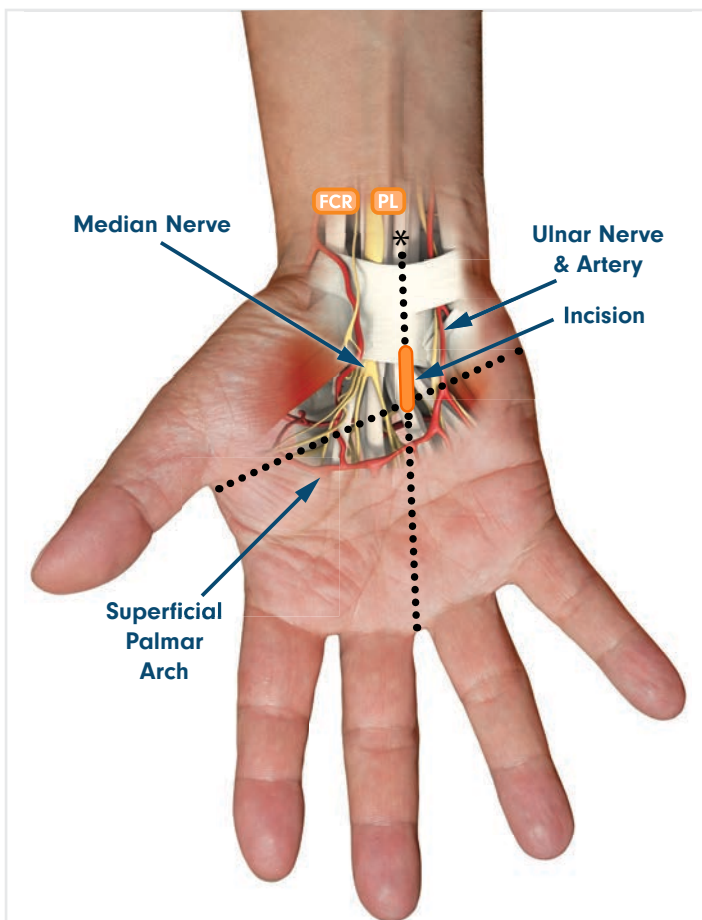
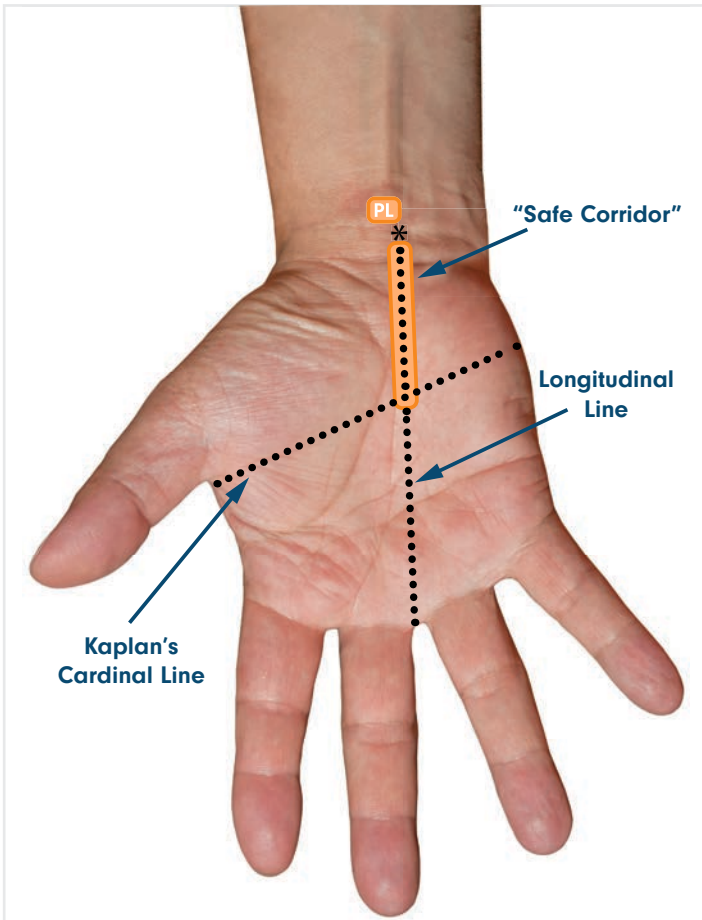


