



ROTHMAN
 INSTITUTE

PATIENT GUIDE TO ALLOGRAFT MENISCUS TRANSPLANTATION

What is the meniscus?

The meniscus is a wedge shaped cartilage ring found on both the inside and outside of the knee between the femur (thigh bone) and tibia (shin bone) (**Figure 1**). The menisci act as shock absorbers in the knee, and provide stability to the joint.

What is meniscal deficiency?

The meniscus is commonly removed when it is torn. This can be a small piece (partial meniscectomy) or the entire meniscus (total meniscectomy), and can be performed arthroscopically or with open surgery. Most patients do well after the torn meniscus is removed, and have very few symptoms. However, some patients continue to have symptoms after their meniscus is removed, and suffer from “meniscal deficiency”. This can occur after a short period of time, but most commonly develops several years after the initial surgery. The pain is usually due to increased stress on the bones and cartilage because the “shock absorber” is missing.

How do I know I have meniscal deficiency?

Patients with meniscus deficiency (**Figures 2&3**) have a history of previous surgery on the knee. Most commonly, patients complain of knee pain in the area where the meniscus was removed, on the inside or outside of the knee. Swelling

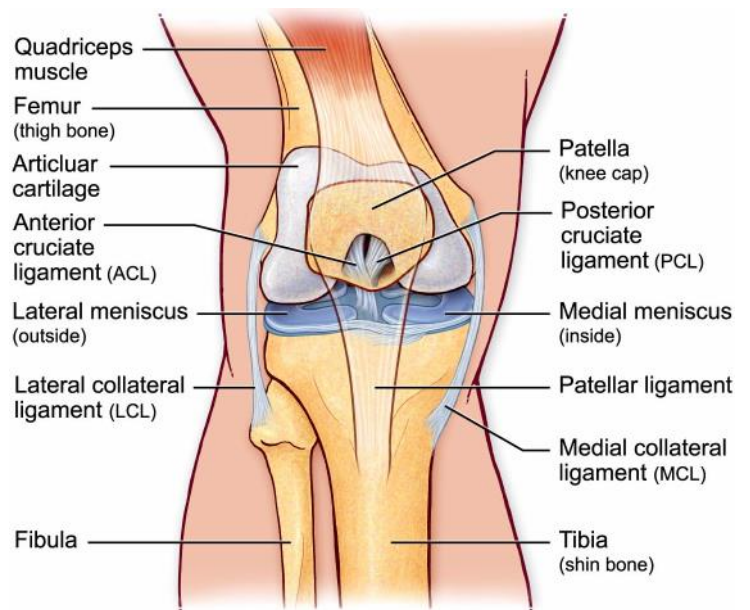


FIGURE 1

of the knee may also occur. Occasionally, locking of the knee can occur, when the remaining meniscus gets wedged in between the bones of the knee. Activities usually worsen the symptoms.

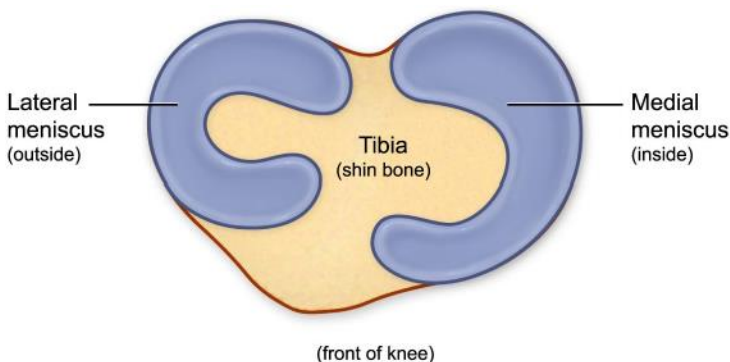


FIGURE 2

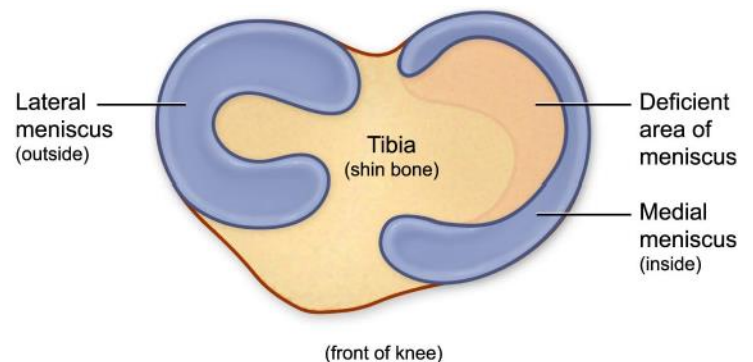


FIGURE 3

Do I need x-rays, a MRI, or any other tests?

