BASIC GUIDE to ARTROSCOPY

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WRIST ARTROSCOPY
Basic Tips Guide

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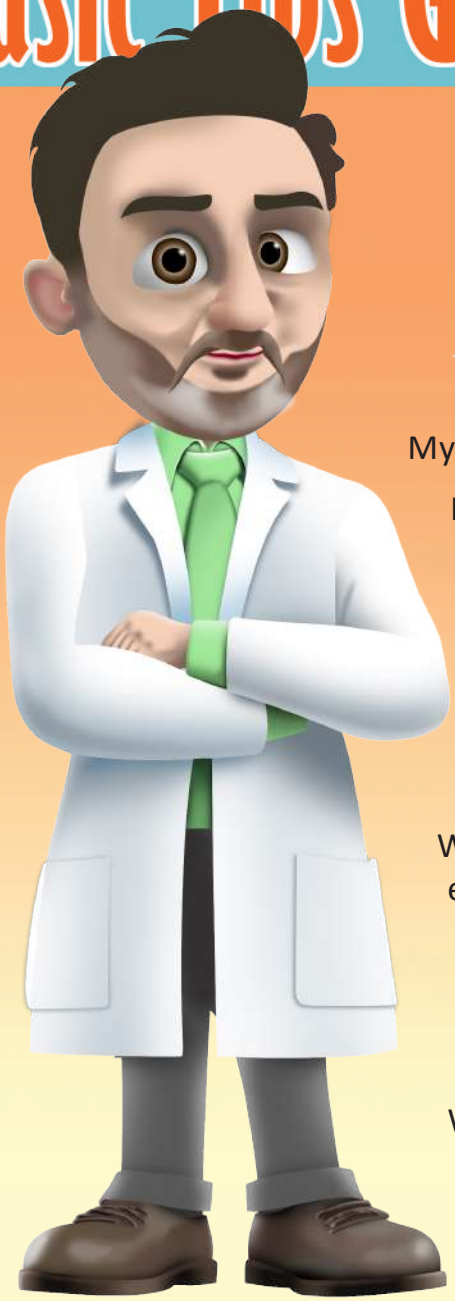


My name is Pedro J Delgado.

I'm a hand surgeon in Madrid and director of the Madrid Wrist Course (MWC).

I wrote this guide together with my Brazilian friend, Ricardo Kaempf, who is also a specialist in hand surgery.

We have more than 20 years' experience of wrist arthroscopy in our clinical practice and more than 10 years' history of the Madrid Wrist Course, which began as a skills course.

We have also participated as instructors in dozens of other practical wrist arthroscopy courses on cadavers.

In recent years, we've noticed that we sometimes end up wasting valuable course time explaining basic topics, which could have been learned earlier!

In this guide we present tips and tricks that should be studied before the practical part of the course.

So, after reading this guide, you should be able to answer:

- What are the main indications for wrist arthroscopy?
- Why is wrist arthroscopy different from arthroscopy on other joints?
- What equipment is needed for the procedure?
- What are the most commonly used access portals in wrist arthroscopy and how are they made safely?
- How do you handle the instruments, such as the optics and the shaver?

So, we start the Madrid Wrist Course by reading of this guide.

We know that these are very basic concepts, but you can be sure that they are very important!

By mastering these concepts, we can be more confident about performing wrist arthroscopy.

In addition, we will also be able to explain the benefits of its use to patients and justify it to healthcare providers.

Enjoy the course and welcome to the world of the Madrid Wrist Course.

PJD: How did arthroscopy start ?

The history of the use of arthroscopy in surgery is not new. The first video surgery on a joint was performed experimentally in 1918 on cadaver knees, so more than 100 years ago!

However, it wasn't until 1962 that the first arthroscopy was successfully performed on a living patient. In the wrist, the use of arthroscopy began in the East with Chen et al. in 1979 and in the West with Whipple et al. in 1986. In those papers, the authors described in detail the access portals to the wrist joint and gave tips on the procedure with encouraging results.

In recent decades, arthroscopy has become an essential technique in the orthopedic treatment of large joints.

Recently, with technological advances, there has been an evolution in arthroscopy materials for small joints, with the miniaturization of optics and equipment that have become more delicate, precise and resistant, allowing an accurate diagnosis of joint pathology with minimal morbidity.

PJD: Important to remember !

Arthroscopy is an invasive procedure that does not replace medical consultation and imaging tests. Therefore, during arthroscopy, it is essential that the surgeon correlates the patient's complaints, the findings of the physical examination and the suspected diagnosis with what he or she is observing during the procedure.

Compared to open surgeries, arthroscopy has the advantage of a more cosmetic appearance, as the small incisions cause less damage to soft tissues, thus creating less scarring.

It has also been proven that the use of minimally invasive techniques causes less post-operative pain, a quicker return to work,

and mainly, does not increase the incidence of complications. We must remember that wrist arthroscopy is a technique that requires knowledge and skill, and that the various procedures possible with this tool present varying degrees of difficulty. Therefore, before starting to use the arthroscopic technique on patients, it is important that the surgeon studies the procedure and practices it in practical courses with cadaver specimens, such as here at the Madrid Wrist Course.

PJD: Why is the wrist different?

The wrist joint has some anatomical features that make it difficult to perform procedures. The contact between the radius and carpal bones is limited, forming an unstable, almost flat joint. The angulation of the distal radius, volarly and ulnarly tilted, generates forces that tend to move the carpus in that direction.

Therefore, in order to have a functional range of movement without the risk of dislocation, the wrist needs to be stabilized by strong ligaments and the forearm muscles.