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**CARPAL TUNNEL RELEASE  
SURGICAL TECHNIQUE**

VERSION 2.2

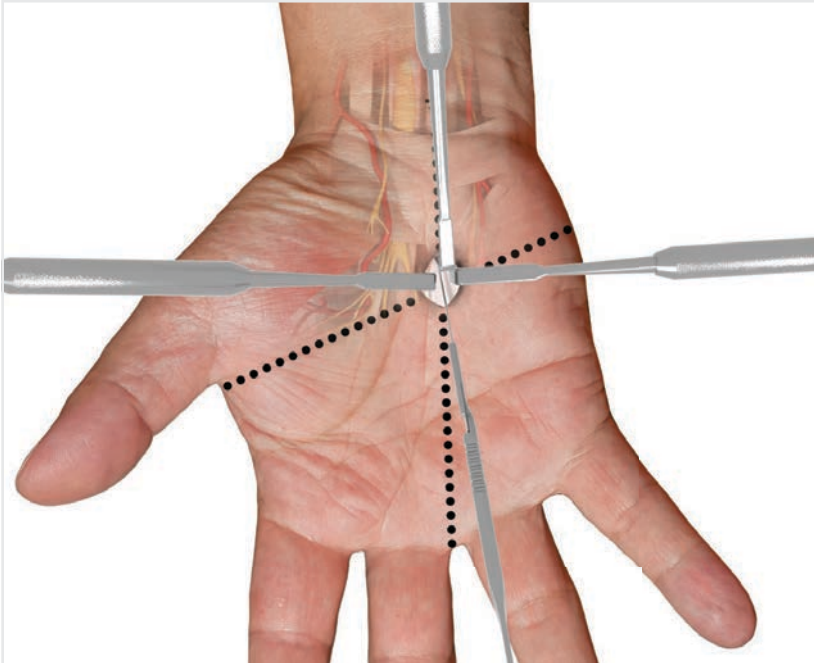


## PREPARATION

- P1. Some sedation can be used per surgeon and patient preference.
- P2. The procedure can be performed using local anesthetic only.
- P3. A mixture of 5 cc of 2% lidocaine & 5 cc of 0.25% marcaine is injected in the region of the Palm along the axis of the ring finger superficial and deep to the transverse carpal ligament.
- P4. Location of the "safe corridor" and entry point is identified by drawing Kaplan's Cardinal Line from the apex of the interdigital fold between the thumb and index finger parallel with the middle crease of the hand.
- P5. A second longitudinal line is drawn from the radial border of the ring finger, proximal to the wrist crease, and just ulnar to the Palmaris Longus.
- P6. The intersection of these lines identifies the distal end of the incision.
- P7. The 1.0cm to 1.5cm incision is marked along the safe corridor.

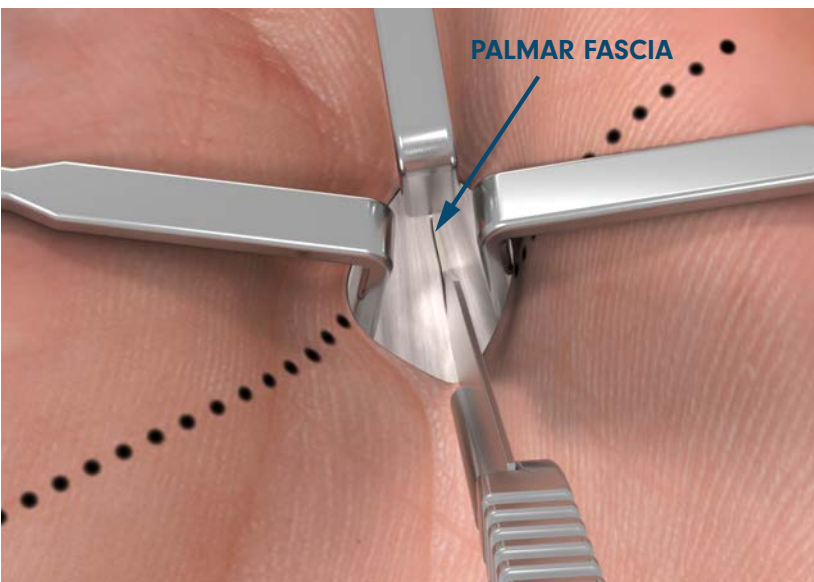
### TIP:

