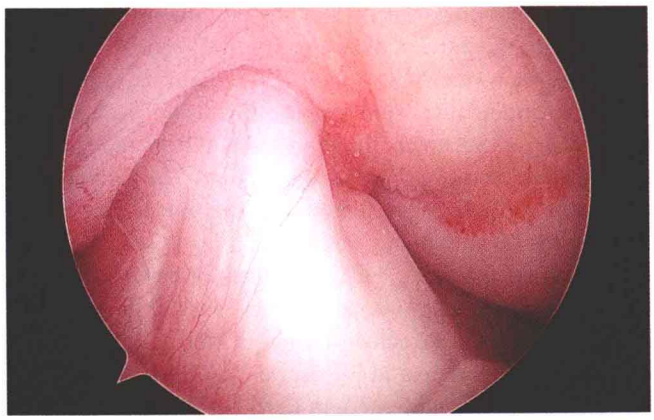

Fig. 11 Anterior cruciate ligament

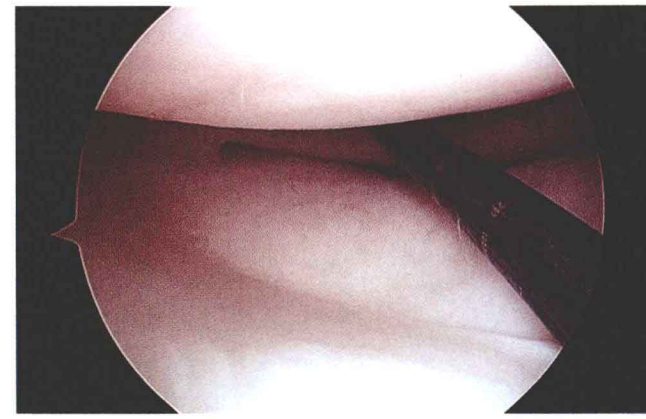

Fig. 13 Lateral femoral condyle

can open the lateral compartment. As on the medial side, the probe is used to inspect and test the lateral meniscus. The lateral meniscus is usually easier to inspect than is the medial meniscus. If the anterior horn is unable to be fully inspected, whether due to the fat pad, ligamentum mucosum, or portal placement, the arthroscope can be switched to the medial portal and directed toward the anterior horn. When inspecting the posterior meniscus, the popliteal tendon should be noted and the popliteal hiatus/sulcus probed. Remember that the lateral meniscus may have as much as twice the excursion as the medial meniscus and that the popliteal hiatus is a normal-occurring interruption in the meniscocapsular ligament. As with the medial compartment, the lateral femoral condyle is inspected through the entire range of motion for any chondral injury. The lateral tibial plateau is examined as well (Figs. 12, 13, and 14).

Once the lateral compartment has been inspected, the arthroscope is brought back into the suprapatellar pouch. The undersurface of the patella and the trochlea can now be probed and inspected for any cartilage injury. In those instances of patellofemoral disease, the exact tracking of the patella may be of primary interest. At this point, the superomedial portal as described by Fulkerson can be made [25].

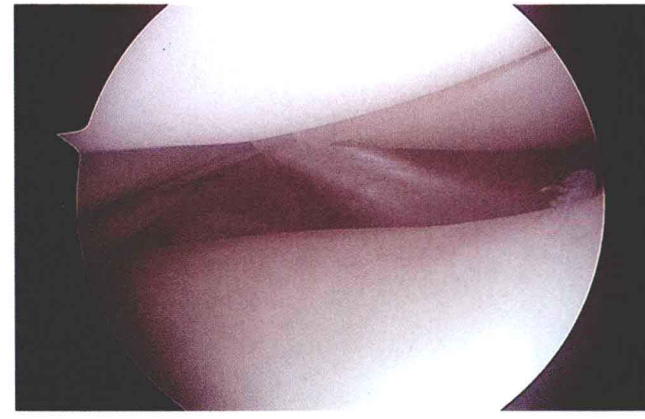

Fig. 14 Popliteus

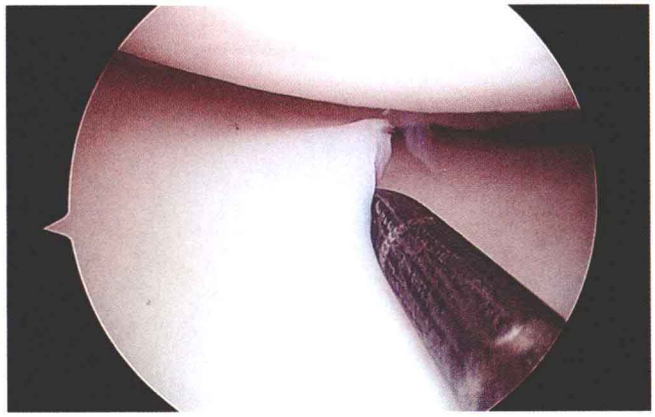

Fig. 12 Lateral meniscus

Superomedial Portal

This portal is created with the knee in extension and the camera in the anterolateral portal. An area 2–3 cm proximal to the superior pole of the patella and approximately 1 cm medial to the midline is identified first by palpation and then with the 18-gauge spinal needle. The skin is incised with a no. 11 blade. The portal is created under direct visualization with a mosquito hemostat or blunt trochar. A switching stick is then passed into the suprapatellar pouch and the sheath placed over it. From this vantage point, the articular surfaces and the tracking of the patella can be visualized with ease.