And that's what makes the wrist different from other joints in the skeleton. We can't use wide incisions to access and observe its inner aspect, as this would cause damage to the ligaments and, consequently, instability.

In addition, it has been proven that damage to the joint capsule also damages the proprioceptive nerve mechanism, which is responsible for controlling the contraction of the muscles in the wrist and helps to stabilize the joint during strenuous activities and giving protection during falls and trauma.

Here we will describe how to use wrist arthroscopy, which is a minimally invasive technique that grants clear and detailed visualization of the radiocarpal and midcarpal joints of the wrist, which are difficult to access even in open procedures with wide incisions. When performing a wrist arthroscopy, it is important that the surgeon knows the normal anatomy of the region, as well as the main pathologies that affect it.

It is important to remember that when viewing the image of the wrist on the monitor during arthroscopy, the camera will produce a two-dimensional image of a three-dimensional structure.

PJD: What are the indications for wrist arthroscopy?

Wrist arthroscopy makes it possible to directly visualize all the joint components, including the capsule, the synovial membrane, the intrinsic and extrinsic ligaments, and the bones with their cartilage layer. It also allows dynamic tests to be carried out to check ligament and bone integrity.

It is a minimally invasive procedure designed to define the diagnosis and treat the pathology at the same time. In addition, it allows for a change in the treatment plan during the procedure, if the assessment of the clinical examination and imaging tests carried out prior to surgery do not go along with arthroscopy findings.

Thus, wrist arthroscopy can be classified as either diagnostic or therapeutic, but for the most part it is a combination of the two.

Arthroscopy is a highly sensitive method for detecting articular cartilage (chondral) defects intraoperatively and is an essential tool for the assessment of persistent (chronic) wrist pain when

the physical examination and imaging tests, such as X-rays, MRI and CT scans are inconclusive.

Several scientific papers have proven the superiority of arthroscopy as a diagnostic tool, exceeding imaging tests in the search for lesions of the triangular fibrocartilage (TFC) and lesions of the intrinsic ligaments, which provide carpal stabilization.

In therapeutic arthroscopy, soft tissue procedures include the resection of free bodies, synovitis debridement (mainly in rheumatic diseases), the resection of synovial cysts, the treatment of central and peripheral lesions of the TFC, and the treatment of infections (such as septic arthritis). As the surgeon progresses in their training, other intermediate and advanced level procedures can be performed.

In bone procedures, arthroscopy can assist in the treatment of distal radius and scaphoid fractures, helping both in direct fragment positioning and to confirm fracture reduction after internal fixation and correct positioning of material.

It is also used in ulnocarpal impingement, with the "wafer" procedure for distal ulnar shortening; for the treatment of pseudoarthrosis of the scaphoid and in more complex procedures such as scapholunate ligament (SLL) reconstruction; in foveal TFC reattachment techniques; in proximal carpectomy procedure; for the treatment of rhizarthrosis; and in partial or total carpal arthrodesis.

Currently, most routine hand surgery procedures can be performed by using minimally invasive arthroscopy.

As clinical, anatomical and pathology knowledge advances, so does the equipment technical improvement.

PJD: And when we can't use arthroscopy

There are no absolute contraindications to the use of wrist arthroscopy. However, in patients with joint stiffness or ankylosis; those with reflex sympathetic dystrophy; those at risk of compartment syndrome; and those with associated neurovascular damage or severe soft tissue damage, the surgeon should take special care when using arthroscopy.

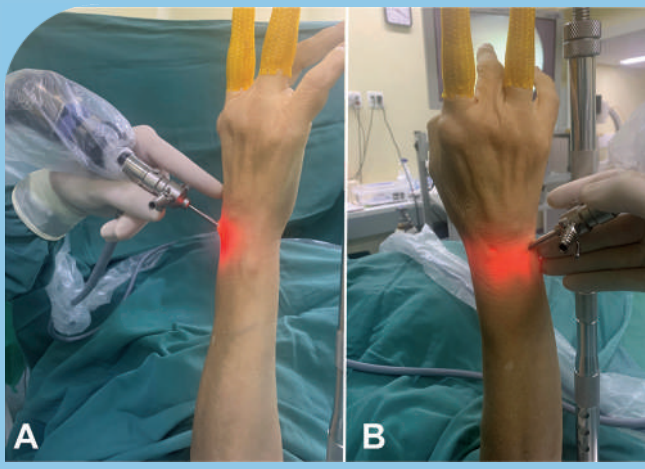
PJD: What material is needed for the arthroscopy

The basic standard equipment for performing wrist arthroscopy is a mini optic, which is coupled to a camera and light source via a fiber optic cable. They connect to a video tower containing the monitor, the shaver motor and the instruments for cauterization and radiofrequency, which have been increasingly restricted to use in the wrist.

The procedure also requires an irrigation and suction system and a traction system for the wrist, which must be placed on the fingers (finger trap).

An image intensifier is also used in many procedures. Arthroscopy optics and shaver tips should be standardized for procedures on small joints. For greater comfort and safety, the optics for wrist arthroscopy should be light and short, having a thickness of between 1.9 and 2.7 millimeters, and an angle of 30º.

Picture detail: 1.9-mm: wrist and hand; 2.5-mm: elbow and wrist; 4.5-mm: knee, shoulder and elbow



During the procedure, optics should be held and handled like a pencil, keeping the index finger in constant contact with the patient's wrist, thus controlling the depth and correct positioning inside the joint.