**Slightly longer incisions are recommended until the surgeon becomes more familiar with the technique.**



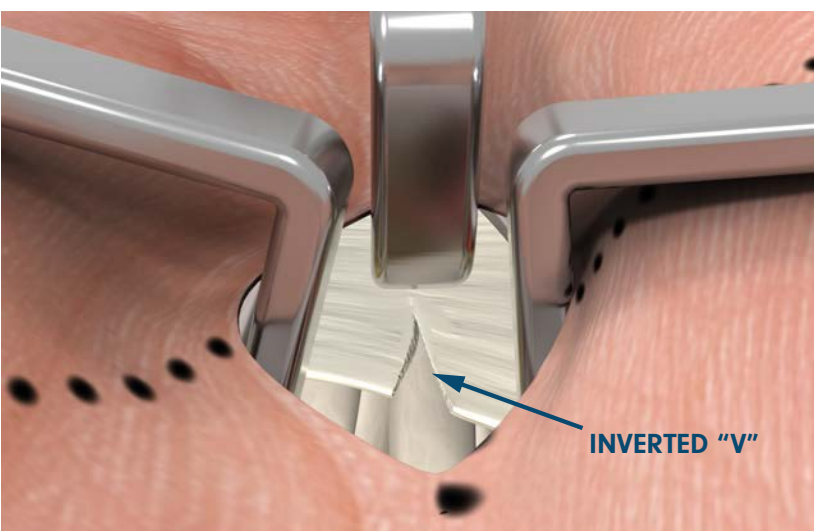
## DISSECTION

- D1.** After tourniquet exsanguination, a #15 blade is used to make the skin incision, which is deepened to the palmar fascia.
- D2.** Place Senn retractors at the “3 and 9 o’clock” positions.
- D3.** A Ragnell retractor is applied to the proximal end of the incision to increase tissue exposure.



## ENTRY & SITE DISSECTION

- D4.** Using the #15 blade, the palmar fascia is incised and retracted in order to expose the distal end of the Transverse Carpal Ligament.
- D5.** Under direct visualization, the distal end of the Transverse Carpal Ligament is incised, creating an inverted “V”.



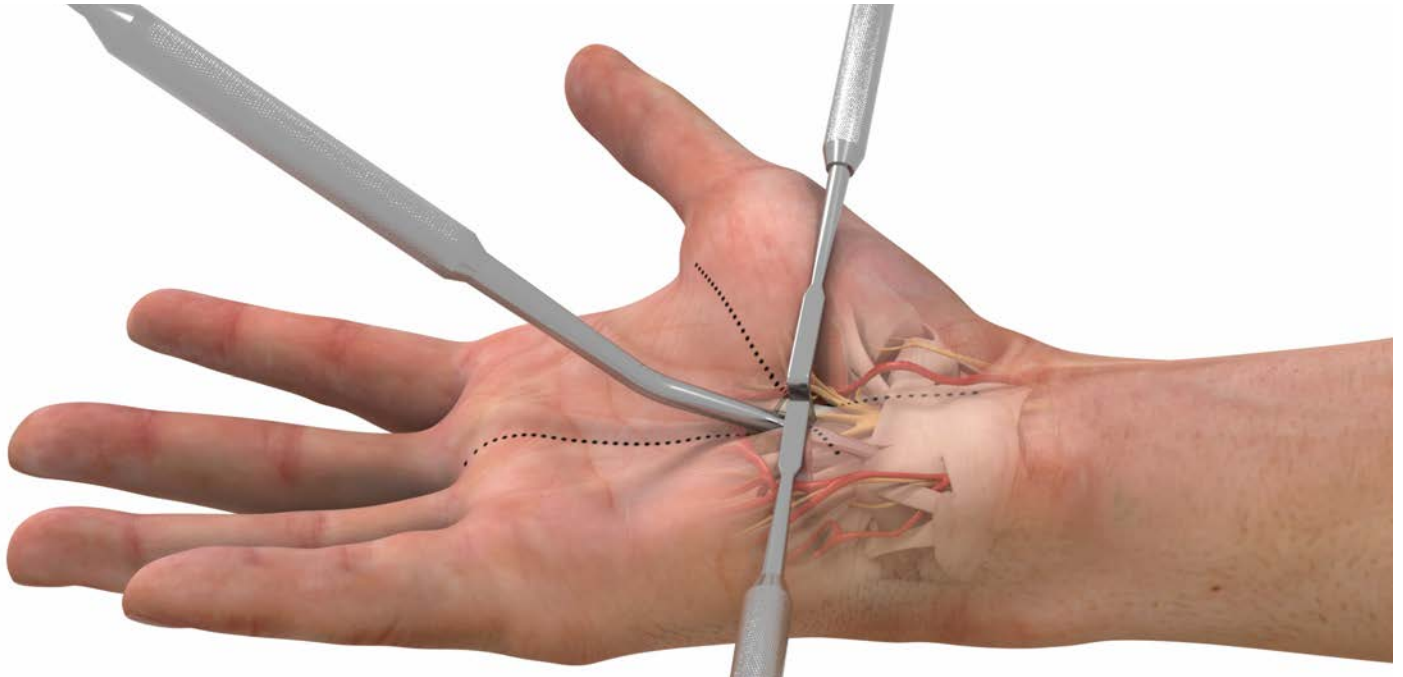
## THE INVERTED “V”