Having completed the examination and inspection of the menisci, the articular surfaces, and the ligaments, one can move to inspection of the posteromedial and posterolateral compartments. The ability to examine these compartments is essential for the arthroscopist, especially when there is a

need to establish a posterior portal or retrieve a loose body. In the ligament-intact knee, the arthroscope needs to be passed by the ACL and PCL to gain access to the posterior compartments. With the scope in the anterolateral compartment and the knee flexed to 90 degrees, a switching stick can be passed through the medial portal between the medial femoral condyle and the PCL. The switching stick should be eased into position. Once in the posteromedial compartment, the sheath for the arthroscope can be passed over the switching stick and the arthroscope delivered into the posteromedial compartment.

Posteromedial Portal

The posteromedial portal should be established approximately 1 cm posterior to the medial femoral condyle and 1 cm proximal to the joint line. The knee itself should be flexed to 90 degrees, abducted, and externally rotated. Generally, the position can be palpated and then identified with the 18-gauge spinal needle. Once the spinal needle is in the proper position, the skin is incised with the no. 11 blade. A mosquito hemostat or blunt trochar is then used to bluntly create the portal. When performing a PCL reconstruction, it is helpful to place a cannula in this portal. With the arthroscope coming in through the posteromedial portal, the posterior horn of the medial meniscus, the posterior medial femoral condyle, and the synovial lining of the posteromedial compartment may all be inspected. A probe can be brought through the anterolateral portal, between the PCL and condyle, to help with the inspection of this area of the knee.

Once finished with the posteromedial compartment, the camera is withdrawn into the intracondylar notch. At this point, it may be possible to pass the arthroscope between the ACL and lateral femoral condyle into the posterolateral compartment. The knee should be held at 90 degrees of flexion. Often, the switching stick needs to be used to enter this compartment. It may be necessary to switch the scope back to the anterolateral portal prior to entering this space and passing the switching stick from the anteromedial portal into the posterolateral compartment. Once in the posterolateral compartment, a visual inspection of the posterior horn of the lateral meniscus, the meniscofemoral ligaments, and synovial folds can be carried out. With the camera facing the lateral condyle, it may be advanced toward the popliteal hiatus. With the knee flexed to 70 degrees and a valgus force applied, it is possible to trace the popliteus into the hiatus and view the femoral insertion of the tendon. Often, the space is too tight to view the tendon it its entirety and a posterolateral portal is needed.

Posterolateral Portal

As with the posteromedial side, the site for the posterolateral portal can be palpated prior to its creation. The knee is held at 90 degrees of flexion. The site for the portal is approximately 1 cm posterior to the lateral femoral condyle and 1 cm proximal to the joint line. The surgeon should be aware of the location of the biceps femoris and the common peroneal nerve when making this portal. As with the medial side, once the site is determined, an 18-gauge spinal needle is used to mark the portal and the skin incision is made. The portal is created bluntly using a mosquito or blunt trochar. As noted above, the arthroscope can be passed along the posterior aspect of the condyle and meniscus to the popliteal hiatus. Again, a probe may be brought in from the anteromedial portal and used to aid in the inspection of this compartment.

Accessory Anterior Medial and Lateral Portals

Accessory anterior portals may be needed, depending on the pathology encountered. The accessory medial and lateral portals are created under direct visualization. The accessory medial portal is more medial and inferior to the standard portal, whereas the accessory lateral portal is more lateral and inferior to the standard portal. The 18-gauge spinal needle is used to identify the proper track for the portal. It is essential to visualize the needle as it enters the joint to ensure that the portal will clear the menisci and articular cartilage. Once the proper track has been identified, the skin is incised with a no. 11 blade and the portal made with the blunt trochar. If necessary, a transpatellar portal can be made in similar fashion.

Once the case is finished, the knee is copiously irrigated through the arthroscope. A mechanical shaver, if used, can function as the outflow to remove any debris. The portal can be closed with simple nylon sutures or Steri-Strips, 3M (St. Paul, MN). The patient is placed in a dry, sterile compression dressing, extubated by anesthesia, and brought to the recovery room.

