Wrist Portals and Arthroscopic Anatomy

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Abstract

A deep knowledge of surface anatomy is mandatory for the correct placement of arthroscopic wrist portals. But not only that, after portal placement, classic wrist anatomy is visualized through the arthroscope. Specific knowledge of the arthroscopic anatomy will be a very useful tool for the surgeon aiming to address wrist pathology through an arthroscopic approach. Both of these subjects are addressed in this chapter

Keywords

Wrist · Radiocarpal · Midcarpal · Distal radioulnar joint
Arthroscopy · Portals · Anatomy · Arthroscopic anatomy

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1.1 Dorsal Radiocarpal Portals

The names of the dorsal radiocarpal portals are referred to their anatomical relationship with the extensor compartments of the wrist (Fig. 1.1).

3/4 and 6R portals are the most commonly used, as they allow complete visualization of the entire radiocarpal joint. However, the other three radiocarpal portals 1/2, 4/5, and 6U are also worth knowing and using as they may be useful in certain situations or for certain surgical techniques.

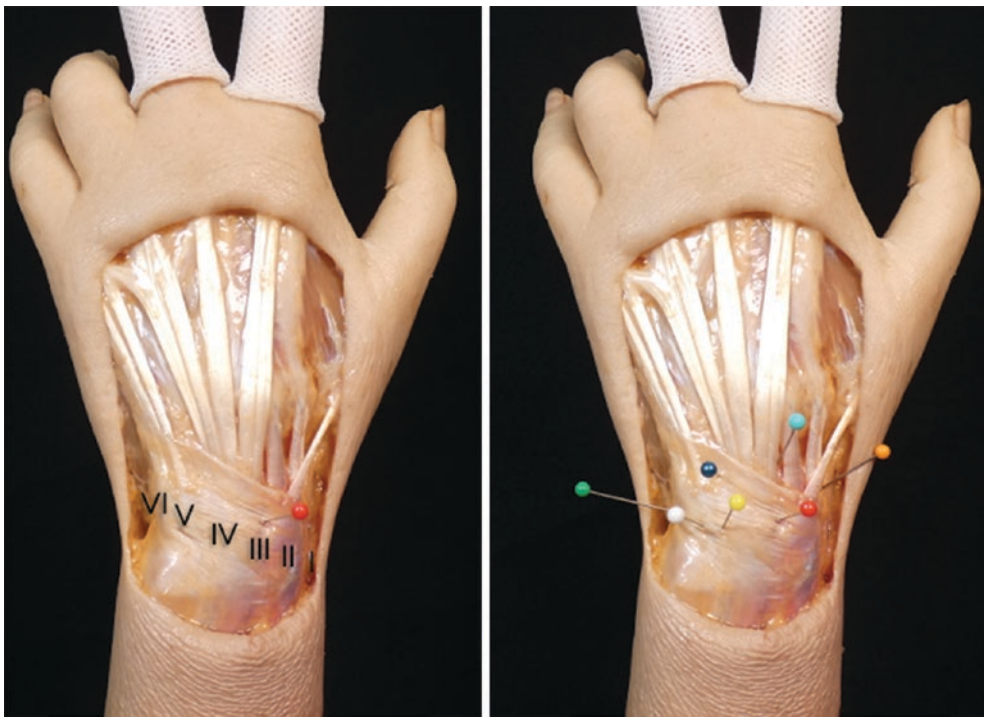

Fig. 1.1 Dorsal radiocarpal portals of the wrist. Names are referred to the anatomical relationship with the extensor compartments of the wrist

1.1.1 1/2 Portal

It is located between the abductor pollicis longus (APL) and the extensor pollicis brevis (EPB) on the radial side and the extensor carpi radialis longus (ECRL) and the extensor carpi radialis brevis (ECRB) on the ulnar side. Since this portal is located in the anatomical snuffbox, it is important to remember that the radial artery is located in its most distal portion. Therefore, it is recommended the entry point be proximal. It should also be taken into account that in this location, the distal sensory branch of the radial nerve is at risk (Fig. 1.2).

It is a portal that is usually performed under the arthroscopic vision and not in a direct blind way (as a starting portal). Both the introduction of the needle when making the portal and the subsequent introduction of the arthroscope should be made at 20° tilt to follow the articular surface of the radius and to avoid damaging the proximal cartilage of the scaphoid.

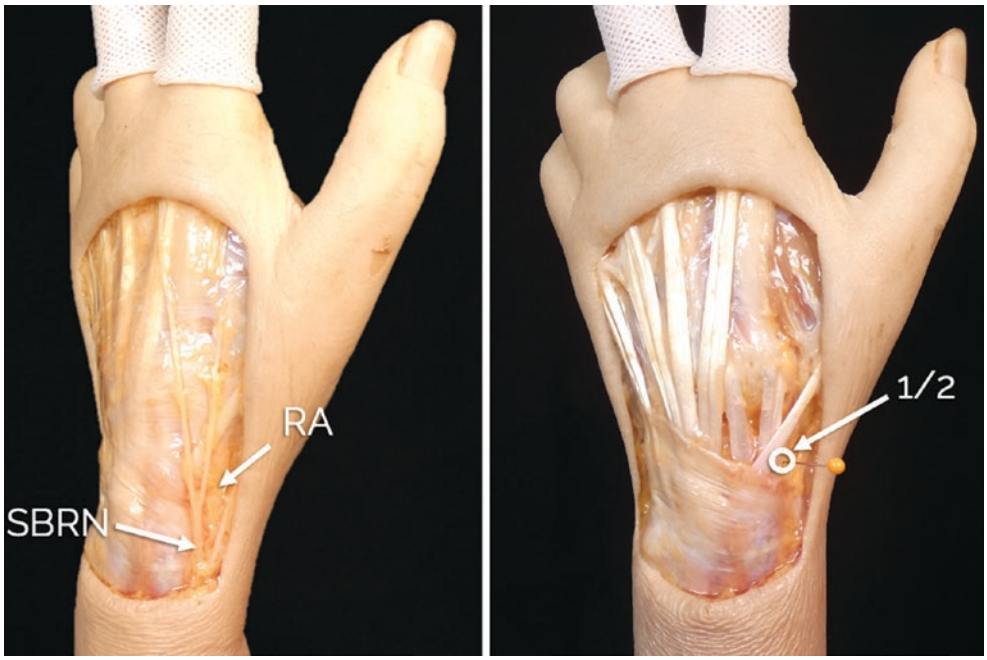

Fig. 1.2 Anatomical location of the 1–2 portal. Structures at risk while establishing the 1/2 portal. Superficial Branch of the Radial Nerve (SBRN). Radial artery (RA)

1.1.1.1 Visualized Structures

At the Entry Point (Fig. 1.3):

Proximal: Radial styloid and scaphoid fossa.

Distal: The proximal surface of the scaphoid.

Volar: Radioscaphocapitate ligament, long radiolunate (LRL) ligament, radioscapholunate ligament (Testut ligament) and volar margin of the radius.

Dorsal: Dorsal capsule, dorsal radiotriquetral ligament, the dorsal margin of the radius.

Moving the Vision Field to the Ulnar Zone:

The vision obtained is similar to the vision from the 3/4 portal when it is moved to the ulnar zone.

Proximal: Lunate fossa and triangular fibrocartilage complex (TFCC).

Distal: Proximal pole of the lunate bone.

Volar: Ulnocarpal ligaments, volar margin of the radius.

Dorsal: Dorsal capsule, dorsal margin of the radius.

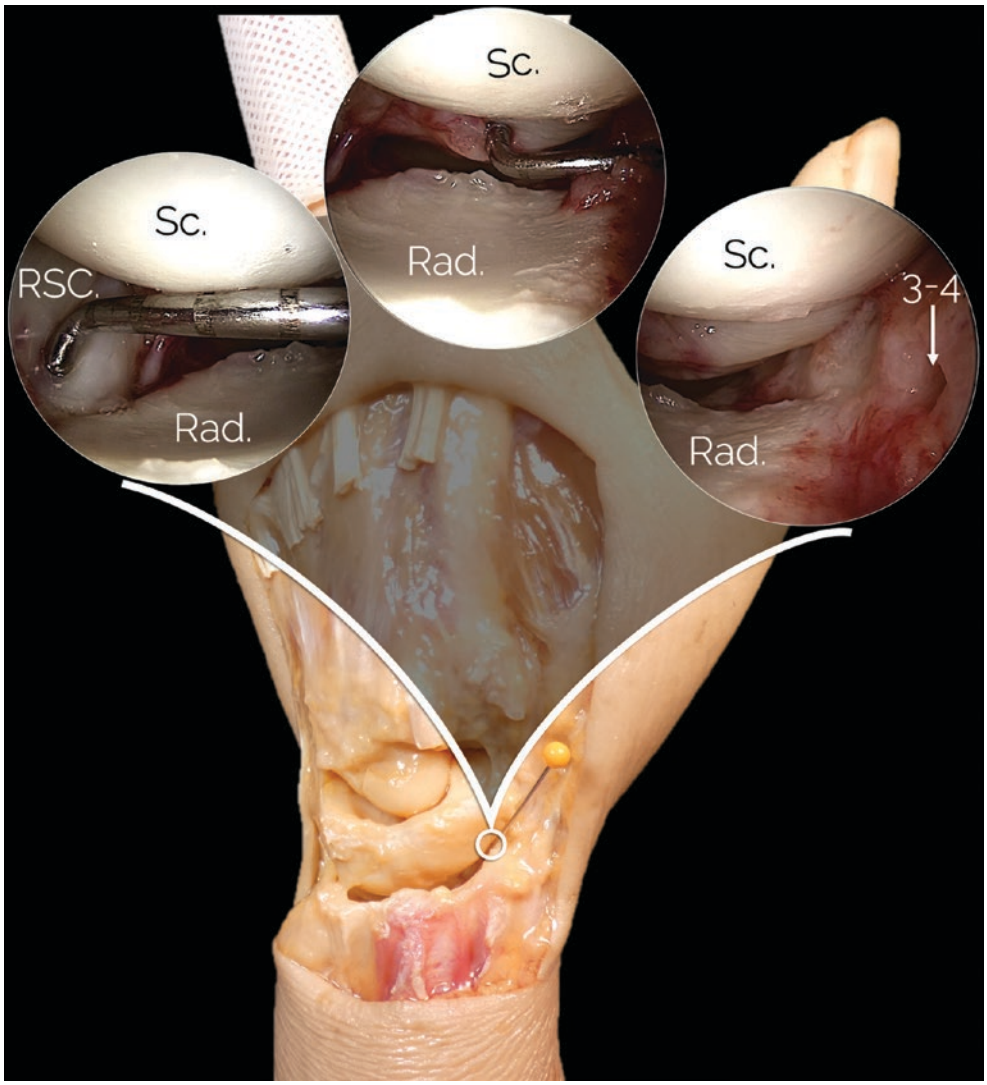

Fig. 1.3 Arthroscopic view of the radiocarpal joint through the 1–2 portal, at the entry point. The images correspond to a left wrist (for a better understanding, all the arthroscopic images of the chapter correspond to left wrists). Radioscaphocapitate ligament (RSC). Scaphoid (Sc.). Radius (Rad.). Abbreviations and symbols will be used according to the previous figures during the whole chapter

1.1.2 3/4 Portal

It is located in the space between the extensor pollicis longus (EPL) and the extensor digitorum (ED), 1 cm distal to the Lister's tubercle and in line with the radial edge of the third metacarpal bone (Fig. 1.4). Both the needle to mark the entry point and the introduction of the arthroscope should be volar-oriented about 10° to follow the volar inclination of the articular surface of the radius.

Generally, this is the first portal to be made and being one of the safest portals, and it is done "blind." It allows a panoramic view of the entire radiocarpal joint, thus being useful and common in the vast majority of arthroscopic techniques.