### TIP:

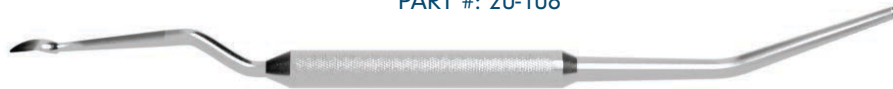
Creating tension with the 2 Senn retractors helps facilitate safe release of the distal Transverse Carpal Ligament.

The inverted “V” is the entry point for the release.





**DILATOR**  
PART #: 20-108



**DILATING UNDER THE LIGAMENT**  
**START**



**DILATING UNDER THE LIGAMENT**  
**FINISH**

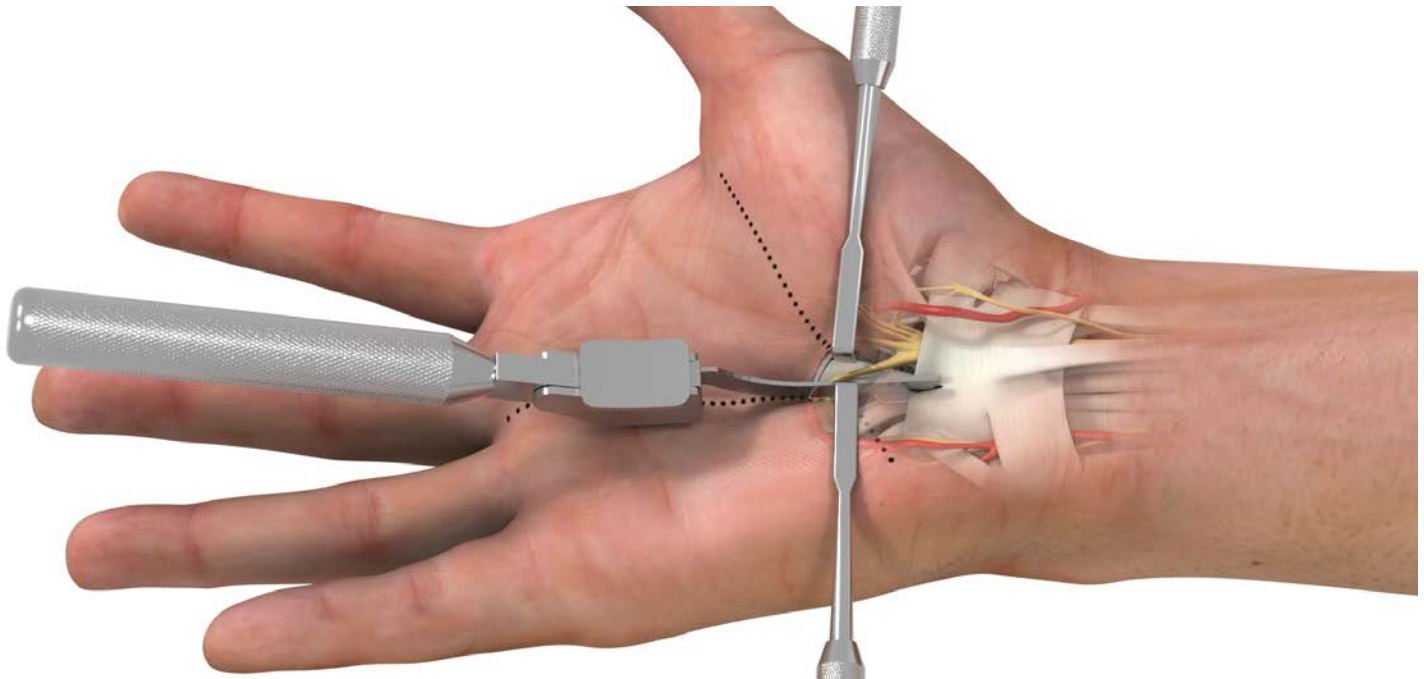


## DILATION & TUNNELING

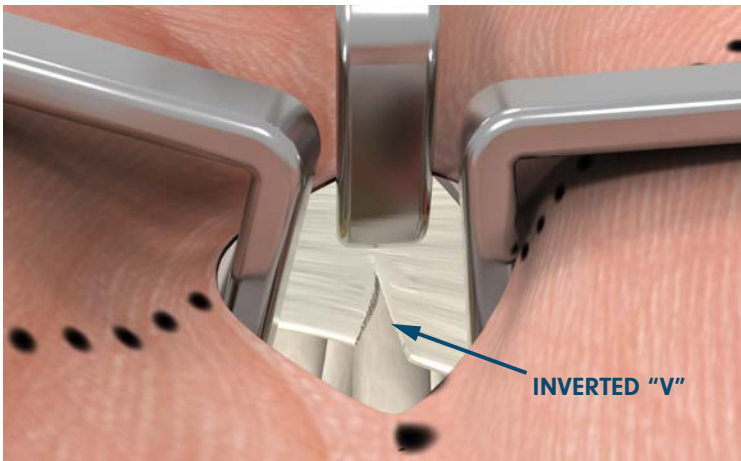
- DT1.** Insert dilator (20-108) below the Transverse Carpal Ligament and advance proximally to the level of the wrist crease.
- DT2.** Continue the tunneling process just above the Transverse Carpal Ligament.
- DT3.** Once the dilator is under the Transverse Carpal Ligament bring the dilators handle down in order to be parallel to the ligament.

### TIP:

These steps aid in facilitating release of the proximal aspect of the ligament by creating space above the ligament; thereby reducing back pressure.