A set of x-rays may be ordered to evaluate the knee for arthritis, or to evaluate the alignment of the leg. A MRI can be helpful to confirm the absence of the meniscus and rule out any other injuries to the knee. In addition, a bone scan, is sometimes ordered. This is a special study that looks to see if there is increased stress in the bones where the meniscus is missing.

Is there usually any other damage to the knee when the meniscus is deficient?

Ligaments in the knee can be injured at the same time as the meniscus, and can lead to instability of the knee. In addition, there can be an injury to the joint surface (articular cartilage) due to the increased stress on the cartilage surface. This injury to the joint surface may also require treatment (see **Patient Guide to Articular Cartilage Injuries**). If surgery is required, damage to the joint surface will be evaluated and treated at the time of your arthroscopy. Occasionally, if the alignment of the knee is not normal, this may need to be corrected to decrease the stress on the new meniscus transplant.

What treatment options do I have?

Most patients who have had a piece of meniscus removed do very well for a long time. However, if symptoms have developed, many times this can get worse over time. Some patients can be managed medically for the lack of meniscus function. This can include activity restriction, anti-inflammatory and pain medications (NSAIDs), and cortisone injections. Whether or not you are a good candidate for conservative treatment will depend on the extent of knee damage and your age and activity level.

If your symptoms do not resolve, then you may require surgical treatment.

What is an allograft meniscus transplant? (Figure 4)

Meniscus transplantation is surgery to replace your damaged or missing meniscus with a meniscus from a human cadaver donor. Only meniscus from healthy young donors are used. This new meniscus restores the “shock absorber” to your knee.

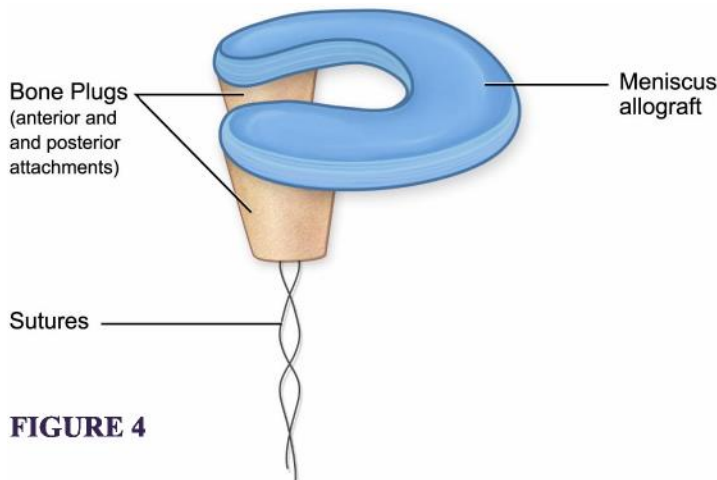


FIGURE 4

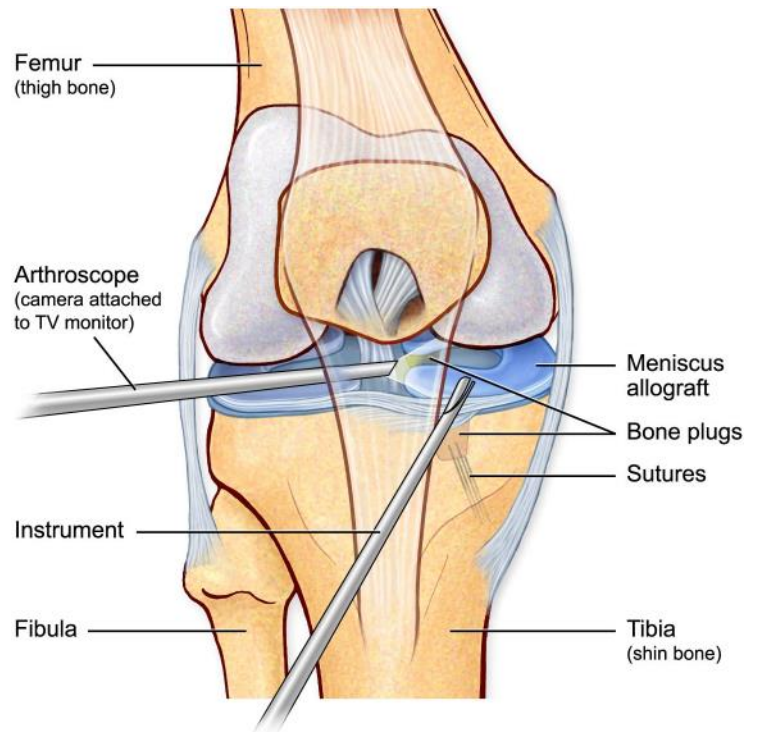


FIGURE 5

What is an allograft?