One trick we use that increases comfort during surgery is to rest the body of the camera (which is heavier) on the back of the hand, over the first web space, between the first and second metacarpals.

The optic is made up of a set of parts, all of which can be sterilized in a steam sterilizer. It has an outer rod and a trocar, which should preferably have a blunt tip to avoid the risk of chondral injury during insertion.

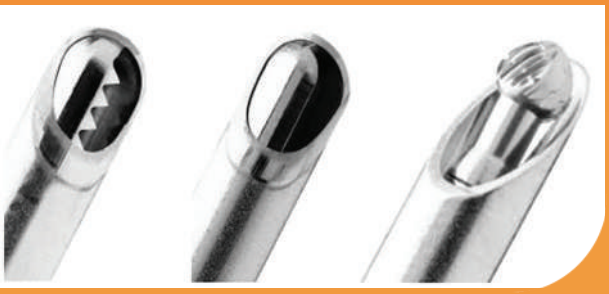
Once inside the joint, the trocar is removed, and the optic is inserted. This must be attached to the camera, which is a bulky, non-sterile body and must therefore be protected by sterile plastic.

A cable runs downwards from the back of the camera, connecting the optic to the video tower. The correct positioning of this cable will provide the alignment of the image on the horizon, and it must remain positioned downwards throughout the procedure.

The light source cable comes out of the side of the camera and its position determines which way the optic is facing in its 30 degrees. It therefore works like the surgeon's eye. If the cable is turned to

the right, you'll look to the left, if it's down, you'll look up and so on. The angle of this cable must be modified constantly during the procedure, depending on which side of the joint the surgeon wants to examine.

Shavers are motors used for joint debridement and cleaning. On the wrist we use tips ranging from 2.5 to 4.0 mm in diameter. In short, we can divide shavers into soft tissue and bone types. Soft tissue shavers are cannulated so that, when coupled to a suction system, they can aspirate fluids and tissue fragments. They can have a smooth or jagged tip. Bone shavers, on the other hand, are solid and can have a round or elongated tip.



We also routinely use a probe in wrist arthroscopy. With it we can dynamically test and palpate possible chondral and ligament injuries and perform tests to detect instability or help to reduce fracture fragments.

PJD: And what's the routine like

Anesthesia for wrist arthroscopy can be regional (brachial plexus block) with sedation, general or even WALANT. Wrist arthroscopy is usually performed on an outpatient basis, without the need for hospitalization, a routine that can be modified depending on the complexity of the procedure and the surgeon's preference.

The organization of the equipment and the patient in the operating room is very important for the success of the procedure. The patient should be positioned in supine position (lying on the back) with the upper limb abducted

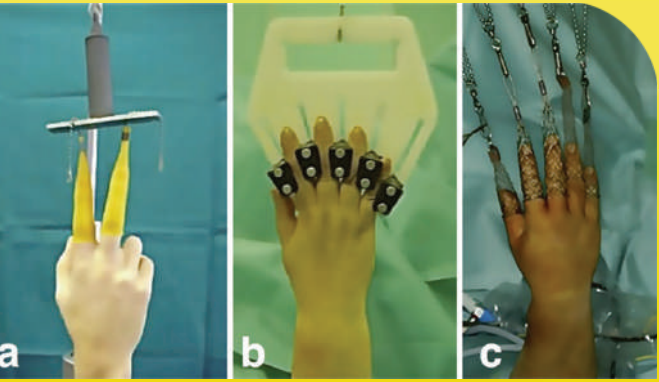
(open) and supported on a hand table.

The anesthesiologist will remain at the patient's bedside, and the surgeon and assistant will position themselves near the wrist, next to the traction tower. The scrub nurse stands behind the surgeon with their equipment and implant table.

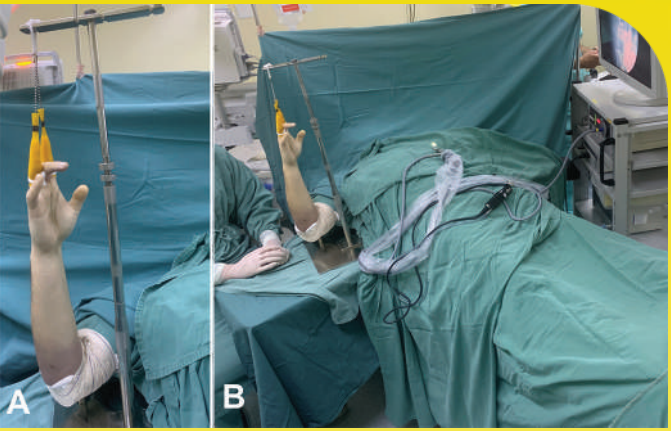
The arthroscopy tower, which contains the image monitor (TV) and drawers with the shaver motor, light source and radiofrequency device, should be positioned on the opposite side of the surgery, together with the image intensifier screen, so that it is clearly visible to all medical staff.

Unlike what happens in other joints, such as the knee and shoulder, where the joint space for arthroscopy is enhanced by infiltration of saline under pressure, wrist joint distraction is achieved by a traction system.

It consists of a traction tower that will position the upper limb with the hand raised towards the ceiling, and the fingers, usually the index and ring fingers, are attached to a finger trap that allows continuous traction without damaging the patient's skin.