**CTR KNIFE & HANDLE**  
PART #: 20-105



**INVERTED "V"**

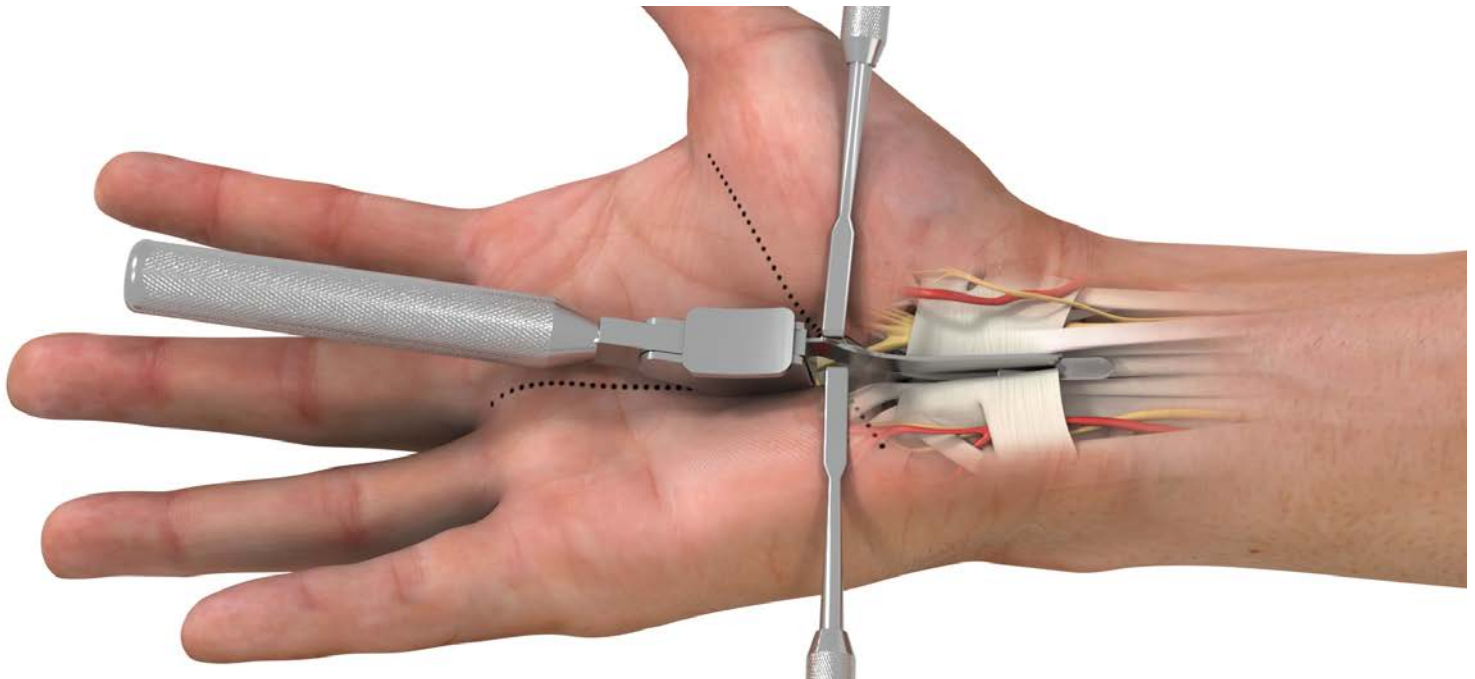
**ENGAGING THE LIGAMENT  
START**



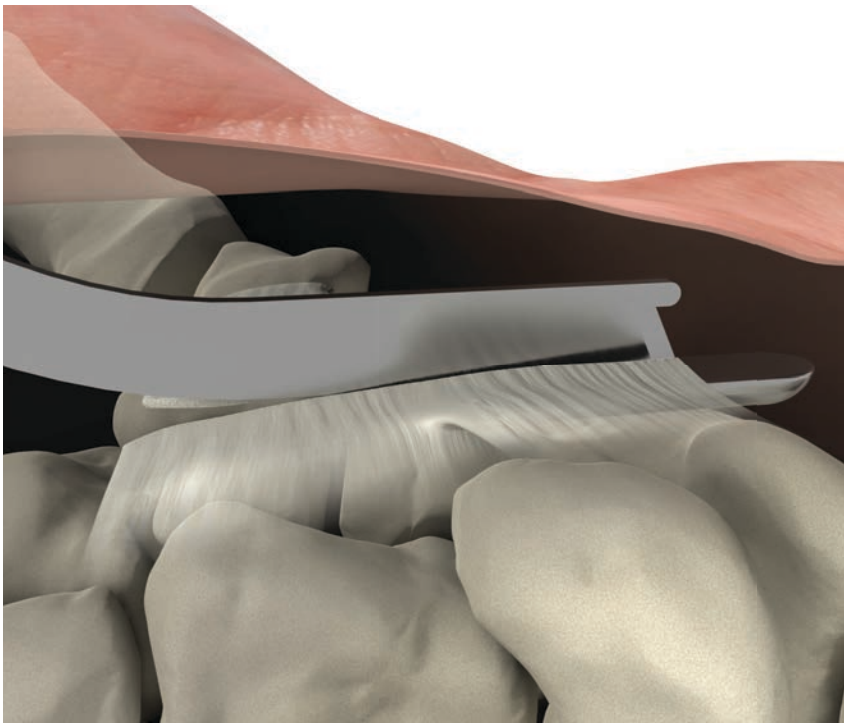
## RELEASE

The sterile packaged, single use CTR Blade is opened and fastened to the Blade Holder.

- R1.** The CTR Knife sits atop a glide hull, which allows the knife to safely cut the tissues above the hull and protect all structures below.
- R2.** The CTR Knife is introduced and positioned so that the blade engages the tip of the inverted "V".
- R3.** The rear of the CTR Handle should be dropped palmar so that the blade and glide hull are parallel to the ligament and the blade perpendicular to the Transverse Carpal Ligament.