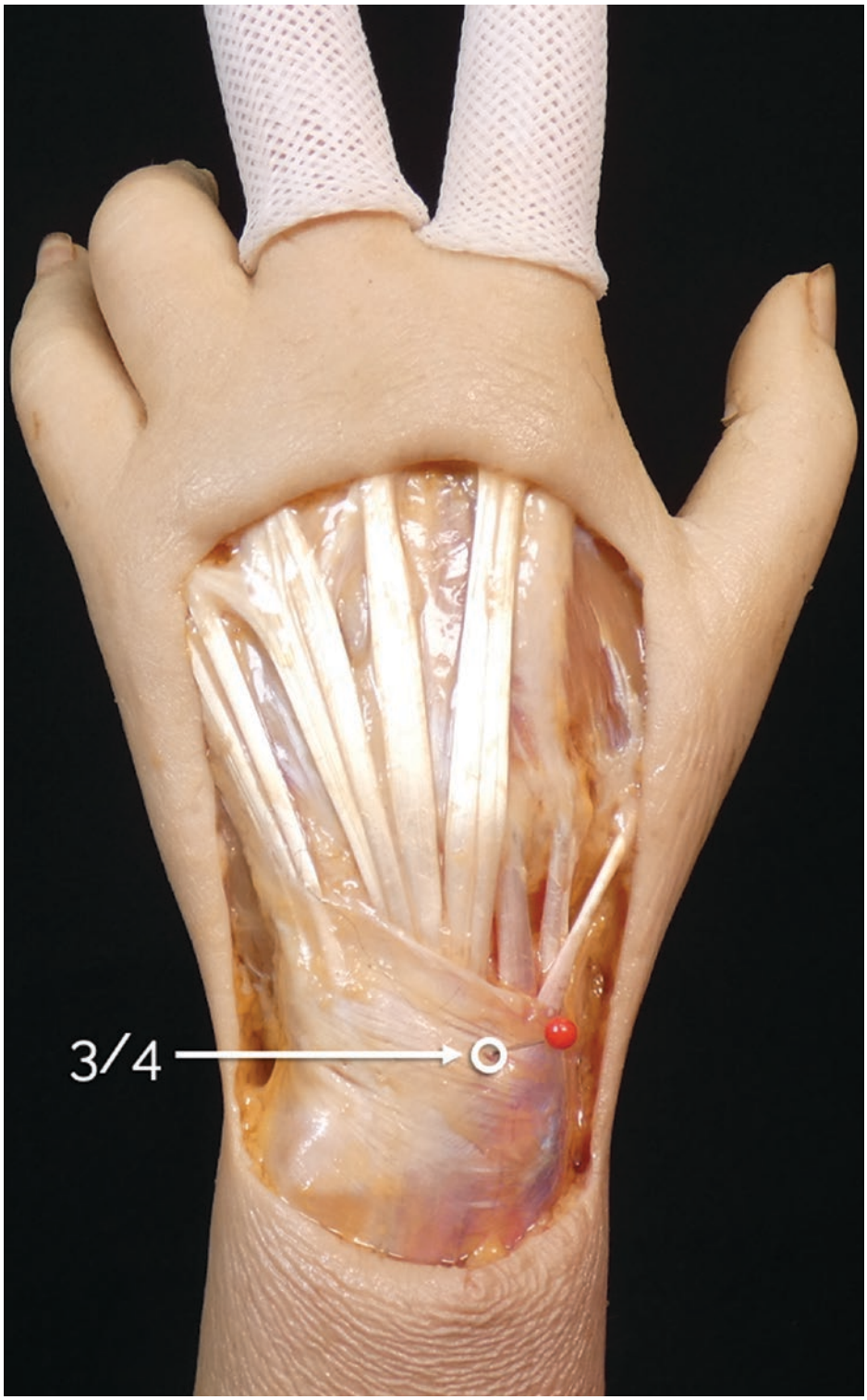

Fig. 1.4 Anatomical location of the 3–4 portal

1.1.2.1 Visualized Structures

At the Entry Point (Fig. 1.5):

Proximal: Articular surface of the radius and the ridge that separates the scaphoid and lunate fossa.

Distal: Proximal pole of the scaphoid and lunate and the membranous portion of the scapholunate ligament.

Volar: The radioscapholunate ligament is in the middle of the vision field; both the long radiolunate ligament and the short radiolunate ligament are radial to it.

Moving the Vision Field to Radial (Fig. 1.5):

Proximal: Radial styloid process and scaphoid fossa.

Distal: Proximal pole of the scaphoid.

Moving the Vision Field to Ulnar (Fig. 1.6):

Proximal: Lunate fossa, TFCC with pre-styloid recess.

Distal: Proximal pole of the lunate.

Volar: Ulnocarpal ligaments.

Dorsal: Dorsal articular capsule and 6R portal.

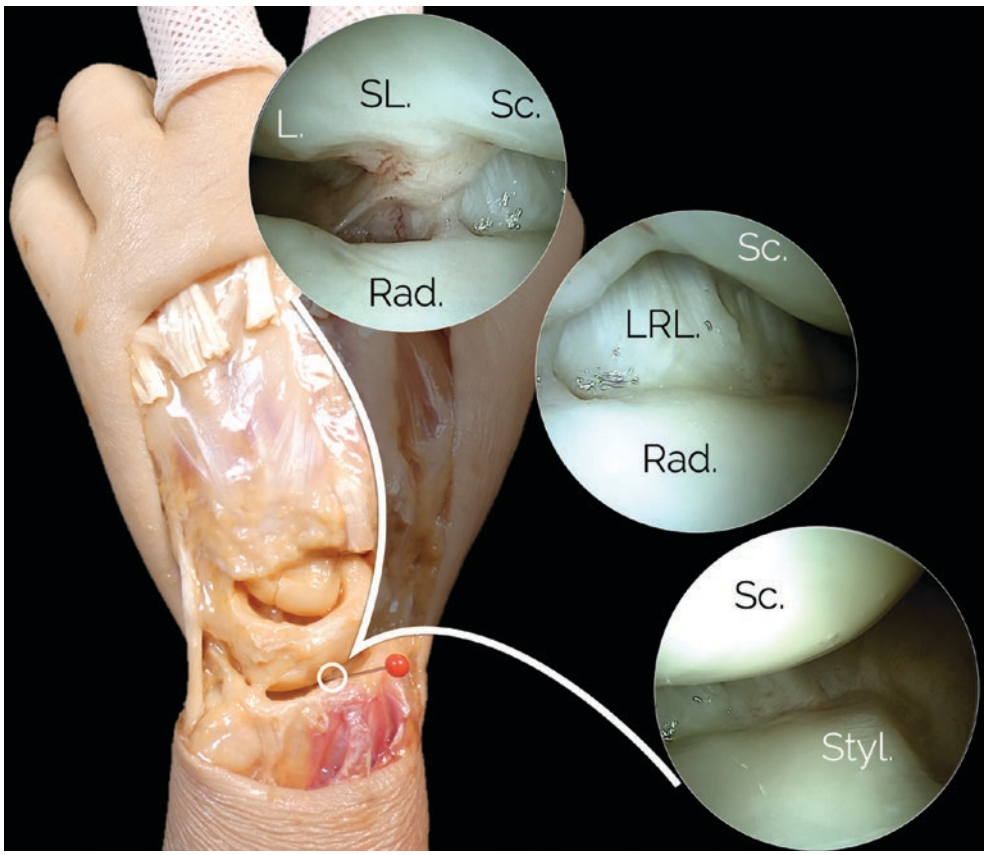

Fig. 1.5 Arthroscopic view of the radiocarpal joint through the 3–4 portal. Images at the entry and after moving the vision field to the radial side. Scapholunate ligament (SL). Long radiolunate ligament (LRL). Radial styloid process (Styl). Lunate (L)

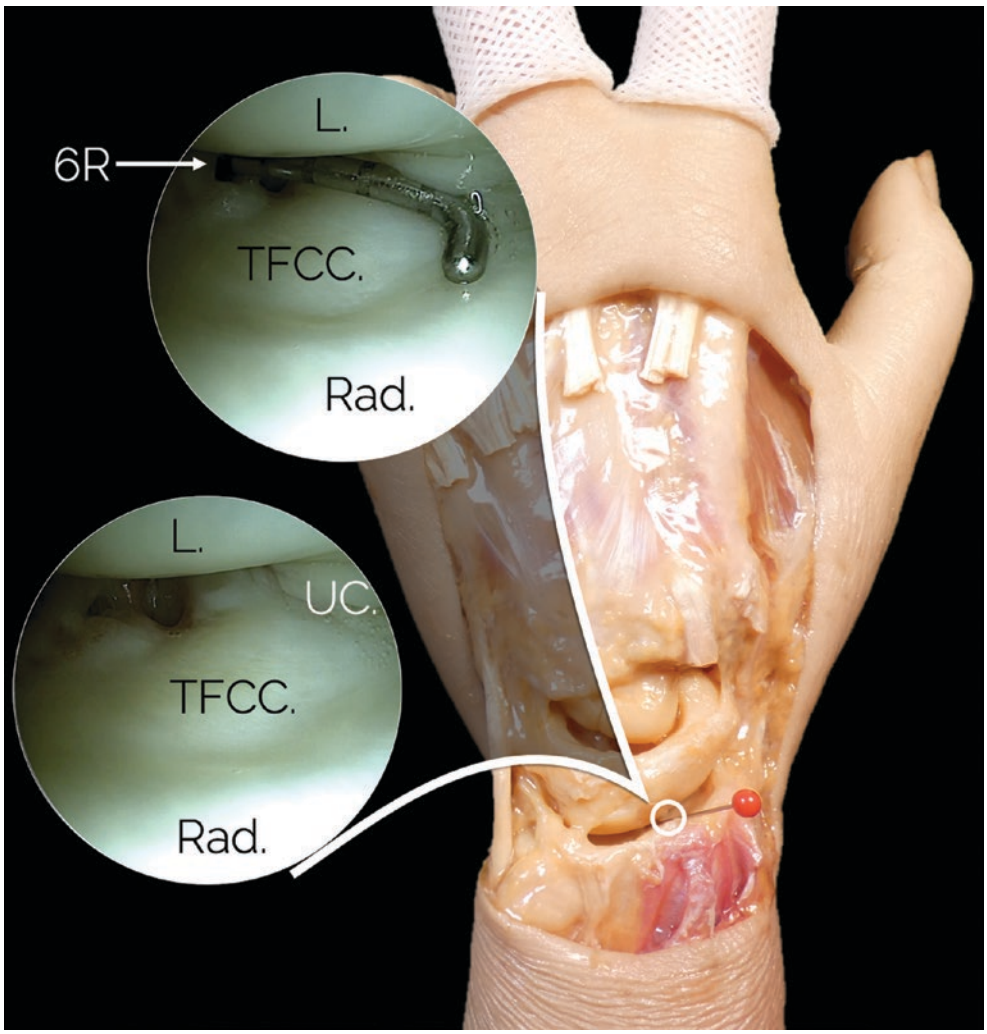

Fig. 1.6 Arthroscopic view of the radiocarpal joint through the 3–4 portal, moving the vision field to the ulnar side. The probe is inserted through the 6R portal—ulnocarpal ligaments (UC). Triangular fibrocartilage complex (TFCC)

1.1.3 4/5 Portal

It is located in the interval between the ED and the extensor digit minimi (EDM), in line with the fourth metacarpal bone. Due to the radius inclination, this portal is located slightly proximal to the 3/4 portal and approximately 1 cm radial from the 6R portal (Fig. 1.7).

Like the 3/4 portal, the insertion of the needle, arthroscope, or instruments must be performed with a 10° volar inclination. Regarding the 3/4 portal, it can improve the vision of the ulnocarpal joint and can be used for instrumentation, although its use is much less frequent than 3/4 and 6R.

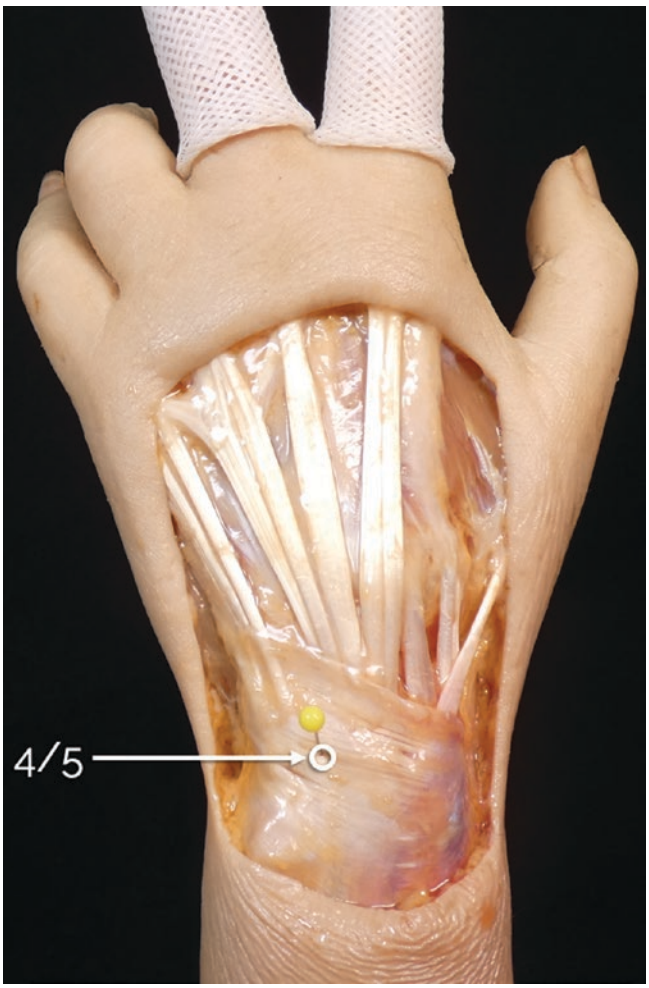

Fig. 1.7 Anatomical location of the 4–5 portal

1.1.3.1 Visualized Structures

At the Entry Point (Fig. 1.8):

Proximal: In the center of the view field is the radial insertion of the TFCC, which continues in a radial direction with the lunate fossa of the radius.

Distal: Proximal surface of the lunate.

Volar: Ulnocarpal ligaments.

Moving the Vision Field to Radial:

Proximal: Ulnar portion of the scaphoid fossa.

Distal: Proximal surface of the scaphoid and membranous portion of the scapholunate ligament.

Volar: Long and short radiolunate ligaments and radioscaphocapitate ligament.

Dorsal: dorsal capsule, 3/4 portal and, if a dorsal displacement is performed on the lunate, the dorsal capsuloligamentous scapholunate septum (DCSS) is visualized.

Displacement of the Field of Vision Towards Ulnar:

Ulnar area of the TFCC with the pre-styloid recess.