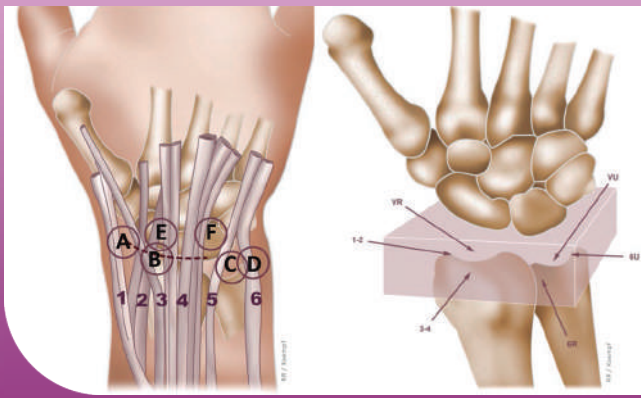
Some traction systems use ropes and pulleys, and weights of 2 to 5 kg (about 10 pounds) should be used to achieve the force needed for joint distension.



Access to the patient's upper limb must be enabled in order to approach the image intensifier, which will be used whenever necessary. Some traction towers are articulated, which allows the elbow to be extended without having to remove the traction. When the tower does not allow such movement, the image intensifier "C" arc is positioned horizontally, or the patient's hand must be removed from the traction and positioned on the side table.

PJD: And how do we create the portals ?

Greg Bain, a hand surgeon colleague and friend from Australia (and a frequent presence at MWC), compared the anatomy of the wrist to a box closed on all sides. The top and bottom would be formed by the bony framework, which is covered by cartilage, and the four sides would be formed by the ligaments and the joint capsule.



Arthroscopy is a method that allows us to “look” inside this “closed room” without having to open the “door”. That is, without damaging the key structures that make it up, such as the ligaments and joint capsule, which are so important for wrist stability and proprioception.

We therefore call portals the safe entry points into the joint, which allow visualization and instrumentation. For anatomical reasons, as the main neurovascular structures cross the wrist at the volar region, the most commonly used arthroscopic portals are dorsal, thus avoiding iatrogenic injuries to the volar key structures.

The portals are named and positioned between the extensor tendon compartments.

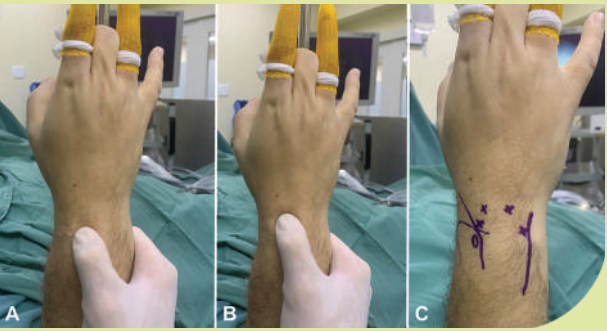
As such, main radiocarpal portals are 1/2 (between the first and second extensor compartments), 3/4, 4/5, 6R (radial to the sixth compartment) and 6U (ulnar to the sixth compartment).

As time have passed and technical improvements went on, additional volar portals have been created with the main purpose of repairing dorsal structures, which are difficult to access through the dorsal portals.

PJD: Shall we start a wrist arthroscopy?

Wrist arthroscopy has a pre-established sequence for a complete examination of the entire joint, starting with portal creation and progressing as the optics move inside the joint. This routine greatly aids the safety of the procedure.

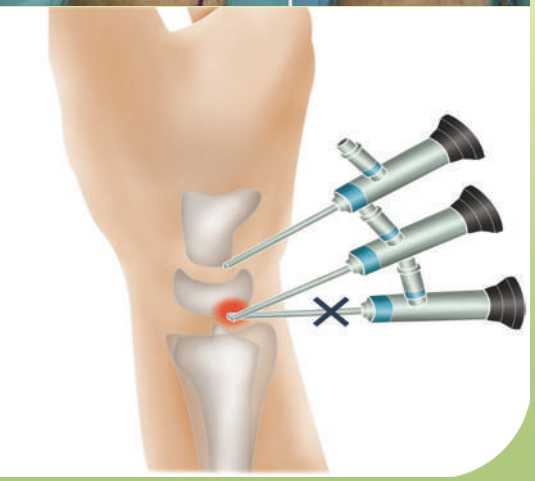
Despite the large number of portals described, which can be used in different procedures and in multiple combinations, the number of portals used routinely is small.



In most cases, a good command of the main portals is sufficient.

When the surgeon is not used to performing wrist arthroscopy, it is advisable to tag some structures with a skin marker before the procedure. This makes it easier to create the portals and serves as a reference. On the dorsal aspect, the tendon of the extensor pollicis longus, the distal edge of the radius and its styloid process, Lister's tubercle and the tendon of the extensor carpi ulnaris all should be tagged.

Arthroscopy always starts at the radiocarpal joint and the first portal to be made is the 3/4 portal, which is located between the tendons of the third and fourth extensor compartments.

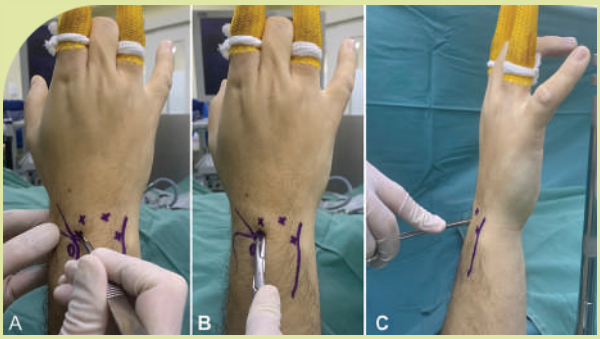


The 3/4 portal is located one centimeter distal to Lister's tubercle and can be felt as a soft spot just distal to the dorsal edge of the distal radius. Another anatomical reference that can be used is that the 3/4 portal is on the same line as the radial edge of the third metacarpal.