Allograft tissue is tissue donated from a cadaver. They are commonly used with excellent results for a number of orthopaedic surgeries. The tissue is rigorously screened for infections, such as bacteria and viruses, including HIV and Hepatitis. The risk of contracting an infectious disease from an allograft is extremely small. For this surgery, there are currently no tissues that are available to use from your own body, and there are no synthetic tissues that work well.

Does the meniscus need to be “matched” to my knee?

It is important that the meniscus is the correct size for your knee. X-rays are typically taken to be sure that the donor and your knee are of similar size. However, the graft does not need to be tissue matched, like a kidney transplant would be. That’s because the graft does not contain any live cells when it is transplanted. Tissue rejection is a remote possibility, and occurs less than 1% of the time.

How is the surgery performed? (Figure 5)

Meniscal transplant is primarily performed by arthroscopy. The arthroscope is a fiber optic instrument (narrower than a pen) which is put into the knee joint through small incisions. A camera is attached to the arthroscope and the image is viewed on a TV monitor. The arthroscope allows me to fully evaluate the entire knee joint, including the kneecap (patella), the cartilage surfaces, the meniscus, the ligaments (ACL & PCL), and the joint lining. Small instruments ranging from 3-5 millimeters in size are inserted through additional incisions so that the joint can be evaluated for any damage, the injury can be diagnosed, and then damaged tissue can be repaired, reconstructed, or removed.

Before the development of arthroscopy, large incisions had to be made over the knee joint to treat or diagnose injuries. Today's arthroscopic techniques allow more complete evaluations of the knee joint while accelerating the rehabilitation process.

During the surgery, any remaining meniscus is removed and the knee is prepared for the new meniscus. A small incision is made on the front of the knee in the area of the meniscus, and the new meniscus is placed. The meniscus is then sewn into place using sutures. These sutures are placed arthroscopically. An additional small incision is usually made on the inside or outside of the knee to tie the sutures. An additional plastic screw or button can be used to help secure the meniscus in place (**Figure 6**).

What other surgeries may be performed at the same time?

Depending on any other damage to the knee, additional surgeries may be performed at the time of the meniscus transplant. These will all be discussed in advance. If there is damage to the cartilage surface (articular cartilage), a cartilage transplant may be performed at the same time. In addition, a ligament reconstruction may be performed if there is damage to the ligaments that stabilize the knee. Finally, if there is malalignment of the knee, an osteotomy, a procedure to cut and realign the bones, may be performed. Again, any of these additional procedures that may be necessary will be discussed with you in advance.

What are some of the possible complications of surgery?

While complications are not common, all surgery has associated risk. Possible complications include stiffness of the knee after surgery or continued pain. The use of arthroscopic techniques attempts to limit these complications. Other complications include an infection, bleeding, nerve damage, blood clots, or problems with the anesthesia.

Other complications of the meniscus transplant include tearing of the new meniscus. If this occurs, this can usually be repaired or removed by another arthroscopy. If the meniscus does not heal, it can fail to function as a normal meniscus.

What kind of anesthesia is used?

Meniscus transplant can be performed with general anesthesia (going to sleep) or regional anesthesia (spinal or epidural block). The type of anesthesia will depend on your choice.

What do I need to do to prepare for surgery?

Our staff will help to set up the surgery through your insurance company and will instruct you on any paperwork that may be necessary.

Prior to your surgery, you may be asked to get several medical tests, done on an outpatient basis. Most patients need

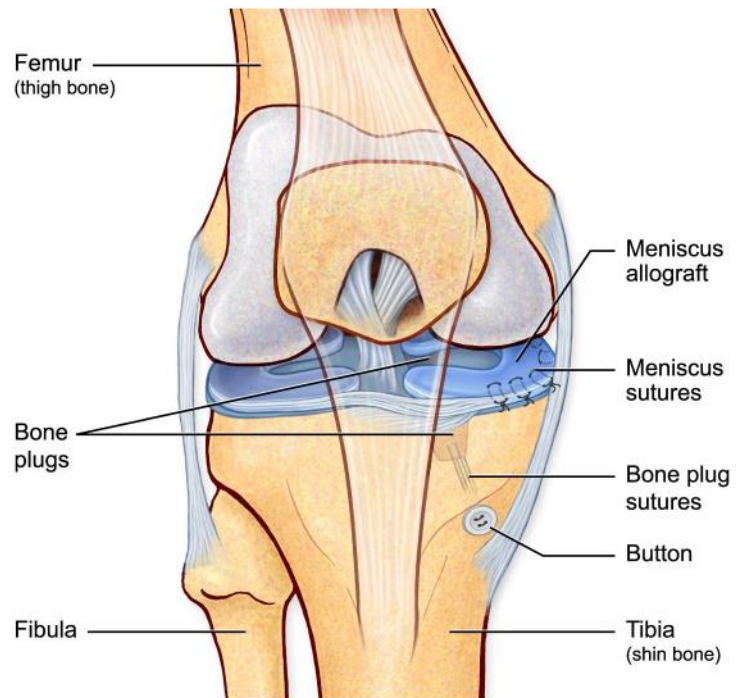


FIGURE 6

some minor blood tests and a urinalysis. Some patients need to see an internist or their family doctor to obtain clearance for surgery.