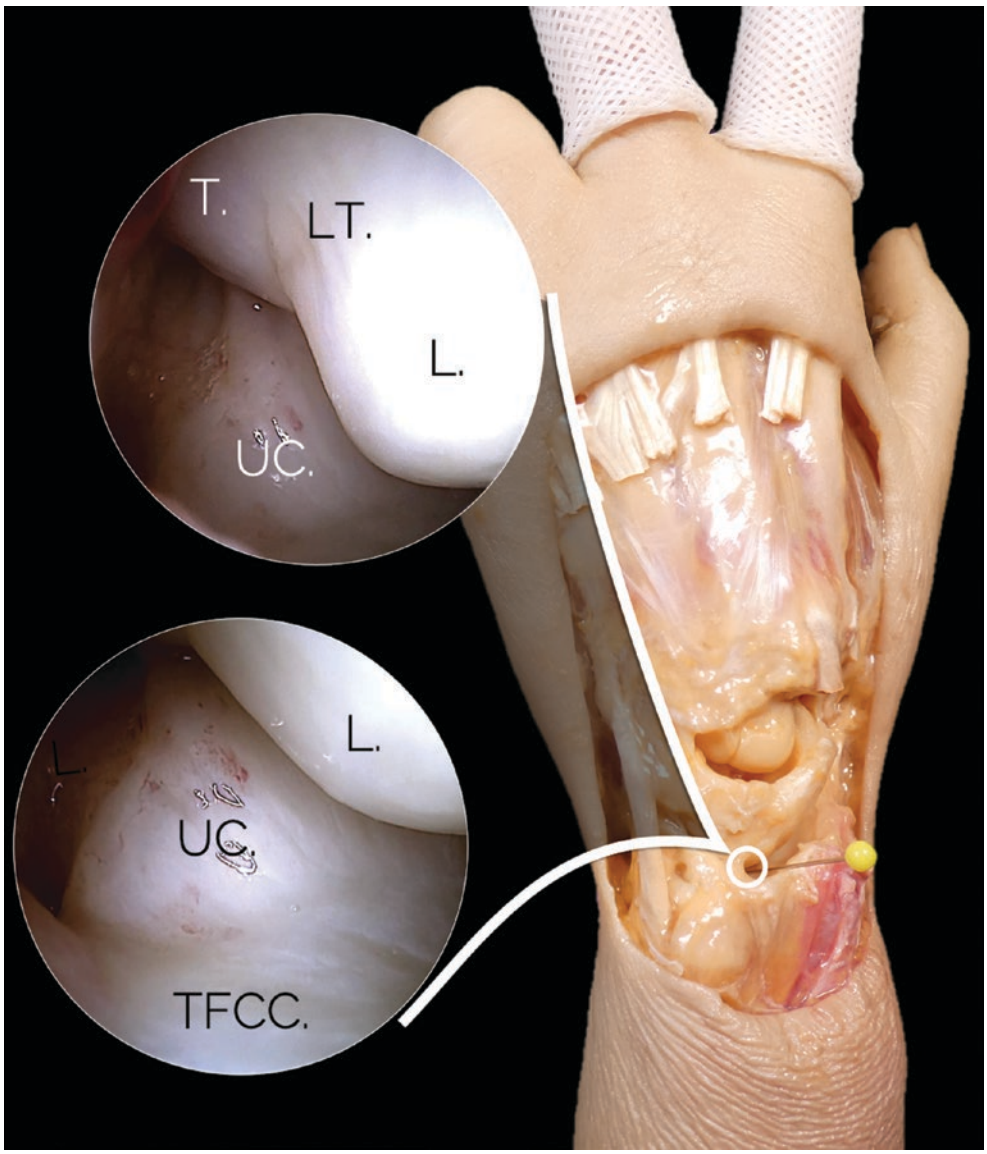

Fig. 1.8 Arthroscopic view of the radiocarpal joint through the 4–5 portal. Images at the entry and after moving the vision field to the ulnar side. Lunotriquetral ligament (LT.). Triquetrum (T)

1.1.4 6R Portal

It is located on the radial side of the extensor carpi ulnaris (ECU) and distal to the TFCC (Fig. 1.9). In order to avoid any damage to the TFCC, this portal, situated just distal to it, must be carried out under arthroscopic vision.

This portal is performed routinely along with the 3/4 portal in most wrist arthroscopies. It serves both for the instrumentation in techniques performed on the TFCC and ulna and for the visualization in many other arthroscopic techniques. It allows a panoramic view of the radius and proximal pole of the scaphoid (essential, for example, in fractures of the radius and scaphoid), the visualization of the DCSS, the visualization of the pisotriquetral joint, the visualization of the membranous portion of the lunotriquetral ligament, etc.

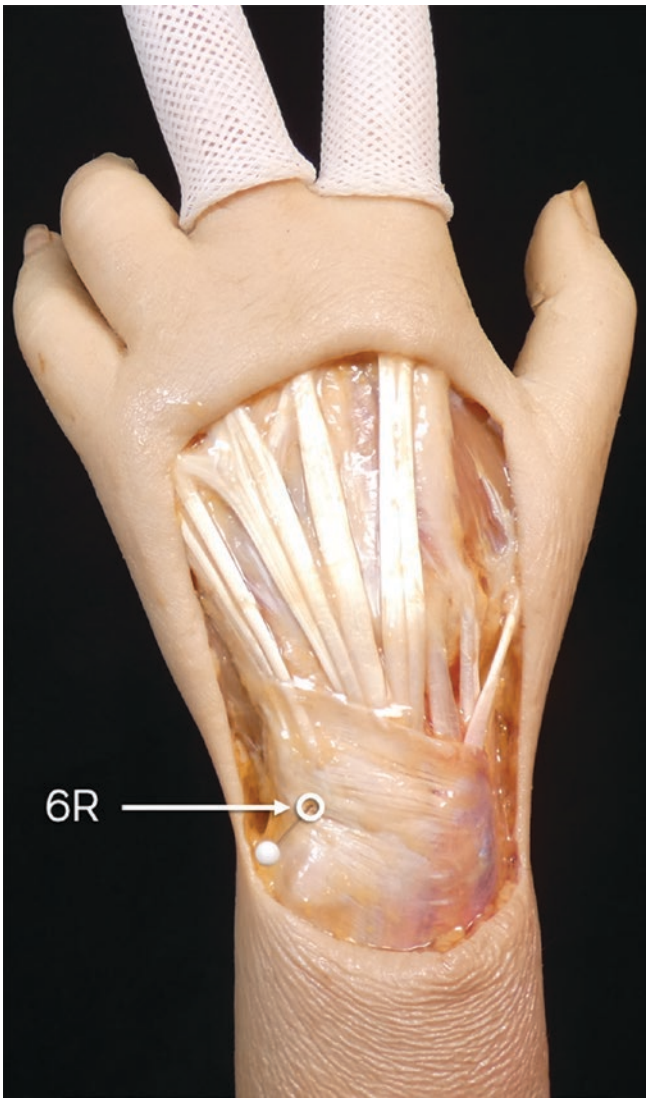

Fig. 1.9 Anatomical location of the 6R portal

1.1.4.1 Visualized Structures

At the Entry Point (Fig. 1.10):

Proximal: TFCC and radial sigmoid fossa.

Distal: Articular surface of the lunate and LT joint.

Volar: Ulnocarpal ligaments.

Moving the Vision Field to Radial:

Proximal: Articular surface of the radius: lunate fossa and if it moves more radially scaphoid fossa.

Distal: Proximal pole of the lunate, more radial, membranous portion of the scapholunate ligament and even more radial, proximal pole of the scaphoid.

Volar: Radioscapholunate ligament and more radial, long radiolunate ligament and radioscaphocapitate ligament.

Dorsal: Dorsal capsule, and if it moves over the back of the lunate, the DCSS is visualized.

Moving the Vision Field to Ulnar (Fig. 1.11):

Proximal: TFCC and pre-styloid recess.

Distal: membranous portion of the lunotriquetral ligament.

Volar: Following the ulnocarpal ligaments distally, the pisotriquetral joint can be visualized.

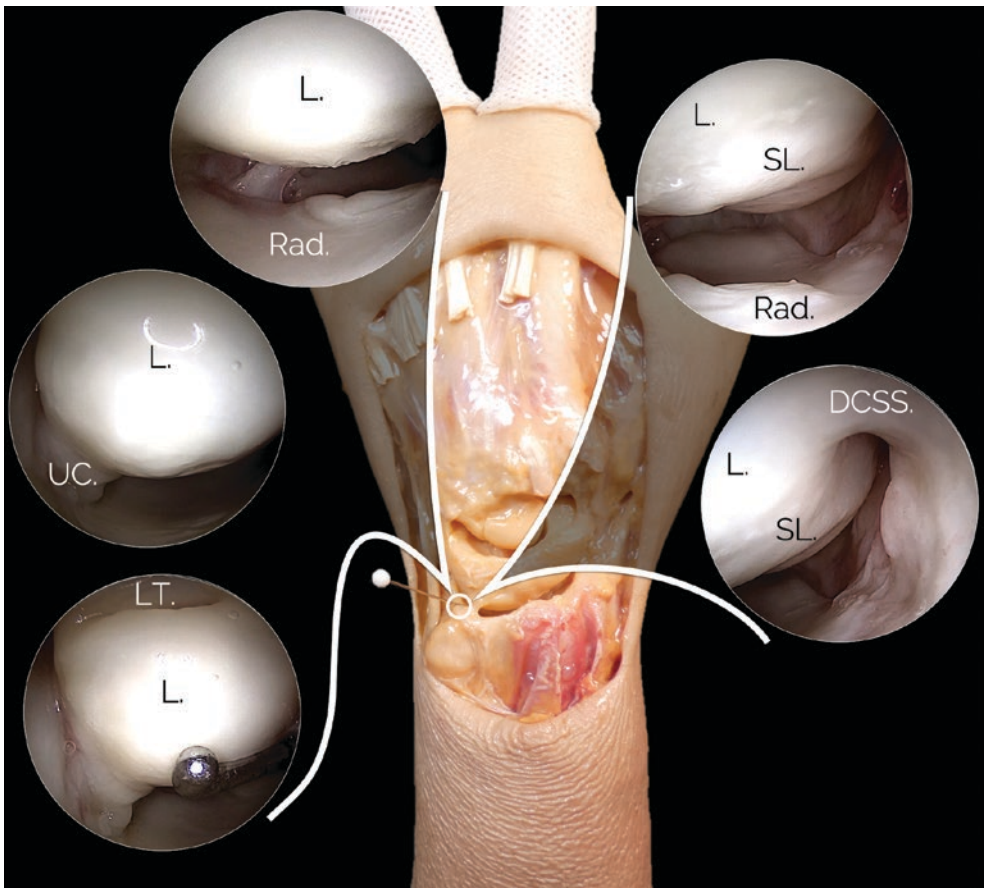

Fig. 1.10 Arthroscopic view of the radiocarpal joint through the 6R portal, at the entry point and after moving the vision field to the radial side. Dorsal capsuloligamentous scapholunate septum (DCSS)

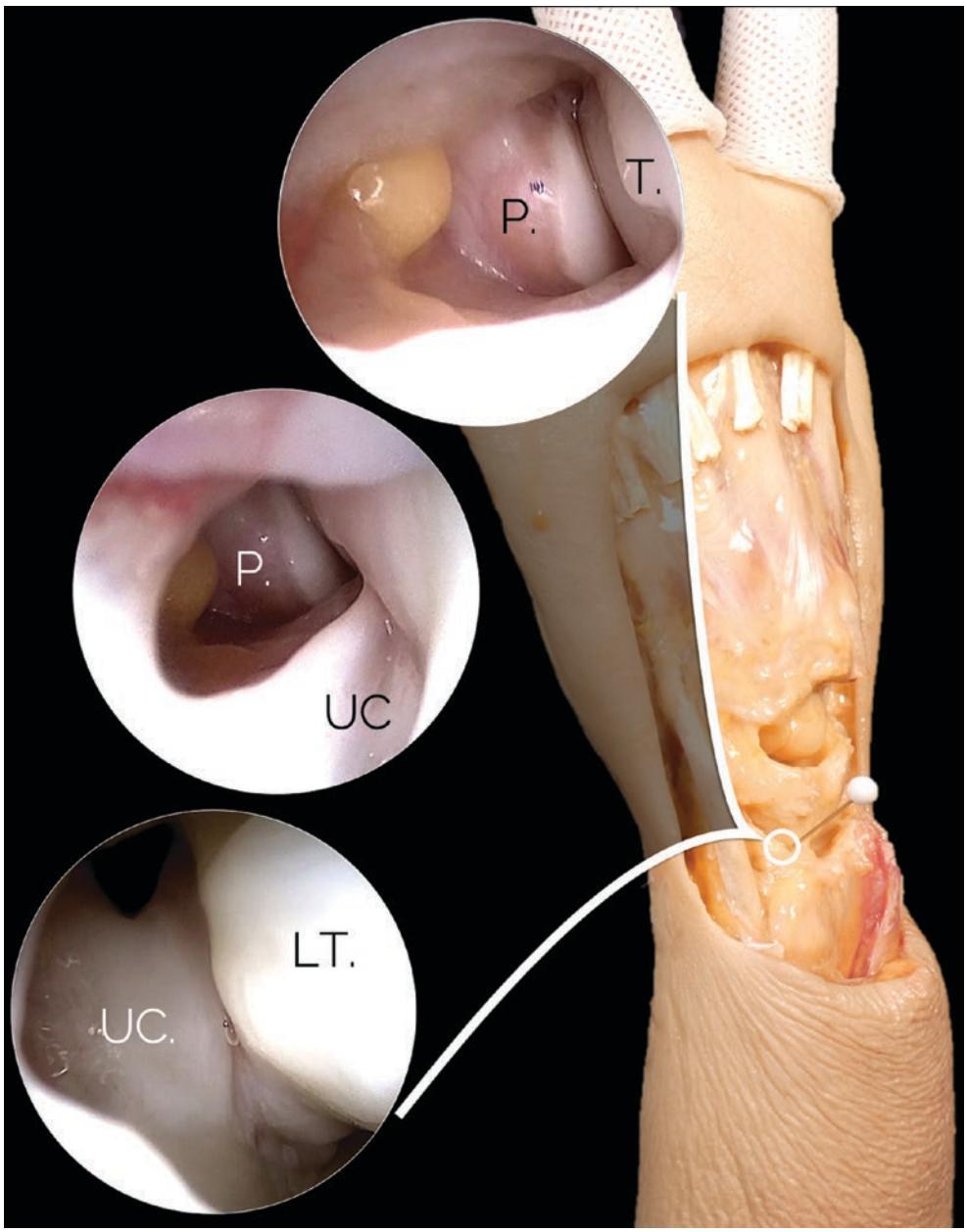

Fig. 1.11 Arthroscopic view of the pisotriquetral joint (PT.) through the 6R portal. Pisiform (P.)