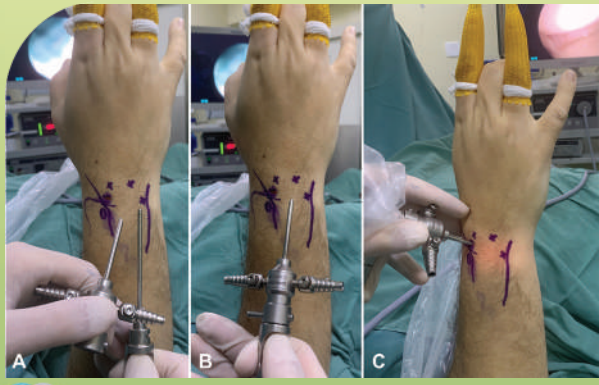
Once the correct portal point has been determined, a needle is placed at the site and should be inserted following the anatomical tilt of the articular surface of the distal radius (12º from dorsal to volar).

Once the portal site has been correctly confirmed, with the needle entering the joint, it is removed and a small transverse or longitudinal skin incision up to three millimeters in size is made with a 15-blade scalpel.

The longitudinal incision is preferred by most surgeons because it follows the direction of the dorsal nerves and tendons, thus reducing the risk of injury. The transverse incision, on the other hand, appears to be more cosmetic.



After the incision with the scalpel, a curved hemostatic forceps is used to divulge the soft tissues below the skin, so that a blunt dissection is performed between the skin and the capsule, releasing the soft tissues from the deep planes. This reduces the risk of injury to key structures such as tendons and sensory nerves, which are located very close to the portal site and very superficial, just under the skin.



Then, using the blunt end of the forceps, penetrate inside the joint and, after piercing the capsule, replace the hemostatic forceps with the optical cannula, together with

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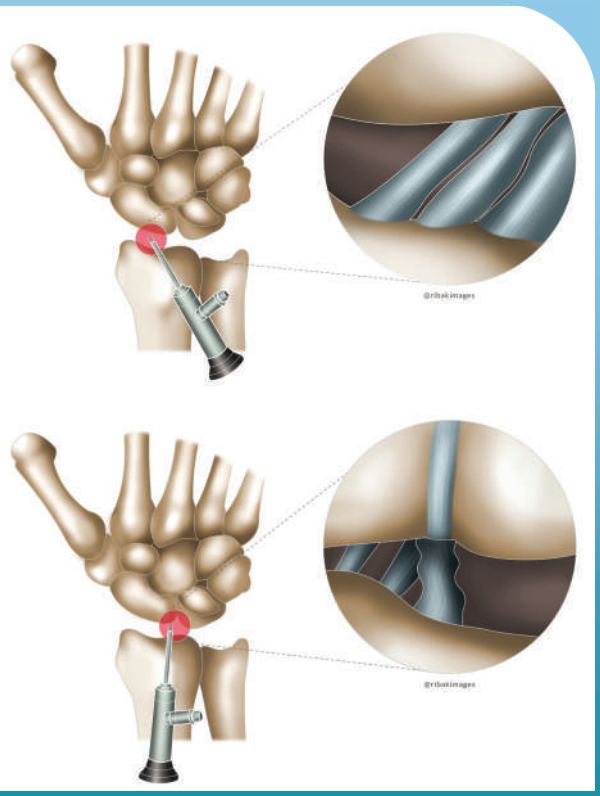
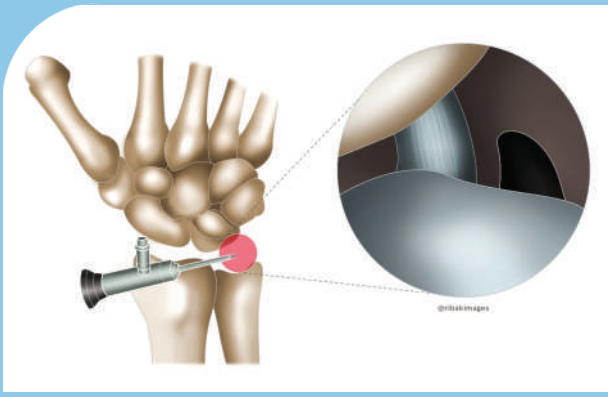
the blunt trocar, always remembering to follow the normal anatomical volar tilt of the wrist. One trick is to open the forceps once you have entered the joint and make sure it is correctly positioned, widening the portal where the optic enters. This will make it easier to change portals during the procedure.

The 3/4 portal is the main portal for radiocarpal visualization.

Through the 3/4 portal, the volar radiocarpal ligaments can be seen at the end of the joint. The first, most radial ligament, is the radioscaphocapitate. Moving in an ulnar direction, the long radiolunate ligament is visible, followed by the short radiolunate ligament, which is often covered by Testut's ligament, which is considered by many to be a neurovascular bundle.