The night before the surgery, a member of our staff will contact you about what time to arrive for surgery. You may not eat or drink anything after midnight the night before your surgery.

Can I continue to take my medications?

You should STOP taking any aspirin or anti-inflammatory medication (Motrin, Advil, Relafen, Naprosyn, etc.) at least seven days prior to your surgery. However, you may CONTINUE to take Celebrex or Bextra if you are on these medications. You may also take Tylenol as needed.

Continue to take any other prescribed medications, such as blood pressure pills, up until the day of surgery. You may also take these medications the morning of surgery with a sip of water.

How long will I be in the hospital?

Most people stay in the hospital for 1 or 2 days. For some patients, the surgery can be performed as an outpatient without any overnight stay.

What happens the day of surgery?

The day before surgery you will be told what time to report to the hospital. You will be admitted and taken to a pre-operative holding area where you are prepared for surgery.

You will be asked several times which extremity is being operated on, and the knee will be marked. Please note that you are asked this question many times on purpose.

After the operation, you will be taken to the recovery room to be monitored. Once the effects of anesthesia have worn off and your pain is under good control, you will be taken to your hospital room.

Please be aware that the process of getting checked in, prepared for surgery, undergoing the operation, and recovering from anesthesia takes the majority of the day. I would recommend that you and your family members bring along some reading material to make the process easier for all.

How should I care for my knee after surgery?

Prior to your discharge, you will be given specific instructions on how to care for your knee. In general, you can expect the following:

Diet:

Resume your regular diet as soon as tolerated. It is best to start with clear liquids before advancing to solid food.

Medication:

You will be given a prescription for pain medication.

Bandage:

You will have a thick dressing on the knee. You will be instructed on when it can be removed, usually in 3 days. After your dressing is removed, you should cover your sutures with a Band-Aid to protect the area from irritation.

Showering:

You may shower after your dressing is removed, after 2 – 3 days. You cannot take a bath until the wounds are completely sealed, usually 2 – 3 weeks after surgery.

Crutches:

You will have crutches after surgery, and will be instructed on how to use them. How long you use crutches will depend on the type of surgery performed. Crutches are commonly required for the first 4 to 6 weeks.

Brace:

You will be given a brace to help protect the knee for the first 4 to 6 weeks after surgery. You will be allowed to bend the knee immediately after surgery, but will be restricted from bending more than 90 degrees for the first 4 to 6 weeks.

Ice:

You may receive an ice machine that continually surrounds your knee with cold water. If not, you may apply ice over the dressings for 30 minutes every hour for several days. Do not use heat.

Suture removal:

Your stitches will be removed at your office visit 7-10 days after surgery. Occasionally, sutures are used which resorb and

do not need to be removed.

Follow-up office visit:

You will be instructed on when to follow-up in the office. This is usually 7-10 days after surgery.

Return to work or school:

You can usually return to school or work within one week using the crutches. If your job involves more extended walking or heavy activity, you may be out of work or school for a longer period of time.

What will rehabilitation involve?

The rehabilitation is based on several goals: 1) allowing the tissue to heal; 2) regaining motion; 3) regaining strength; and 4) return to sports. For the first 4 to 6 weeks, you will be on crutches to allow the meniscus to begin healing. Following this time, the rehabilitation will be advanced to help you regain full motion and strength. For the first six months, certain activities, such as deep squatting and sports are avoided to allow the meniscus to completely heal.

When can I return to sports?

Your return to sports will depend on the extent of damage and the procedure performed on your knee. In general, you will be allowed to return to sports in six months after surgery. You must have good motion, strength, and control of your knee. How quickly you return to sports depends on several factors, including: 1) your own rate of healing; 2) the damage found at surgery; 3) if you have any complications; 4) how well you follow the post-operative instructions; 5) how hard you work in rehabilitation.

How successful is the surgery?

The goals of the surgery are to improve your pain and increase your activity. The surgery has been shown to be successful 75 – 80% of the time for achieving these goals. An additional goal of the surgery is to prevent future arthritis. Due to a lack of long term studies, it is unclear at this time if the transplant prevents future arthritis.

Questions?

If you have questions about your injury or possible need for surgery, please do not hesitate to contact our staff.

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