1.1.5 6U Portal

It is located ulnar with respect to the ECU and on the TFCC (Fig. 1.12). Like the 6R portal, this portal must be performed under arthroscopic vision. The sensory branch of the ulnar nerve is very close to the portal, so precautions should be taken when performing it and when suturing the TFCC through or near this portal.

It is a portal that can be used as a working portal for the suture or reconstruction of the TFCC.

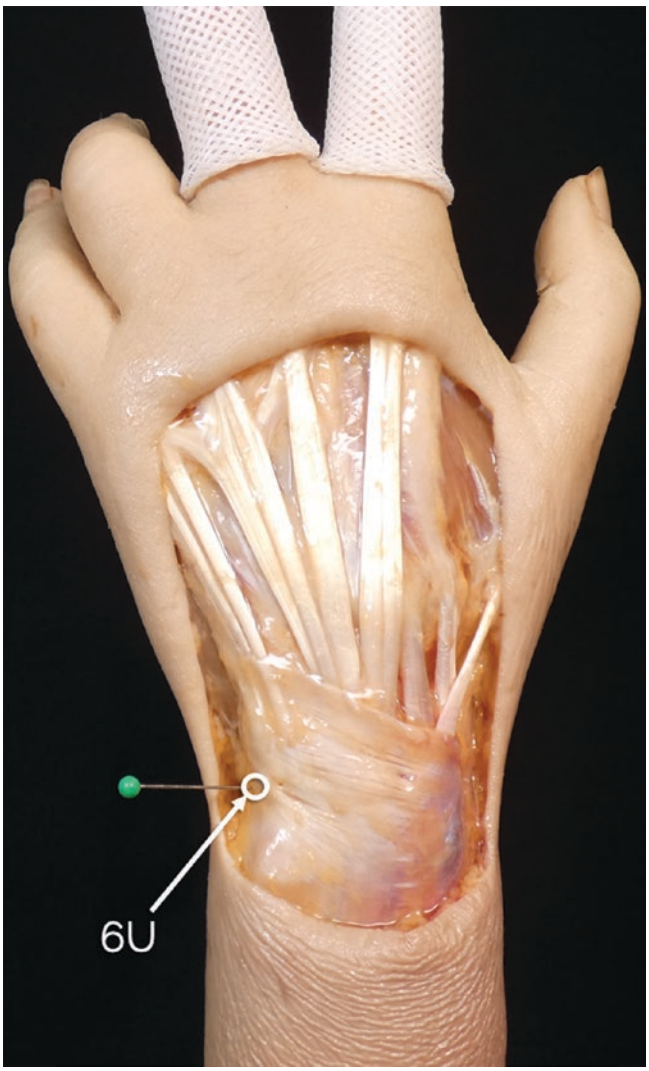

Fig. 1.12 Anatomical location of the 6U portal

1.1.5.1 Visualized Structures

The structures visible through this portal are:

At the Entry Point (Fig. 1.13):

Proximal: TFCC and insertion in the sigmoid fossa.

Distal: Proximal pole of the lunate and lunotriquetral ligament.

Volar: Ulnocarpal Ligaments.

Dorsal: Dorsal capsule (ECU floor), 6R portal.

Moving the Vision Field to Radial:

Proximal: Articular surface of the radius (lunate fossa) and if it moves more radial, scaphoid fossa.

Distal: Proximal pole of the lunate; more radial, membranous portion of the scapholunate ligament and even more radial, proximal pole of the scaphoid.

Volar: Radioscapholunate ligament and more radial, long radiolunate and radioscaphocapitate ligament.

Dorsal: Dorsal capsule, dorsal radiotriquetral ligament, and if it moves over the dorsal side of the lunate, the DCSS is visualized.

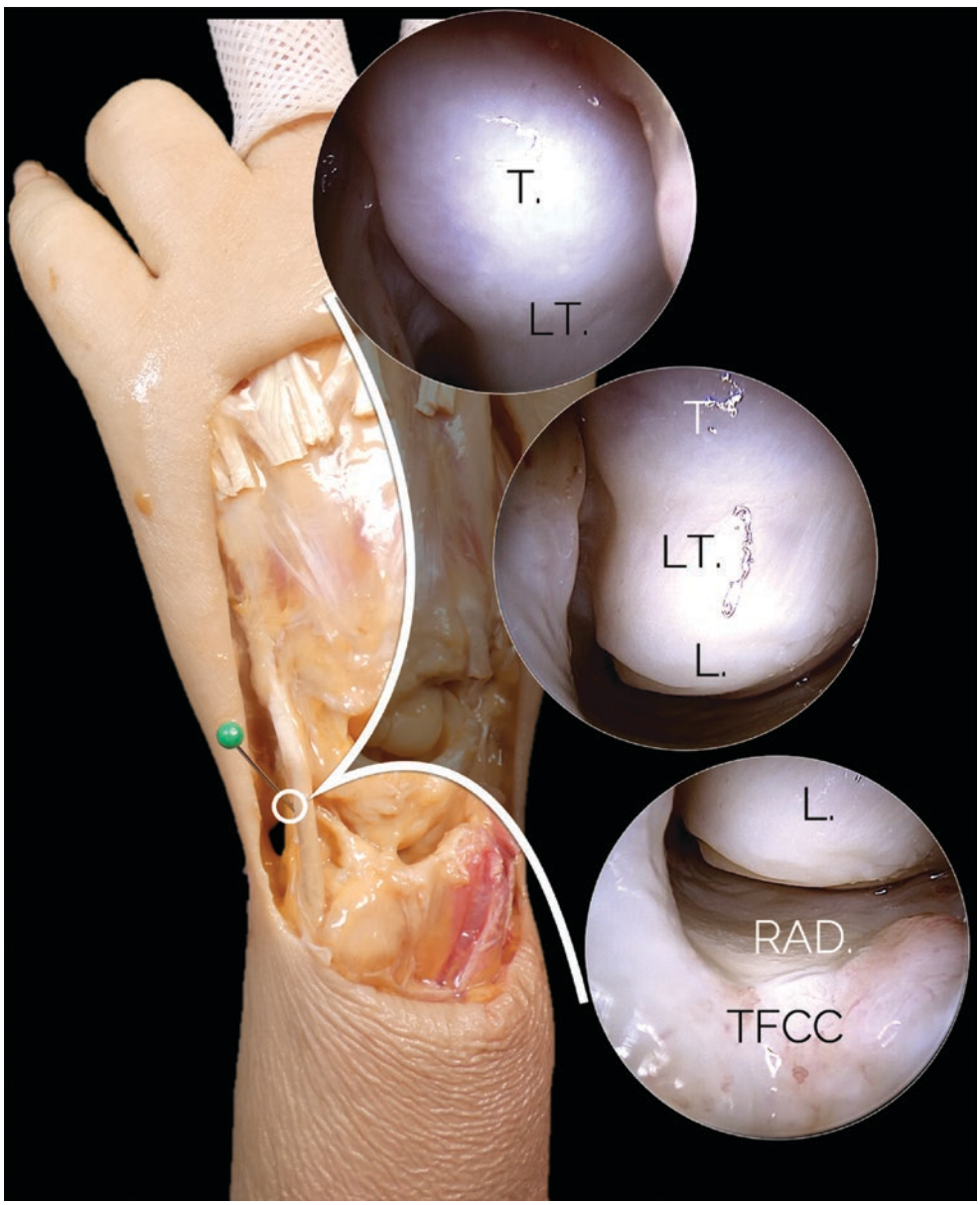

Fig. 1.13 Arthroscopic view of the radiocarpal joint through the 6U portal, at the entry point. Radius (RAD.)

1.2 Midcarpal Dorsal Portals

Exploration of the midcarpal joint should be included routinely on all wrist arthroscopy procedures. Inspection of this joint is essential for the diagnosis of many pathologies that cannot be fully assessed by exploring only the radiocarpal joint.

The two most used portals allowing a complete exploration of the midcarpal joint are the radial midcarpal portal (RMC) and the ulnar midcarpal portal (UMC). There are two other dorsal midcarpal portals that serve to assess and treat scapho-trapezio-trapezoid joint (STT) pathology; they are not used routinely but can be useful in certain situations.

1.2.1 Radial Midcarpal Portal (RMC)

It is located 1 cm distal to the 3/4 portal, in line with it and with the radial edge of the third metacarpal bone. The ECRB is radial to the portal, while the ED is ulnar to the portal. It is located just distal to the scapholunate ligament (Fig. 1.14). Since it is just above the scapholunate ligament, it is preferable to perform it under arthroscopic control after performing the UMC portal.

It is a fundamental portal for the exploration of both the midcarpal joint and the STT joint.

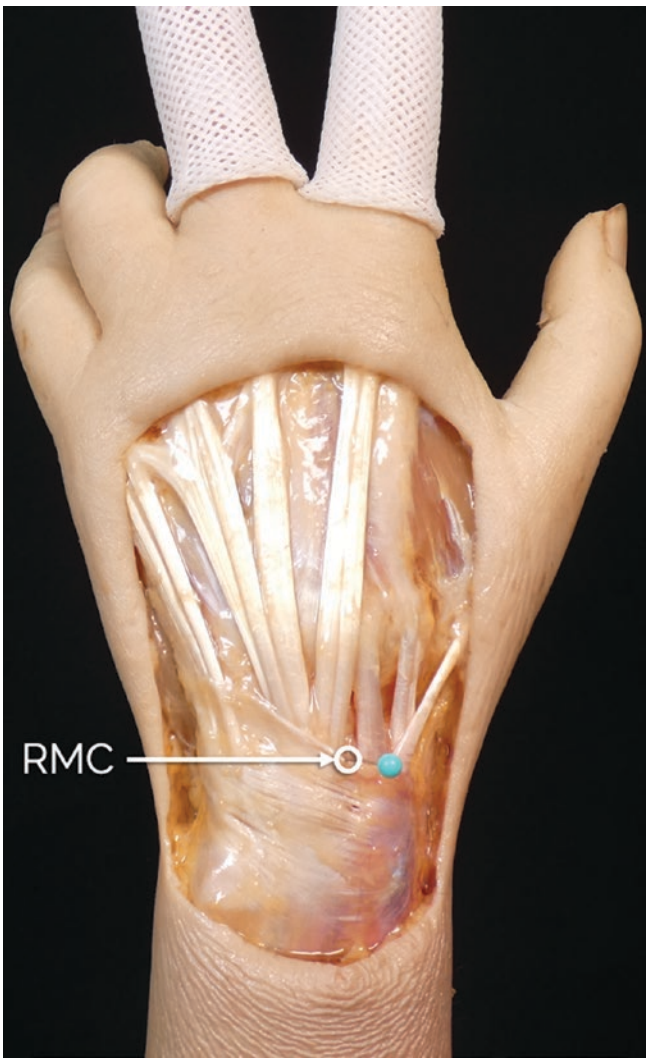

Fig. 1.14 Anatomical location of the Radial Midcarpal Portal (RMC)

1.2.1.1 Visualized Structures

The structures visible through this portal are:

At the Entry Point (Fig. 1.15):

Proximal: The concave surface of the scaphoid and the lunate. The space between them corresponds to the scapholunate joint.

Distal: Proximal surface of the capitate bone.

Volar: The anterior portion of the scaphoid, the anterior horn of the lunate and the radioscaphocapitate ligament (radial portion of the arcuate ligament) are observed.

Moving the Vision Field to Radial (STT Joint) (Fig. 1.16):

If the surface of the scaphoid is followed radially and distally, the STT joint is reached.

Proximal: Distal portion of the scaphoid.

Distal: Proximal surface of the trapezoid and trapezium.

Radial: Scapho-trapezio-trapezoid ligament.

Ulnar: Capitate bone and its joint with the trapezoid.

Moving the Vision Field to Ulnar (Fig. 1.15):

Proximal: Articular surface of the lunate and the triquetrum, as well as the lunotriquetral joint. Occasionally, a crest appears in the lunate that separates an articular fossa for the capitate bone and a smaller fossa for the hamate bone, a finding that Viegas classified in lunate type I (without a crest) and type II (with a crest) [1].

Distal: Proximal surface of the capitate and hamate bone.

Volar: Anterior horn of the lunate, anterior portion of the triquetrum and triquetrohamate ligament (which is part of the distal and ulnar portion of the arcuate ligament).

Dorsal: UMC portal, dorsal portion of the lunotriquetral ligament.