Rehabilitation

Rehabilitation will depend upon the pathology encountered during the case. Specific rehabilitation protocols will be outlined in later chapters. For the basic knee arthroscopy, the patient usually remains on crutches for 1–3 days. Early, active range of motion, quadriceps sets, and ankle pumps are all allowed immediately. Within the first week, the patient starts with a stationary bike and low-demand activities. Physical therapy may be employed to help mobilize the fluid around the knee and improve range of motion. In weeks 2–4,

a return to normal, daily activities and low-impact activity is encouraged. After week 4, the patient may increase his or her activity, adding light jogging and other moderate-impact activity. Return to sports will hinge on the pathology dealt with at the time of surgery and the preparedness of the joint for the specific sport.

Complications

Although knee arthroscopy is a relatively straightforward procedure, it is still associated with surgical complications. In 1988, Small presented a study composed of complications gathered from the Arthroscopy Association of North America. In this study, 8,741 knee arthroscopies were reported. Of these cases, the overall complication rate was 1.68% [5, 6]. The list of complications included postoperative hemarthrosis (65% of all complications), infection, deep venous thrombosis, complex regional pain syndrome, iatrogenic injury, neurologic injury, and anesthesia complication [26]. Loss of motion and instrument breakage also have been reported [27–30]. Compartment syndrome has also been reported it the literature [31]. As in all instances with compartment syndrome, a high level of suspicion is necessary to make the diagnosis. Careful monitoring of the pump pressure and procedure time is necessary to prevent this relatively rare complication.

In 2006, Reigstad and Grinsgaard reported the complications for simple knee arthroscopy performed from 1999 through 2001 [32]: 876 arthroscopies on 785 patients were reviewed with 98% follow-up. The overall complication rate was 5%. Reigstad and Grinsgaard broke down these complications into two groups: those with therapeutic consequences (0.68%) and those without. The complications without significant therapeutic consequences consisted of preoperative bradycardia, asthmatic events, subcutaneous infusion of intravenous anesthetics, instrument breakage, conversion to arthrotomy, hemarthrosis, portal bleeding, temporary sensory loss, and postoperative pain. Significant complications consisted of two superficial infections, one venous thromboembolic event, and one return to surgery for scar tissue.

Deep Venous Thrombosis

In 2005, Ilahi et al. published a meta-analysis looking at the rate of deep venous thrombosis (DVT) after knee arthroscopy [33]. Ilahi et al. limited this analysis to those studies that were prospective, had no antithrombotic prophylaxis, had performed universal screening with an ultrasound or contrast venous venography, and were limited to unilateral knee arthroscopy with the exclusion of ligament or open surgery. The conclusion of this study was that unprophylaxed patients undergoing a routine knee arthroscopy have a 9.9% risk for a DVT and a 2.1% risk of a proximal DVT. In 2001, Delis et al. reported that patients were at a greater risk for DVT if they had two or more of the following risk factors: age $>$ 65 years, obesity, smoking, female hormone replacement, venous insufficiency, prior history of DVT [34]. Others have published reports on the rate and the treatment of DVT in the ambulatory knee arthroscopy patient. Hoppener et al. performed a prospective cohort study on 335 patients undergoing knee arthroscopy [35]. Nineteen (6%) patients demonstrated a DVT by complete compression ultrasonography, with two symptomatic patients. One patient developed a nonfatal pulmonary embolism. Based on this data, Hoppener et al. did not recommend routine prophylaxis against DVT for the ambulatory knee arthroscopy patient. Michot et al. performed a similar-sized study looking at the effectiveness of treating patients with prophylaxis [36]. Michot et al. performed a prospective, single-blind study with 130 randomized patients in which the study group received low-molecular-weight heparin given perioperatively and then for 4 weeks and the control group received no prophylaxis. All were screened with compression ultrasonography. In the study group, 1 of 66 (1.5%) patients developed a DVT, whereas 10 of 64 (15.6%) patients in the control group had a positive DVT.

Currently, the authors do not use antithrombotic therapy for straightforward knee arthroscopy unless the patient has risk factors that increase the rate of DVT. These patients are evaluated individually and treated with either low-molecular-weight heparin for 2 weeks or aspirin and T.E.D, Covidien (Mansfield, Ma) stockings, depending on what the preoperative risk factors are.

Clinical Pearls/Summary

Currently, diagnostic knee arthroscopy is generally used as the starting point for more specialized surgery of the knee. The authors of the chapters that follow have included many tips and pearls that will aid in the treatment of various injuries to the knee. It is critical to plan for each aspect of your case. If you plan to perform other procedures beyond the diagnostic knee arthroscopy, be sure to set up your room and your patient appropriately. Preoperatively, make sure that the patient's nonoperative side is well protected and well padded. Be sure to place some reflex in the table to take the pressure off of the patient's low back and hip flexors. Be sure that the tourniquet cuff and the surgical leg holder are positioned appropriately. If either of these is too distal, the surgeon's ability to treat intraarticular pathology may be com-