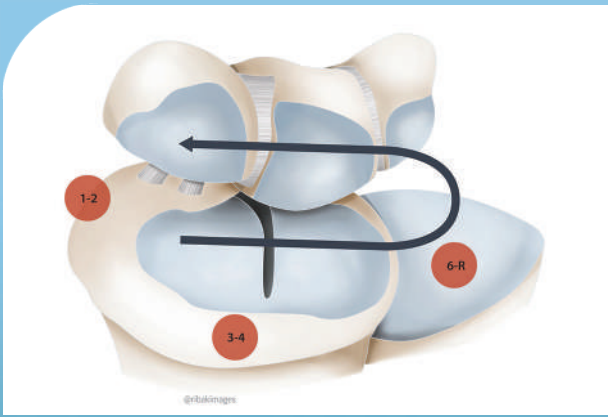
In the ulnar portion of the wrist, the ulnolunate and ulnotriquetral ligaments can be seen. When you turn the optic upwards, you can see the bones of the proximal carpal row, with the scaphoid being the most radial, then, when you move the optic towards the ulnar side, you can see the scapholunate ligament, then the lunate bone, the lunotriquetral ligament and the triquetrum bone.



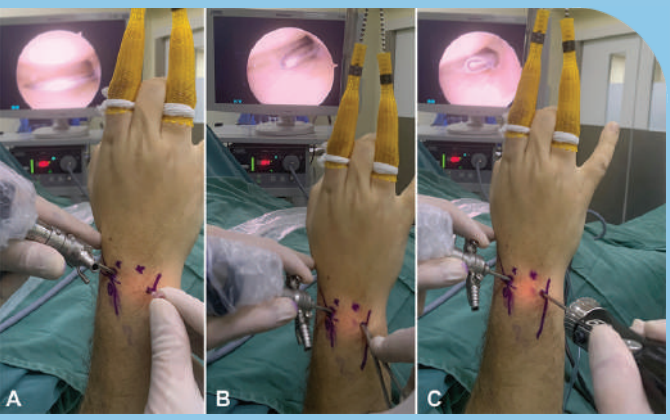
Looking down (proximally), you can see the surface of the distal radius, with the articular fossae for the scaphoid and lunate bones.

Going further deep with the optic, and towards the ulnar side, you can see the transition of the radius bone with the triangular fibrocartilage complex, where you can see its central portion and the volar and dorsal radioulnar ligaments.

Thus, wrist arthroscopy starts with the radiocarpal joint by assessing the radial side and then the ulnar side, the distal portion and then the proximal portion, and the volar side before the dorsal side. Only after this initial inspection is the second portal created for instrumentation and to use the probe.



The first portal, the 3/4 portal, is created from outside-in, but the other portals are made with the help of intra-articular vision and the use of a needle to guide their exact location. As the wrist is a small and superficial joint as compared to other joints in the skeleton, the light coming from the optics inside the joint is often visible by skin transillumination, which also helps in positioning the portals.



The second most commonly used portal in wrist arthroscopy is the 6R. It is the main portal for radiocarpal instrumentation and is located immediately radial to the tendon of the Extensor carpi ulnaris (sixth extensor compartment), with the extensor tendon of the little finger as its radial limit.

Through this portal, using the probe, specific tests can be carried out to diagnose triangular fibrocartilage lesions, such as the trampoline test and the hook test. In the former, the surgeon must palpate the fibrocartilaginous disc, and it must be firm and elastic, tense like a trampoline and unable to deform easily under pressure. In the second, the probe is inserted under the disc and pulled distally. Under normal conditions, the disc will not be deformed and will not “rise” easily. If it does, the test is positive and there is a lesion of the foveal or peripheral insertion of the triangular fibrocartilage.

With the 3/4 and 6R portals created, the position of optics and instruments can be constantly exchanged, to enhance better visualization of the joint and to allow direct access to the area to be examined and treated.

The third most commonly used portal in wrist arthroscopy is the 1/2 portal. Located between the tendons of the first compartment (APL, EPB) and the second (ECRL, ECRB), it should be made as close as possible to the first compartment and immediately distal to the styloid process of the radius, protecting the dorsal branch of the radial artery and the dorsal sensory branches of the radial nerve.

The portal 1/2, when used as a viewing portal, enables to look to the entire dorsal capsule, almost the entire volar capsule, the articular surface of the distal radius, the articular surfaces of the body and proximal pole of the scaphoid, the lunate and the dorsal edge of the radius.

It is usually used in conjunction with the 3/4 portal, consisting of an instrumentation portal that allows easy access to the radial side of the wrist, favoring procedures such as the resection of volar synovial cysts and radial styloidectomy.

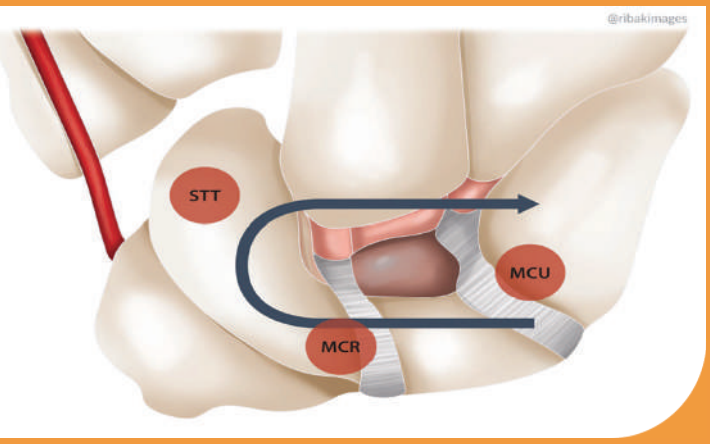
Another portal used in wrist arthroscopy is the 4/5 portal. Located in line with the anatomical axis of the fourth ray, it was once considered the main instrumentation portal but has been gradually replaced by the 6R portal. It has a similar field of vision as compared to the 3/4 portal, except for the position towards the ulnar portion of the wrist.