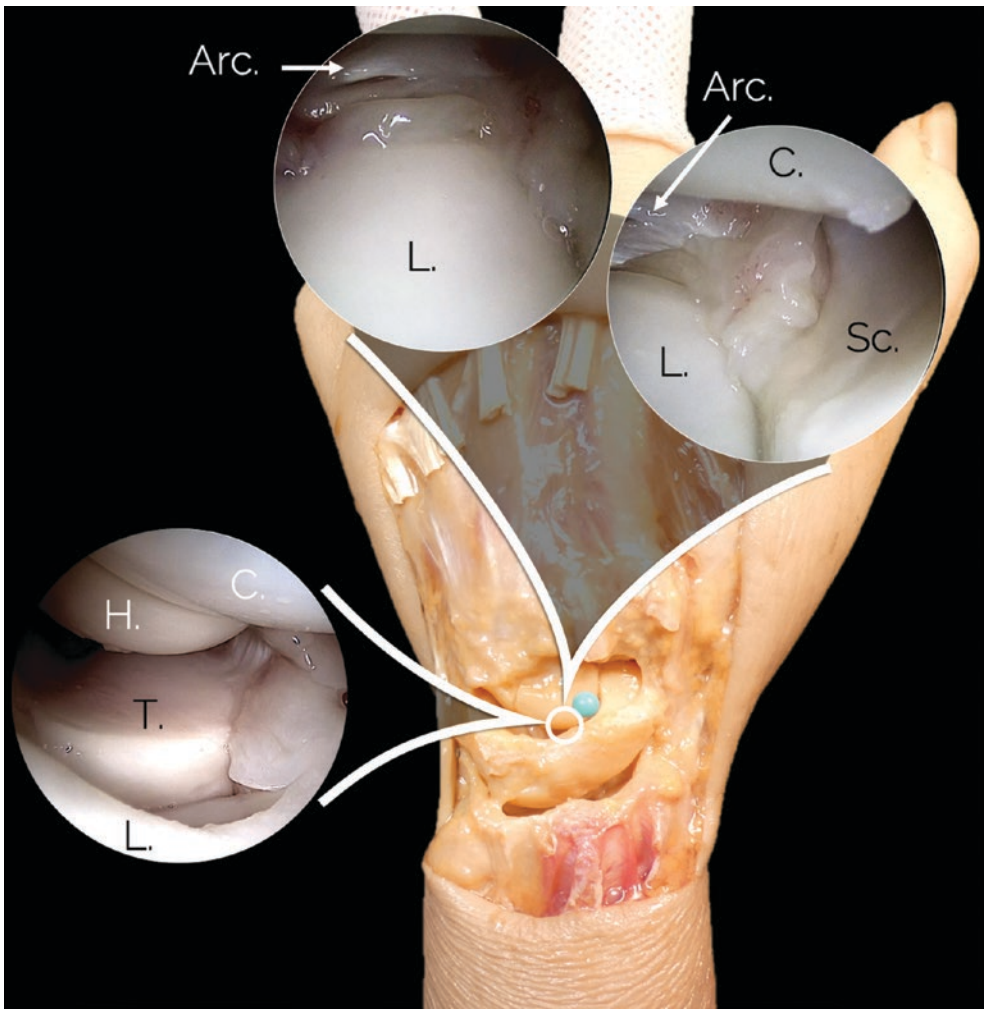

Fig. 1.15 Arthroscopic view of the midcarpal joint through the RMC portal. Images at the entry and after moving the vision field to the ulnar side. Capitate (C). Arcuate ligament (Arc). Hamte (H)

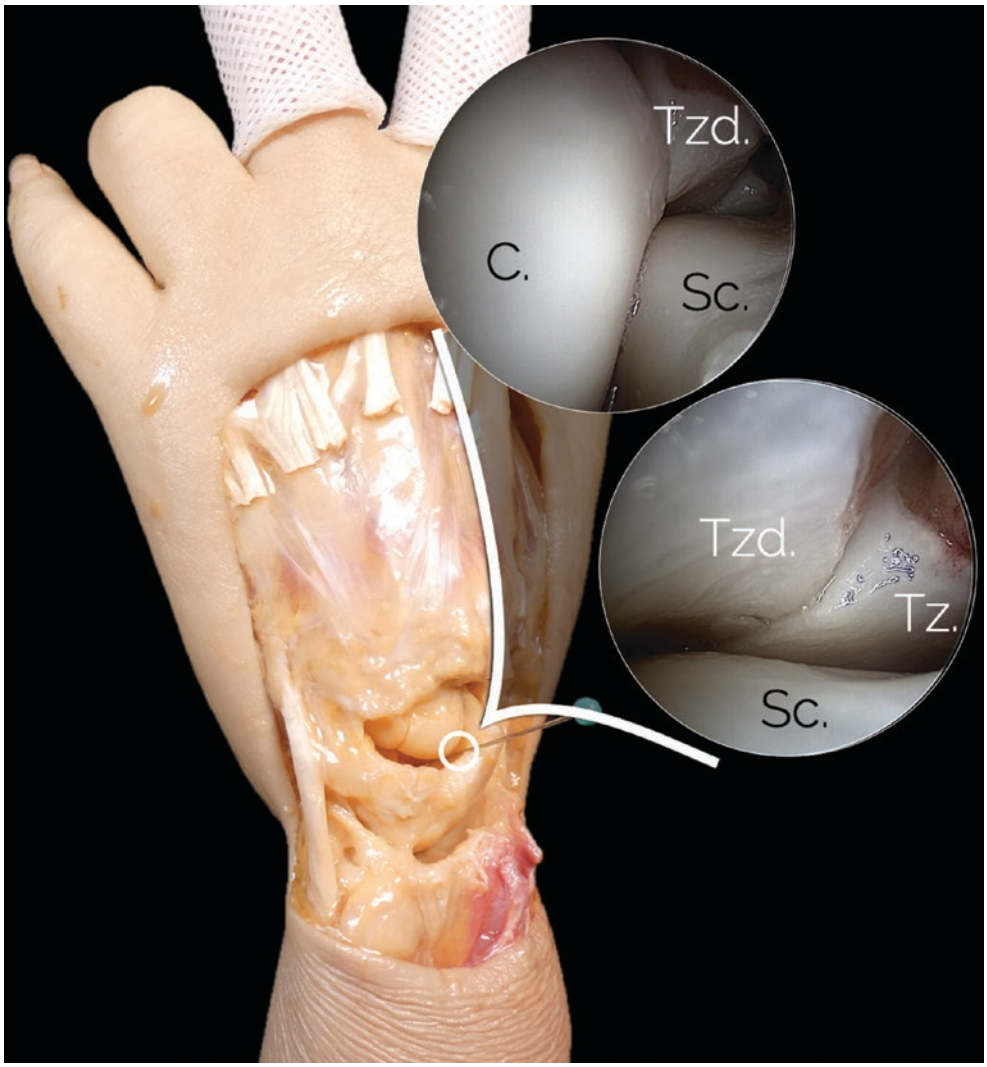

Fig. 1.16 Arthroscopic view of the midcarpal joint through the RMC portal, moving the vision field to the radial side. Trapezoid (Tzd.). Trapezium (Tz.)

1.2.2 Ulnar Midcarpal Portal (UMC)

It is located 1 cm distal to the 4/5 portal or 1 cm ulnar and 1 cm distal to the 6R. It is in line with the fourth metacarpal bone. It is radial to the ED and ulnar to the EDM (Fig. 1.17).

Unlike the RMC portal (which is located just distal to the scapholunate ligament), the UMC portal is not located above the lunotriquetral ligament but above the triquetrum bone. It constitutes a safer portal to penetrate the capsule, thus being used as a starting portal in the midcarpal joint.

Together with the RMC portal, it is essential for the exploration of the midcarpal joint.

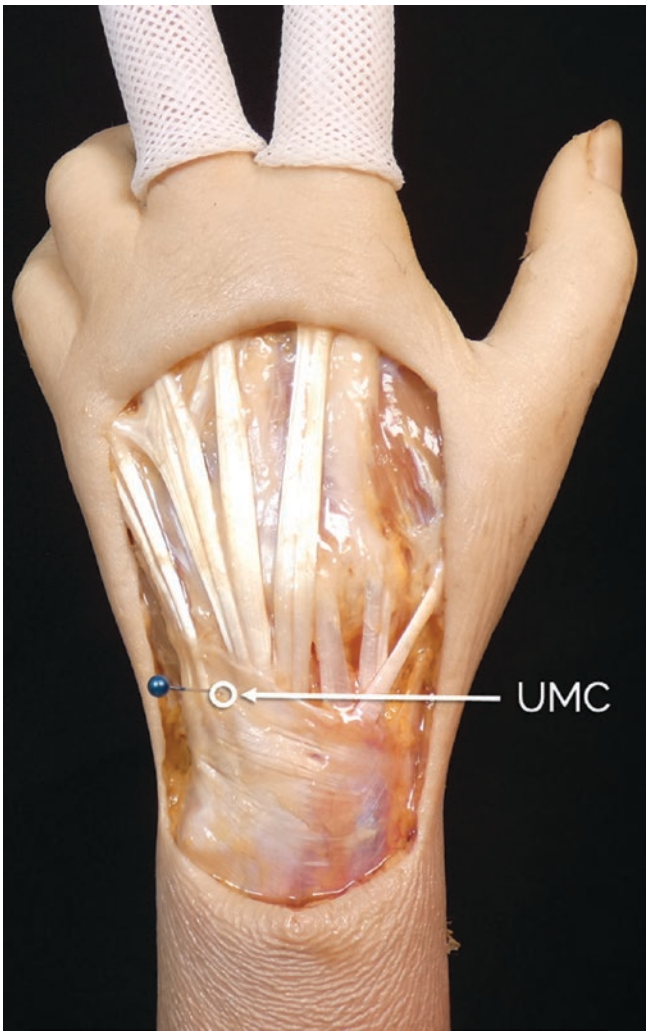

Fig. 1.17 Anatomical location of the Ulnar Midcarpal Portal (UMC)

1.2.2.1 Visualized Structures

The visible structures through this portal are:

At the Entry Point (Fig. 1.18):

Proximal: The surface of the triquetrum and the lunate, they are separated by a space that corresponds to the lunotriquetral joint.

Distal: Proximal surface of the capitate, hamate bone and its joint.

Volar: the anterior portion of the triquetrum, the anterior horn of the lunate and the triquetrohamate ligament (distal and ulnar portion of the arcuate ligament) are observed.

Moving the Vision Field to Radial:

Proximal: Articular surface of the lunate and scaphoid, as well as the scapholunate joint. It is from this position that scapholunate instability is explored.

Distal: Proximal surface of the capitate bone.

Volar: Radioscaphocapitate ligament and volar scapholunate joint.

Dorsal: RMC portal, dorsal portion of the scapholunate ligament.

Moving the Vision Field to Ulnar (Fig. 1.19):

If the triquetrum surface is followed with the arthroscope towards the ulnar and volar, once the most ulnar portion of the hamate is passed, the base of the hook of the hamate can be seen.

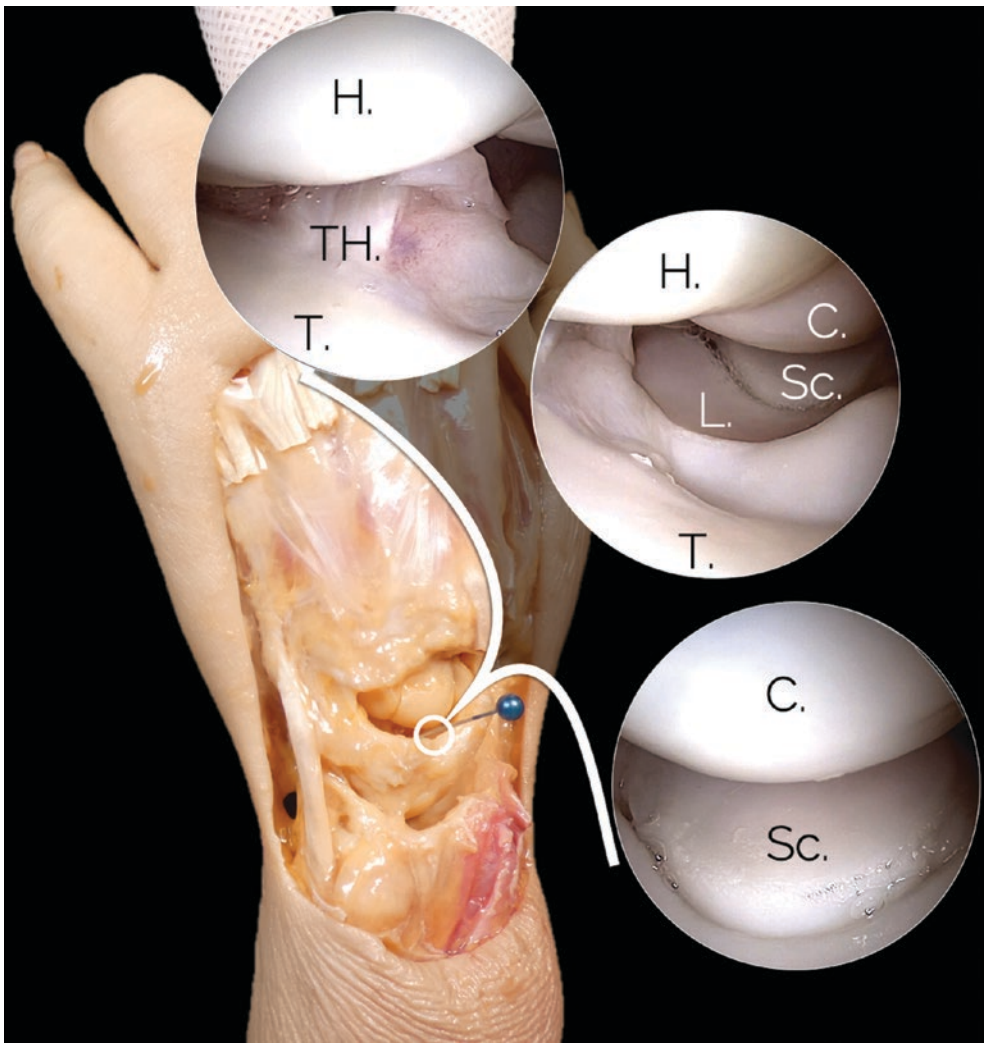

Fig. 1.18 Arthroscopic view of the midcarpal joint through the UMC portal. Images at the entry and after moving the vision field to the radial side. Triquetrohamate ligament (TH)