**CTR KNIFE & HANDLE**  
PART #: 20-105



## RELEASE

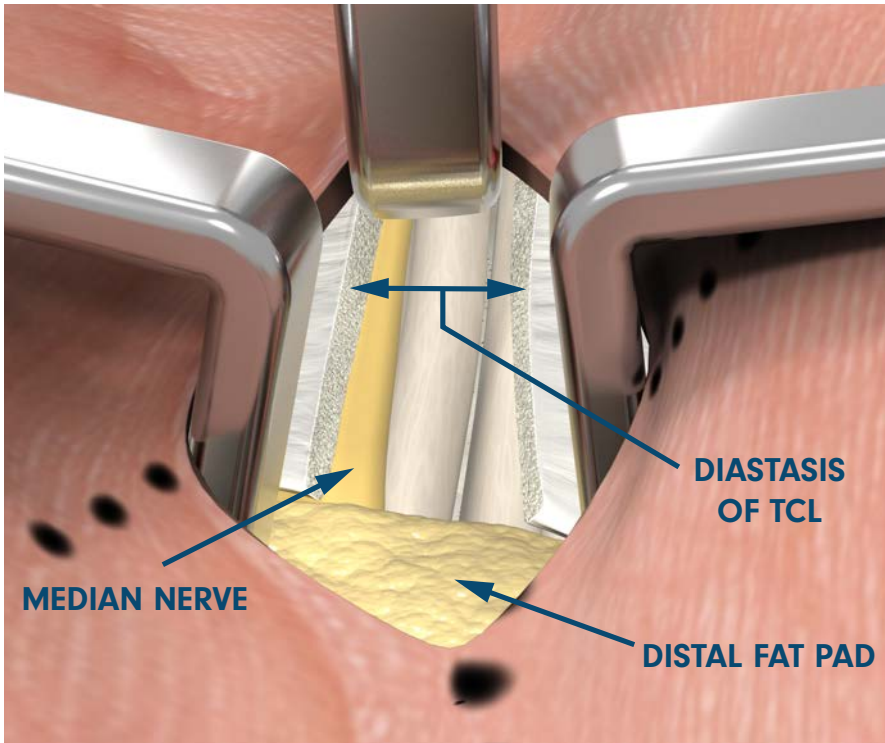
- R4.** The CTR Knife should meet minimal resistance initiating the release and advancing through the ligament ending at the wrist crease.
- R5.** After the ligament is completely released, the knife is retrieved and elevated, ensuring clearance of the tissues.

### TIP:

**Advancement of the CTR Knife is enhanced by bringing the wrist into a neutral position, and abducting the thumb to increase tension on the Transverse Carpal Ligament.**

## COMPLETING THE RELEASE

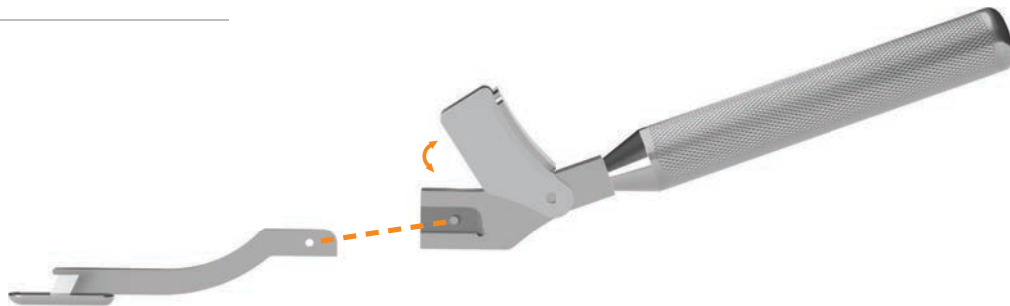




## INSPECTION & CLOSURE

- IC1.** At the end of the release, the ligament is inspected and complete diastasis of the ligament is confirmed.
- IC2.** The skin is closed with 5-0 nylon.
- IC3.** Soft dressing is applied.
- IC4.** Narcotic Pain Medication is generally not necessary.
- IC5.** Patients are instructed to use their hand for daily activities, but to avoid heavy lifting for 3-4 weeks.

## CTR KNIFE ASSEMBLY



- A1.** Open locking assembly of the CTR Blade Holder (20-105) by rotating the locking cover upwards.
- A2.** This will expose the Blade Holder Pocket, and guide post.
- A3.** Unpack the Sterile, single use CTR Blade and align the guide hole at the rear of the CTR Blade with the guide post.
- A4.** The rear of the CTR blade should sit snugly in the Pocket.
- A5.** Rotate the locking assembly downward to cover and secure the rear of the CTR blade.
- A6.** The CTR Blade is now ready for use.

S2S Surgical, the manufacturer of this device, does not provide medical advice as to which surgical technique is to be performed on a specific patient. The surgeon performing any procedure with these devices is responsible for determining and utilizing the appropriate technique for the specific procedure on their patients.



**CTR KNIFE & HANDLE**

PART #: 20-105



**CTR KNIFE BLADE**

PART #: 20-107



**DILATOR**

PART #: 20-108



**RAGNELL RETRACTOR**

PART #: 20-104