The 6U portal, created just ulnar to the tendon of the extensor carpi ulnaris, has always been used as a portal for circulation and saline aspiration. It is much less used nowadays, as most procedures are performed dry. Care must be taken due to its anatomical proximity to the triangular fibrocartilage and the dorsal branches of the ulnar nerve. Depending on the needs, it can be used to assess the ulnar side of the wrist, including the triquetrum bone, the triangular fibrocartilage and the ulnocarpal ligaments (ulnolunate and ulnotriquetrum).

PJD: Shall we go to the midcarpal joint ?

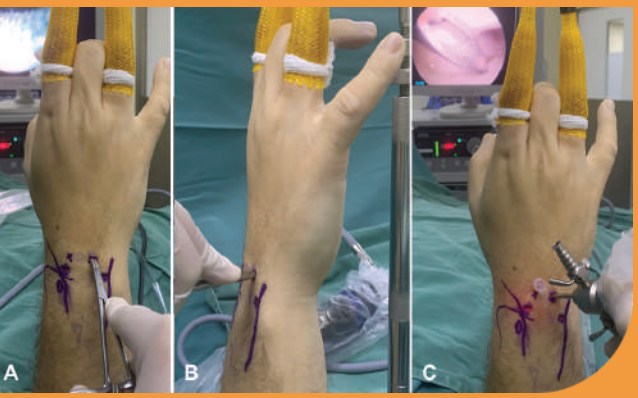
Once the radiocarpal joint has been fully assessed, you should move on to the midcarpal joint, where there are two main portals: the radial midcarpal and the ulnar midcarpal.

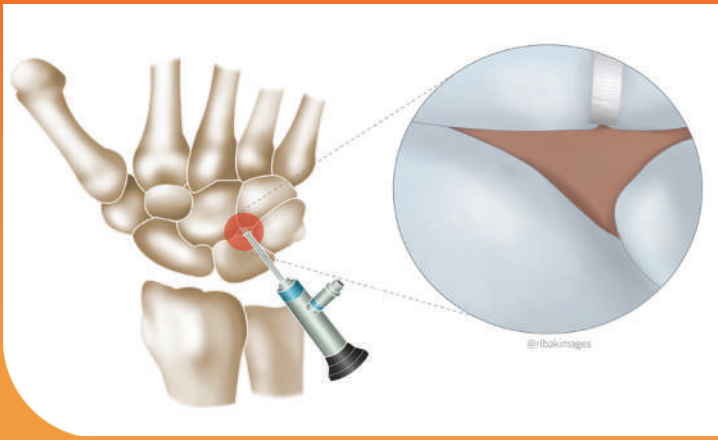
Midcarpal portals are ideal for assessing injuries to the intrinsic ligaments (scapholunate ligament and lunotriquetral ligament), and carpal first row instability.



Remember that at the distal portion of the scapholunate and lunotriquetral ligaments there is a kind of gap. Thus, a physiological interval of up to two millimeters in the space between the scaphoid and the lunate or between the scaphoid and the triquetrum bones should not be confused with an injury.

We begin the midcarpal arthroscopy by creating the ulnar portal, which is easier to locate and has a larger space. It is located 1.5 centimeters distally to the 4/5 portal, in a deeper, “soft spot” located at the intersection between the lunate, the triquetrum, the hamate and the capitate bones (four corners), in line with the anatomical axis of the fourth metacarpal bone.





Before the incision, a needle should be inserted to confirm the location of the portal. The entire midcarpal joint can be visualized through this portal. Even part of the scaphotrapeziotrapezoid joint can be reached by sliding the arthroscope over the scaphoid to the proximal end of the trapezius and trapezoid bones.

The radial midcarpal portal is located approximately one centimeter distally to the 3/4 portal, aligned with the radial edge of the third metacarpal.

PJD: How about learning about other portals ?

There are other dorsal portals for the distal radioulnar joints and the scaphotrapeziotrapezoid joint that are used in specific procedures and are not routinely part of most arthroscopies.

Another specific portal is the direct foveal portal, which is located approximately one centimeter proximally to the 6U portal and is used for instrumentation in foveal reattachments of the triangular fibrocartilage.

Volar portals have been described to compensate for certain limitations found in visualization through dorsal portals.

The central volar portal is created with a volar incision of up to three centimeters, centered on the lunate bone, moving the flexor tendons towards the radial aspect together with the median nerve for protection. To assist that portal creation, transillumination through the 3/4 portal can be used. This portal is mainly used to reconstruct the scapholunate ligament. It is also used to visualize the dorsal radiocarpal capsule (excision of cysts), the dorsal radiocarpal ligament (distal radius fracture), the dorsal margin of the radius (distal radius fracture) and the proximal volar aspect of the scaphoid bone.

The volar radial and volar ulnar portals are used less frequently. The radial volar portal is created through an incision of up to three centimeters on the line of the flexor carpi radialis tendon, three millimeters radially to the tendon, on the wrist flexion fold. The ulnar volar portal, located at the proximal margin of the triquetrum bone, is created at the proximal flexion crease of the wrist, with an incision of around two centimeters on the ulnar margin of the flexor tendons of the digits, that must be retracted radially.

PJD: Should we use the "dry" arthroscopy technique ?

The early articles describing the techniques for wrist arthroscopy were based on the experiences of patients treated by arthroscopy for problems in other joints. The use of video orthopedic surgery began with the knee, then moved on to the shoulder and only later reached the "small" joints, such as the wrist and ankle.

Just as gas is used to inflate the abdominal cavity in laparoscopies, arthroscopy classically uses saline solution to enlarge, clean and cool the joint with flowing fluid. It was also thought that the use of saline would improve the quality of vision inside the joint.