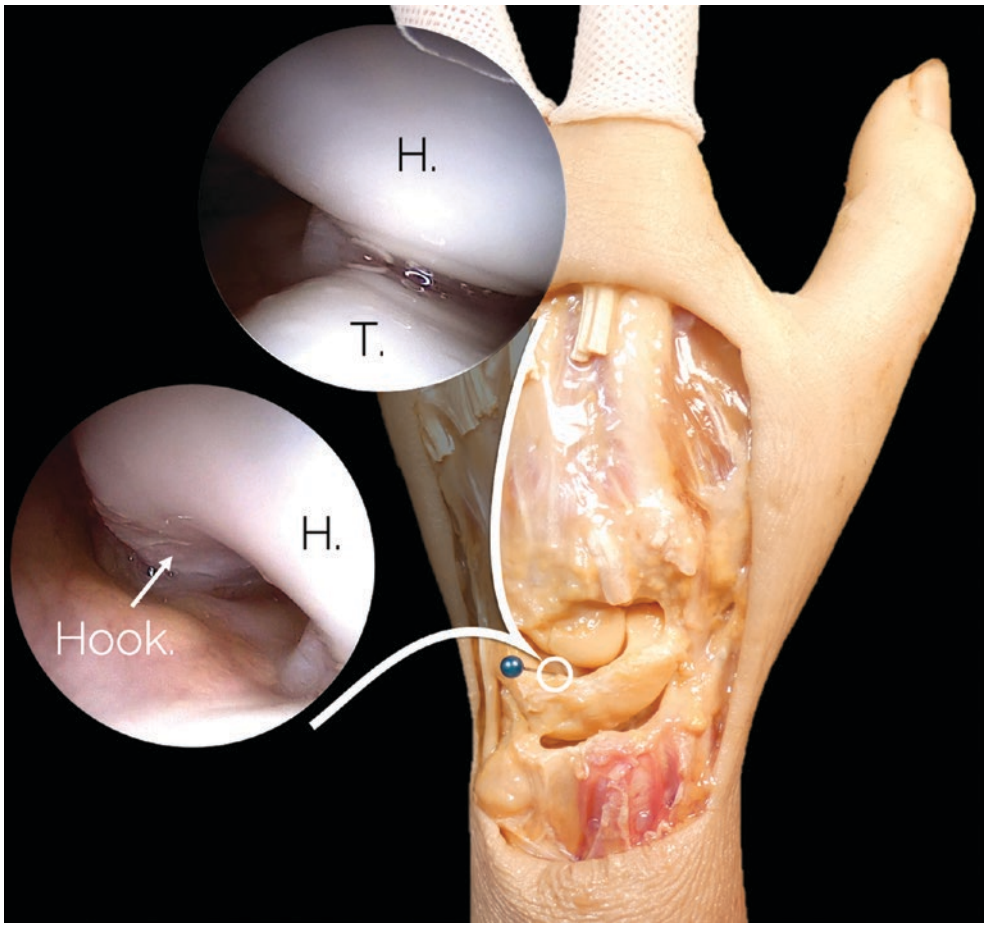

Fig. 1.19 Arthroscopic view of the midcarpal joint through the UMC portal, moving the vision field to the ulnar side. Hook of the hamate (Hook)

1.3 Volar Portals

Following the description of the dorsal portals in the wrist, several authors have proposed the performance of volar portals to improve dorsal visualization of the wrist [2–8]. The best known are those described by Slutsky as volar radial portal (VR) [5] and volar ulnar portal (VU) [6]. More recently, the volar central portal (VC) [8] has been published.

Unlike the dorsal portals, in which a direct portal is made through a 3 mm skin incision, these volar portals require a 1.5–2 cm mini-approach, which allows the structures at risk, to be protected by retractors.

Thanks to the possibility of carrying out the volar portals together with the dorsal portals, today, the wrist is considered a "box" (a concept popularized by Bain [9]), since there is the possibility of instrumenting or viewing it from any direction in 360° (Fig. 1.20).

Two considerations have to be taken into account referred to the anatomical studies analyzing the safety of volar portals.

The first is that the studies can be carried out in two ways. The first way to proceed is using an inside-out technique, that is, with the arthroscope inside the joint, a trocar is inserted through another dorsal portal. At the precise point of entry of the volar portal, pressure is applied until piercing through the volar capsule and the volar structures until the trocar is palpable, then a skin incision is made. Then, after anatomical dissection, the distance to the structures at risk is measured and their eventual injury assessed. The second way to proceed is to follow the procedure, as described by Slustky. The portal is first made through a longitudinal incision and once the portal is marked, the distance to the structures at risk is measured. It has to be taken into account that in patients, the actual distance to the structures is risk will always be greater, since retractors are placed through these longitudinal incisions. Therefore, although in anatomical studies the distances to structures at risk are very small or even tendon or neurovascular injuries are reported, in clinical practice those are exceptional if a careful approach is performed and the structures are separated with the retractors using an outside-in technique.

The descriptions of the three portals are as follows:

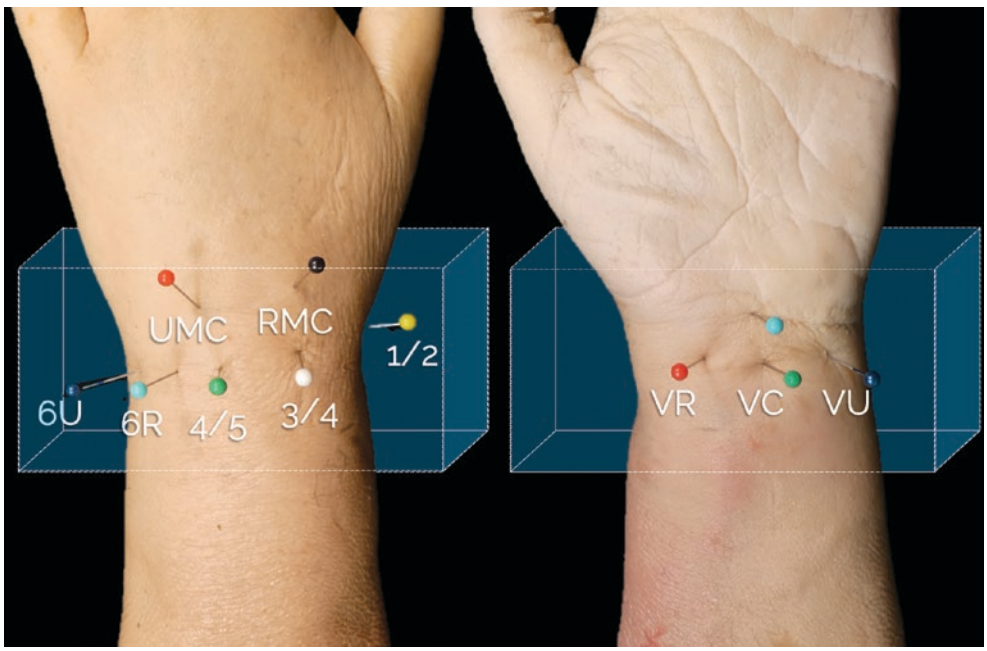

Fig. 1.20 "Box concept" popularized by Bain [9]. There is the possibility of instrumenting or viewing the wrist from any direction in 360°.Volar portals of the wrist. Volar Ulnar (VU) portal. Volar Central (VC) portal. Volar Radial (VR) portal

1.3.1 Volar Radial (VR) Portal

There are two methods for creating this portal.

The first, described in cadavers by Tham [4], it is performed using the inside-out technique. The optic is placed in an ulnar portal (4/5 or 6R), a blunt trocar is placed through portal 3–4 and is inserted between the radioscaphocapitate ligament and the long radiolunate ligament, the flexor carpi radialis (FCR) tendon is retracted through a small incision made in the skin. Subsequently, a cannula is placed over the trocar, and the arthroscope is inserted from volar.

The second, most widespread method is the one popularized by Slustsky [5, 6]. An incision of about 1.5–2 cm is made in the distal palmar crease of the wrist. The FCR is then retracted to the ulnar side, and the volar capsule is exposed. This portal is made in the plane between the FCR and the radial artery (Fig. 1.21).

The portal is performed between the long radiolunate ligament and the Radioscaphocapitate ligament (Fig. 1.22).

Fig. 1.21 Anatomical location of the Volar Radial Portal

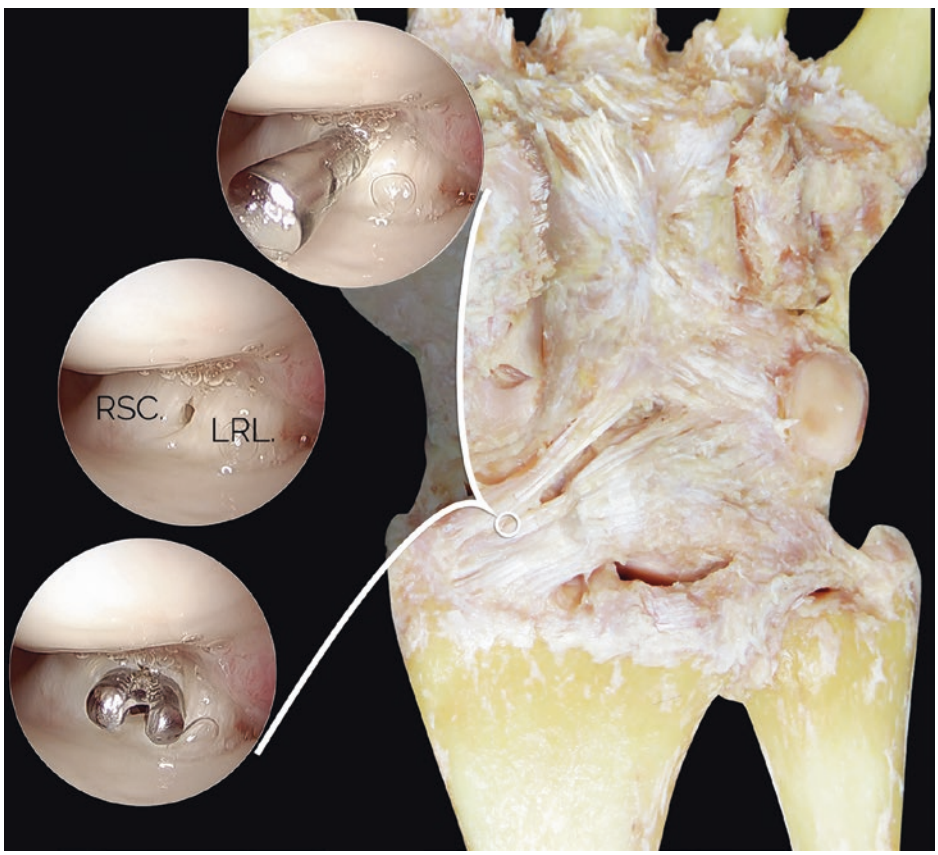

Fig. 1.22 Anatomical location of the Volar Radial Portal and arthroscopic view of the entry point of the VR portal, from the 3–4 portal

1.3.1.1 Visualized Structures (Fig. 1.23)

Proximal: Scaphoid and lunate fossa and dorsal edge of the radius.

Distal: Proximal and volar portions of the scaphoid and lunate bones, and volar and membranous portion of the scapholunate ligament.

Radial: Styloid process of the radius.

Dorsal: 3/4 portal and the insertion of the dorsal radiotriquetral ligament.

Ulnar: moving the arthroscope towards the ulnar side, the entire surface of the radius and even the TFCC are visible.

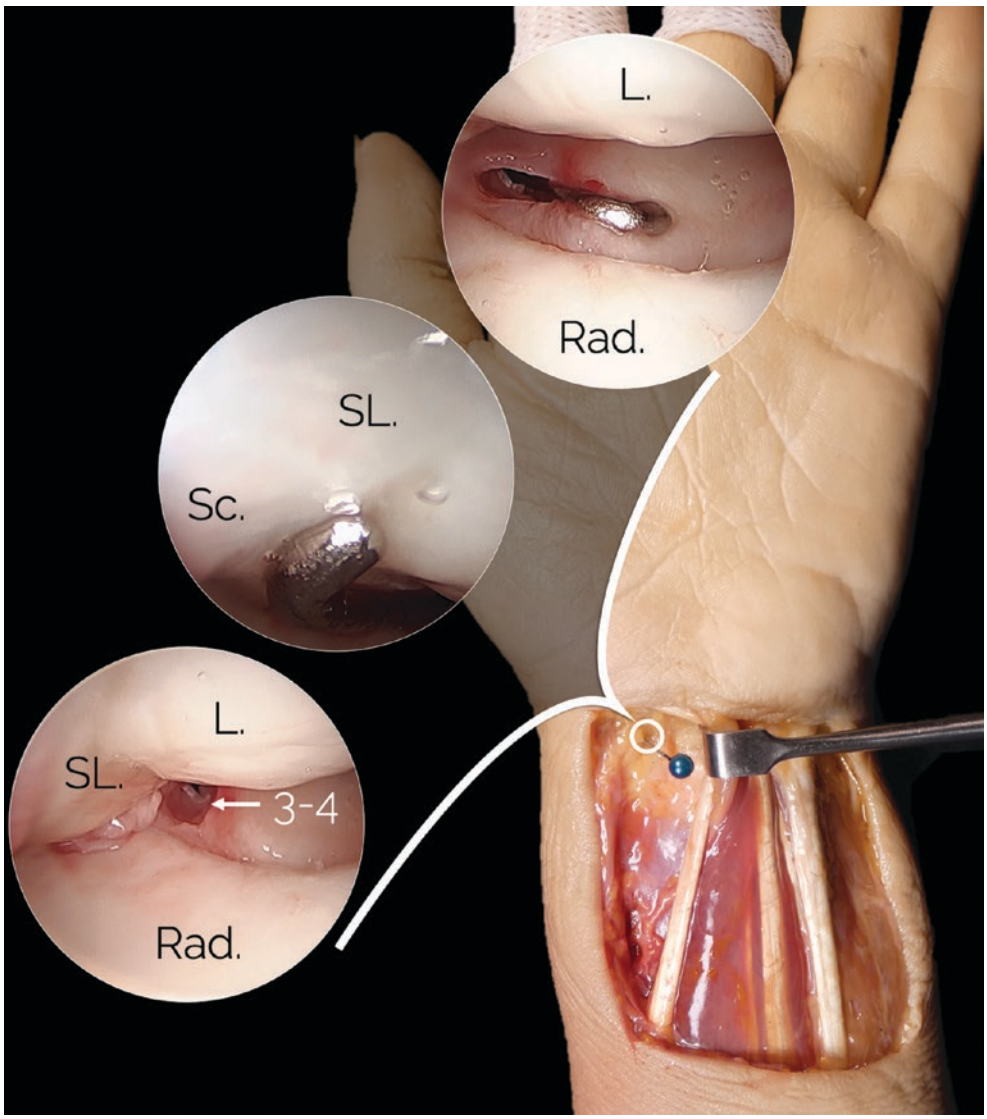

Fig. 1.23 Arthroscopic view of the radiocarpal joint through the VR portal

1.3.2 Volar Ulnar (VU) Portal

An incision of 1.5–2 cm is made at the ulnar side of the flexor digitorum tendons, at the level of the proximal wrist crease. The flexor digitorum superficialis (FDS) and profundus (FDP) tendons are retracted radially. The portal is made in the plane between the ulnar neurovascular bundle and the flexor tendons (Fig. 1.24). Anatomically, the portal passes through the ulnocarpal ligaments adjacent to the radial insertion of the TFCC (Fig. 1.25).

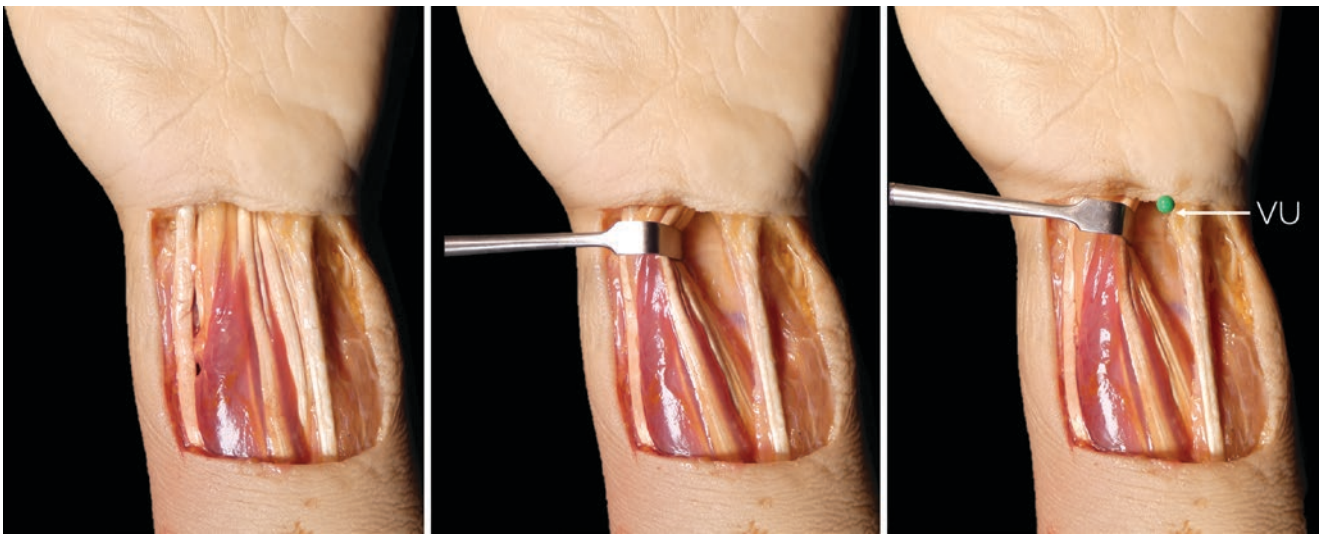

Fig. 1.24 Anatomical location of the Volar Ulnar Portal

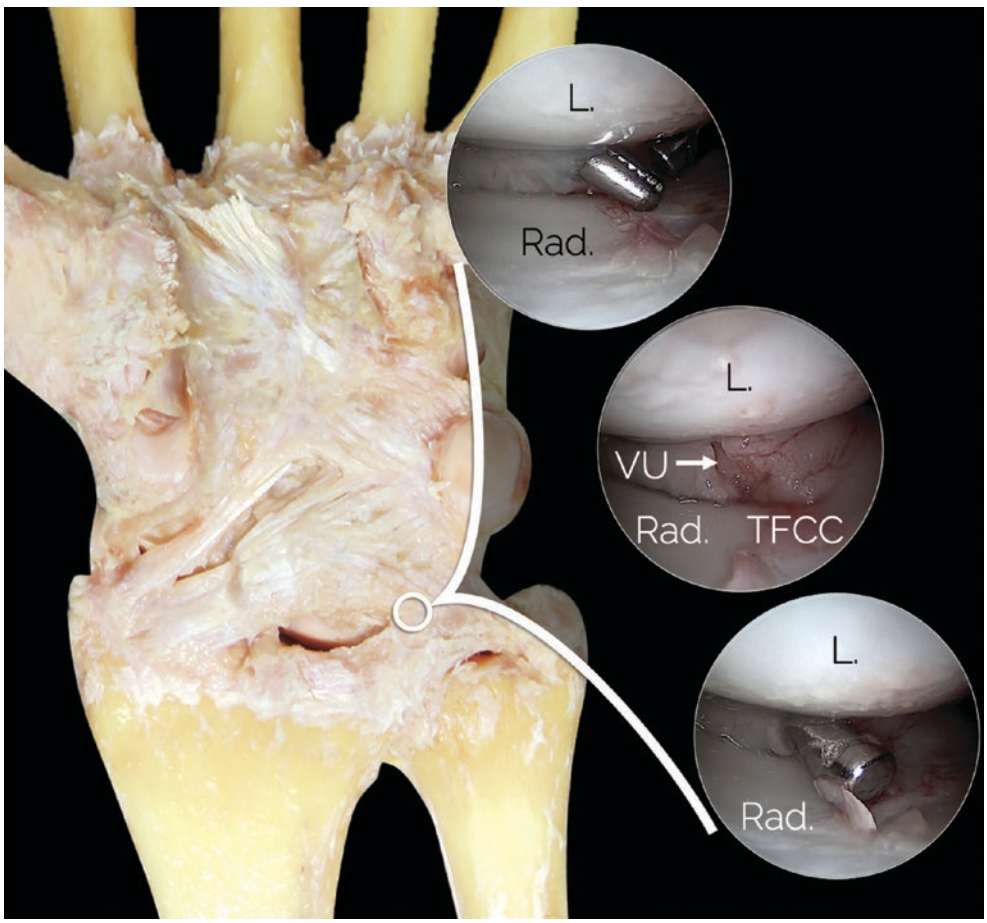

Fig. 1.25 Anatomical location of the Volar Ulnar Portal and arthroscopic view of the entry point of the VU portal, from the 3–4 portal

1.3.2.1 Visualized Structures (Fig. 1.26)

Proximal: Sigmoid fossa of the radius and TFCC.

Distal: Proximal and palmar region of the lunate and triquetrum and volar and membranous portions of the lunotriquetral ligament.

Dorsal: 6R portal, dorsoulnar capsule and ECU floor.

Radial: By moving the arthroscope radially, the entire surface of the radius can be observed, and there is even possible an oblique vision of the radial styloid.

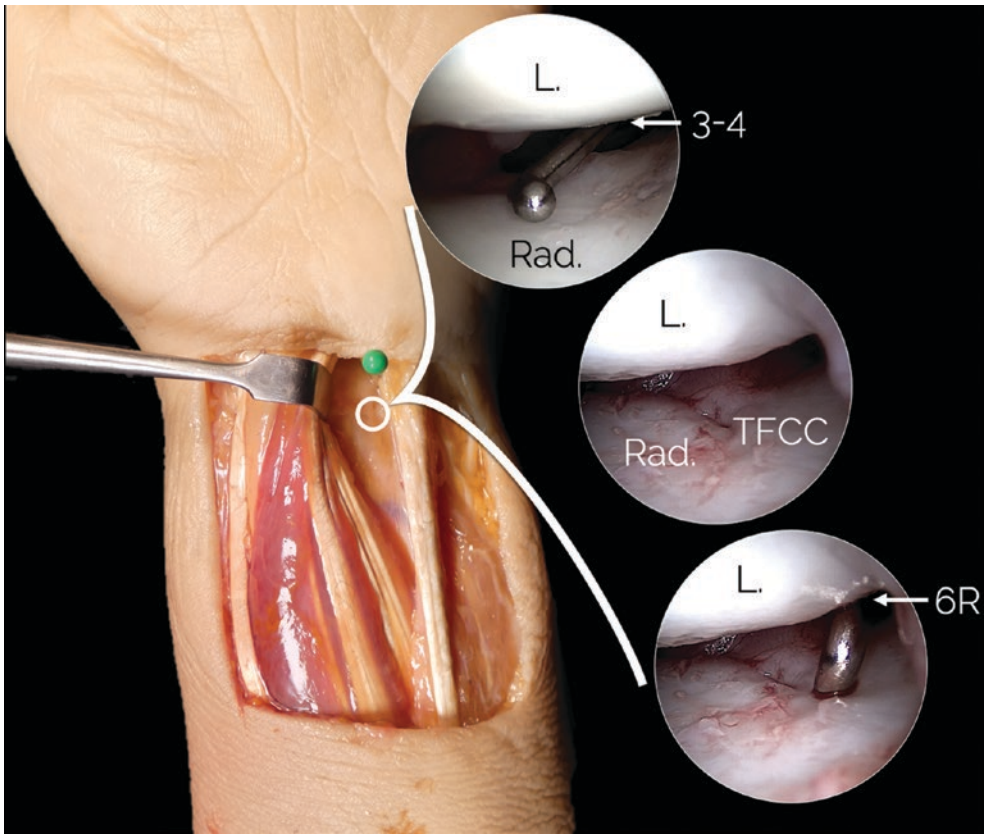

Fig. 1.26 Arthroscopic view of the radiocarpal joint through the VU portal

1.3.3 Volar Central Portal

With the arthroscope placed in the 3/4 or 6R portal, a longitudinal incision is made in the axis of the third intermetacarpal space, the distal end of which being the distal palmar wrist crease.

The FDS tendon of the fifth finger is located by blunt dissection; pulling on it shows how the fifth finger is flexed. Once identified, the entire mass of the FDS is retracted to the radial side. In the following plane lie the FDP tendons. The interval between the third and fourth FDP tendons is identified (also pulling on them and observing the flexion of the fingers). The fourth and fifth FDP tendons are retracted towards the ulnar side and the third and second FDP tendons towards the radial side, thus exposing the volar capsule (Fig. 1.27).

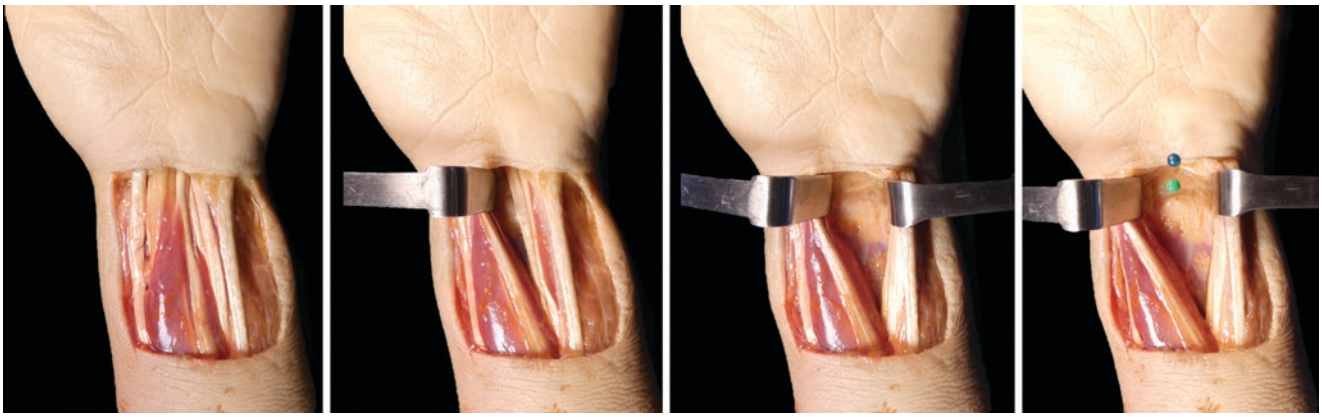

Fig. 1.27 Anatomical location of the Volar Central Portal

1.3.3.1 Establishment of the Volar Central Radiocarpal Portal

With the arthroscope in the 6R portal, a 22G needle is inserted through the volar capsule, just proximal to the lunate and in the interval between the short radiolunate ligament and the ulnocarpal ligaments. The capsule is then opened with the tip of a number 11 scalpel, and the portal is widened. From this moment on, either the instruments or the arthroscope can be inserted into the joint. To introduce the arthroscope, a 2.4 mm Kirschner wire is inserted to be used as a Wissinger guide rod; thus the arthroscope sheath is inserted through it (Fig. 1.28).