However, over time and increased knowledge of wrist procedures, the opposite has been observed. Often, the excess fluid ended up getting in the way.

It was observed that mechanical traction is sufficient to enlarge and keep the working space during wrist arthroscopy, without the need for constant use of saline, which is only used to clean the joint and the equipment (optics and shaver).

With the “dry” technique, it was possible to solve problems related to the use of pressured saline, such as soft tissue swelling, which made conversion to open surgery more difficult and the risk of compartment syndrome, especially in fractures and post-traumatic injuries.

Thus, in recent years, the “dry” technique of wrist arthroscopy has been detailed and popularized, and there is now a tendency for most procedures to be carried out using the “dry” method.

Even with the dry technique, sometimes during wrist arthroscopy saline is used to clean the optics, assist in cleansing, removal of soft tissue and bone fragments, and to cool the joint and equipment.

In this case, there is no need for a pressure pump, and often a syringe can be used to inject saline into the joint via the optic cannula, and the fluid is suctioned by the shaver.

Another trick used to clean the tip of the optics inside the joint is to rub it gently over a humid soft tissue structure. This will clean the optics tip and remove any debris that may have become stuck, thus blurring the image.

PJD: How do you avoid complications?

The overall complications rate of wrist arthroscopy is around 5%, and there is a significant relationship between the surgeon's experience and the complications rate, with lower complications rate in procedures carried out by professionals who perform more than 25 arthroscopies in a year or those who have more than five years' experience.

The complications of wrist arthroscopy can be divided into two groups: major and minor.

Minor complications include transient nerve deficit, prolonged drainage (more than five days) from the portal site, transient stiffness and extensor tendon irritation. Skin burns at the portal site are also considered minor complications, which are easily prevented with the periodic use of saline for joint cleansing and cooling of the equipment and tissues, as well as complications due to traction and positioning. This is why excessive traction and the use of traction on the little finger should be avoided.

The main major complications include compartment syndrome, permanent nerve damage, post-surgical joint infection, vascular damage, complex regional pain syndrome, permanent stiffness of the wrist or fingers, tendon rupture and any complication that may lead to repeat surgical intervention.

The use of the correct surgical technique, as described above, includes careful planning of the portals and the use of a blunt trocar to avoid iatrogenic damage to the joint cartilage, and reduces complications during wrist arthroscopy.

Many articles include damage to or breakage of arthroscopy equipment as a complication of the procedure. The most delicate and at-risk piece of equipment in wrist arthroscopy is the optics. It must be handled with care, avoiding sudden motions such as those that cause angulation at the connection between the optics and the camera body, which is the most fragile part. The tip of the optics is also vulnerable and must be protected from contact with the tip of the shaver.

Some authors consider arthroscopy failure to be a complication, which we don't agree with. We even advise doctors who are not completely familiar with the method to start with simpler surgeries that can be easily converted to open procedures, with no harm the patient.

PJD: Final advice

The specialty of hand surgery is constantly seeking alternatives that preserve healthy structures during surgical procedures, respecting anatomy, with increasingly precise and sophisticated methods of diagnosis and treatment.

Arthroscopy represents the fusion of these two features: a powerful diagnostic tool, sometimes exceeding the best non-invasive imaging methods, being an effective instrument for minimally invasive treatments, and allowing for highly complex reconstructive procedures.

Wrist arthroscopy is a possible and effective procedure. It is a reproducible and safe technique that is the gold standard for diagnosing various diseases, yielding satisfactory outcomes. It is a minimally invasive procedure with low morbidity and few complications, which generates less scarring, shorter immobilization time, early return to work and rapid functional recovery.

Wrist arthroscopy is an established technique and a good alternative to open surgery, but the learning curve must be considered. Neuro-tendon injuries are rare when the procedure is performed with care and previous training, using the classic portals.

The arthroscopic technique was described to prevent complications related to the use of wider approaches. It is a technique that requires skill, and the surgeon needs prior training. It is also advisable that the surgeon should have some experience and confidence while using the conventional open technique and that, whenever facing problems with the arthroscopic technique, a conversion to open surgery at any time can be done.

You should always start learning by performing simpler procedures, such as foreign body removal, synovectomy and resection of synovial cysts, central lesions of the triangular fibrocartilage and in aiding the fixation of radius and scaphoid bone fractures. For maximum safety, the surgeon must have a detailed knowledge of the region's anatomy.

It is important to remember the cost of the procedure, since it requires the use of specific arthroscopic material for small joints, which is often not cheap. However, as treated patients are mostly economically active, the initial cost of the procedure can be offset by a faster return to work.

We emphasize that small joint arthroscopy should be performed by qualified doctors with appropriate training. The procedure is not technically simple and there is a learning curve that must be respected. Before starting to use the technique, it is recommended to take courses on fresh cadavers, such as the Madrid Wrist Course, thus avoiding the risk of complications and iatrogenic injuries to the joint.

We also recommend that each surgeon or team has their own routine for the procedure, adapting to their needs and reality. We also advise each surgeon to have a box of useful materials during the procedure, such as delicate straight and curved osteotomes, angled curettes, and a fine and sharp periosteum elevator.

It is essential for orthopedic and hand surgeons that arthroscopic procedures are part of their daily therapeutic arsenal in order to offer more precise treatment alternatives with less tissue aggression. This will have a direct impact on the post-operative period and on patients' quality of life, the main objective of our daily practice.

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Basic Guide to ARTROSCOPY

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