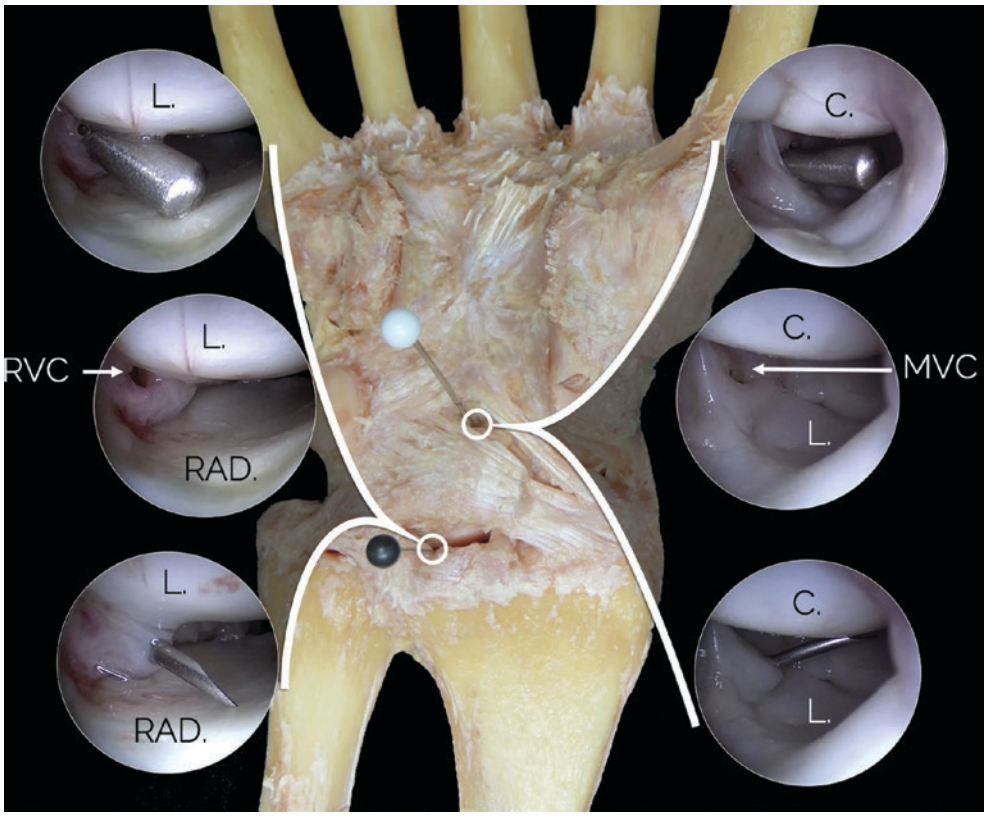

Fig. 1.28 Anatomical location of the Radiocarpal Volar Central (RVC) and Midcarpal Volar Central (MVC) Portals. Arthroscopic view of the entry point of the RVC portal, from the 6R portal and arthroscopic view of the entry point of the MVC portal, from the UMC portal

1.3.3.2 Visualized Structures in the Radiocarpal Joint

By moving the arthroscope towards the radial and ulnar side, a complete view of the entire radiocarpal and ulnocarpal joint can be obtained (Fig. 1.29).

At the Entry Point:

Proximal: The surface of the radius is observed, with the separation of the scaphoid fossa and the lunate.

Distal: Proximal surface of the lunate.

Dorsal: If a dorsal synovectomy is performed, the dorsal radiotriquetral ligament is visualized.

Moving the Vision Field to Radial:

Proximal: Scaphoid fossa of the radius and radial styloid.

Distal: Proximal pole of the scaphoid.

Dorsal: 3/4 portal, dorsal capsule.

Moving the Vision Field to Ulnar:

Proximal: Lunate fossa and TFCC.

Distal: Proximal pole of the lunate.

Dorsal: 6R portal, dorsal capsule.

1.3.3.3 Establishment of the Volar Central Midcarpal Portal

With the scope located in the UMC portal, a 22G needle is inserted into the capsule, just above the anterior horn of the lunate, at the level of Poirier's space. Next, the portal is made with an 11 scalpel and widened. Again, a Kirschner wire is used as a Wissinger rod, and the arthroscopy sheath is inserted following it (Fig. 1.28).

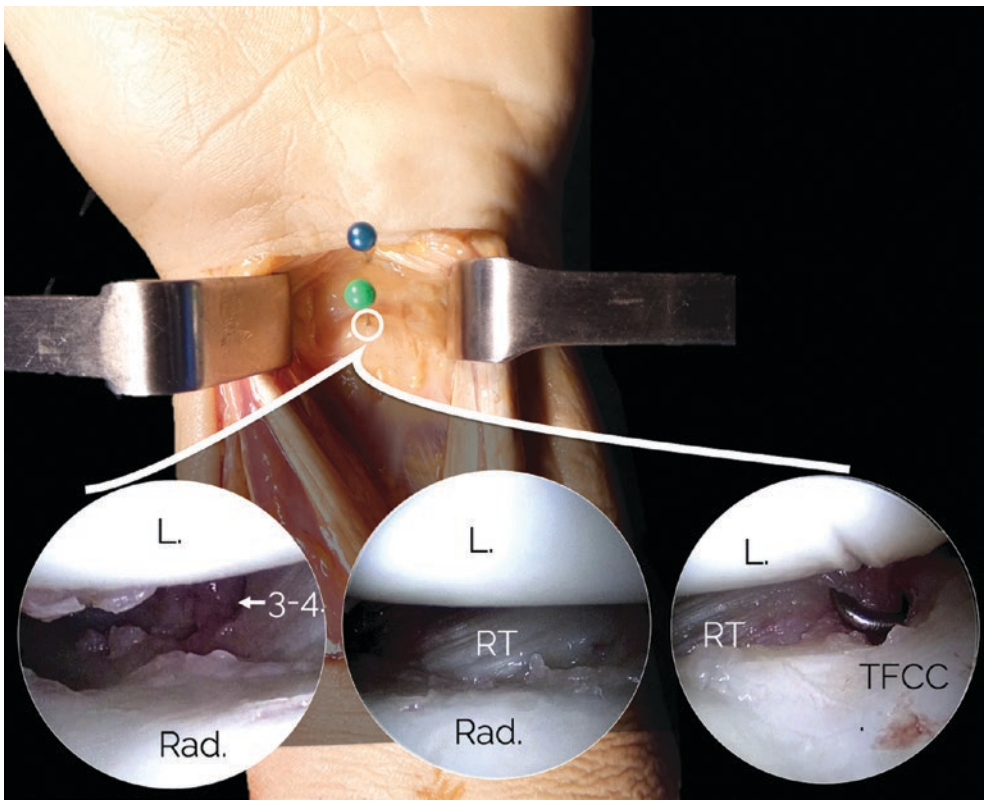

Fig. 1.29 Arthroscopic view of the radiocarpal joint through the RVC portal. Radiotriquetral ligament (RT)

1.3.3.4 Visualized Structures in the Midcarpal Joint

From this central position, moving the arthroscope towards radial and ulnar, the entire midcarpal joint can be visualized completely (Fig. 1.30).

At the Entry Point:

Proximal: The surface of the lunate is observed.

Distal: Proximal surface of the capitate bone.

Dorsal: Dorsal horn of the lunate and dorsal capsule. If a dorsal capsule synovectomy is performed, the dorsal intercarpal ligament can be seen.

Moving the Vision Field to Radial:

Proximal: Scapholunate joint, scaphoid.

Distal: Proximal surface of the capitate bone. If it is displaced to the volar portion of the capitate, the insertion of the radioscaphocapitate ligament is seen.

Dorsal: RMC portal, dorsal capsule. If a synovectomy is performed, the dorsal intercarpal ligament can be observed.

Moving the Vision Field to the Ulnar Side:

Proximal: Lunotriquetral joint, triquetrum.

Distal: Proximal surface of the capitate and hamate bones.

Dorsal: MCU portal, dorsal capsule. If a synovectomy is performed, the dorsal intercarpal ligament can be observed.

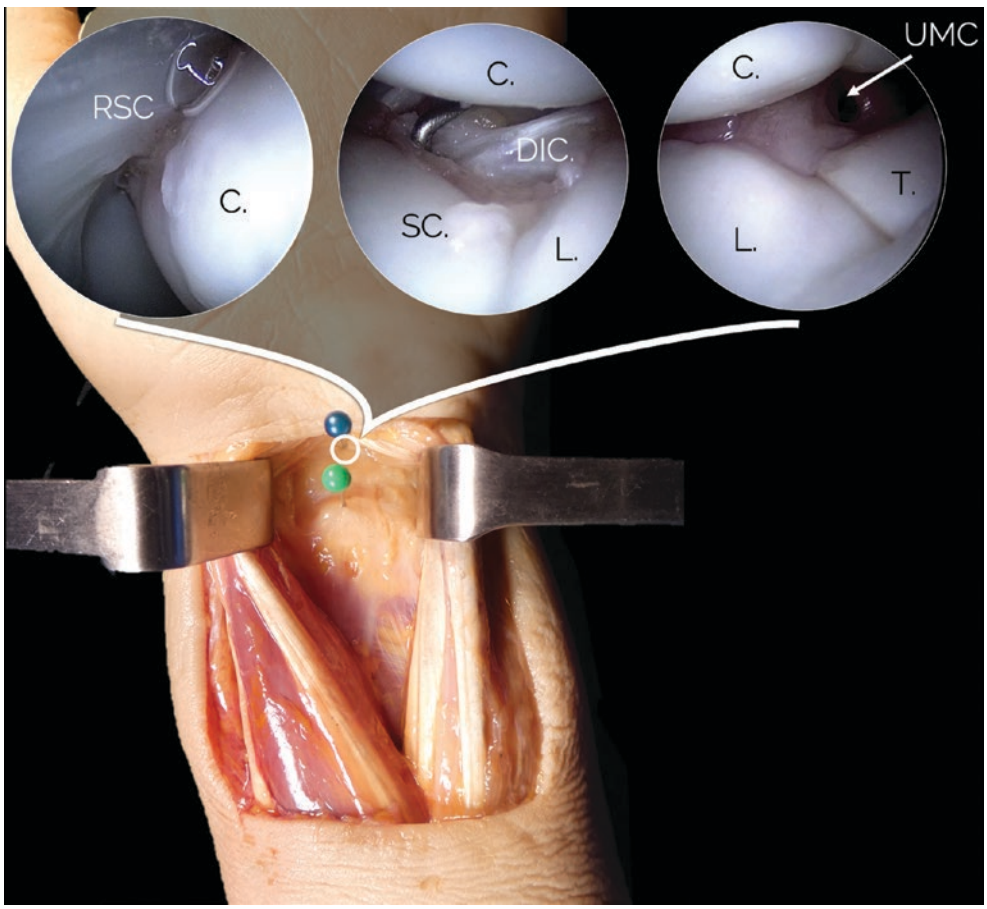

Fig. 1.30 Arthroscopic view of the radiocarpal joint through the RVC portal. Dorsal Intercarpal ligament (DIC)

References

1. Viegas SF, Wagner K, Patterson R, Peterson P. Medial (hamate) facet of the lunate. J Hand Surg Am. 1990;15(4):564–71.
2. Jantea C, McCarthy D, Herndon J, Horikoshi M. Palmar approaches/portals for arthroscopy of the wrist. Arthoskopie. 1932;7:225–31.
3. Levy HJ, Glickel SZ. Arthroscopic assisted internal fixation of volar intraarticular wrist fractures. Arthroscopy. 1993;9(1):122–4.
4. Tham S, Coleman S, Gilpin D. An anterior portal for wrist arthroscopy. Anatomical study and case reports. J Hand Surg Br. 1999;24(4):445–7.
5. Slutsky DJ. Wrist arthroscopy through a volar radial portal. Arthroscopy. 2002;18(6):624–30.
6. Slutsky DJ. The use of a volar ulnar portal in wrist arthroscopy. Arthrosc J Arthrosc Relat Surg. 2004;20(2):158–63.
7. Abe Y, Doi K, Hattori Y, Ikeda K, Dhawan V. A benefit of the volar approach for wrist arthroscopy. Arthrosc J Arthrosc Relat Surg. 2003;19(4):440–5.
8. Corella F, Ocampos M, Del Cerro M, et al. Volar central portal in wrist arthroscopy. J Wrist Surg. 2016;5:80–90.
9. Bain G, Munt J, Turner P. New advances in wrist arthroscopy. Arthrosc J Arthrosc Relat Surg. 2008;24(3):355–67.