Introduction

The introduction of a new diagnostic or therapeutic method, particularly a surgical one, creates a great deal of both perplexity and enthusiasm, at least until the protocol is finished and the use of the technique achieves a strict application of the protocol itself.

This is exactly what happened with the endoscopic release of the carpal annular ligament (generally for the whole hand surgery, especially for the wrist, it has been universally accepted).

It’s difficult to understand the reason for this situation; in fact, the arthroscopic method for the treatment of wrist ligament lesions seems to date back before the history of other joint surgeries such as on the knee or the shoulder. The concern regarding the presence of the nerve makes it much more difficult to accept this technological innovation in the pathology we are talking about.

We can not forget that the wide diffusion of carpal tunnel syndrome (CTS) surgical treatment, not only in the hand surgery field but also in plastic surgery and orthopedics, caused a return to clinical malpractice and carelessness.

Surgeries have been performed by nonspecialists in an effort to prove that technical experience was not necessary when performing endoscopic procedures. It resulted, instead, in irremediial damage to the patients.

This is the primary statement underlying the following chapter, where we will have to use scientific rigor to distinguish between real complications and technical or indication mistakes [2, 11, 18].

Complications of the Endoscopic Treatment

Some of clinical situations defined as “complication” cannot be considered as follows.

The symptom persistence due to an incomplete decompression of the median nerve can be considered an inadequacy of the technique rather than strictly a complication of the surgical treatment. In fact, if the ligament is not released the symptoms will persist or, more commonly, even get worse [8, 20].

Accordingly, we should consider as “complications” only those events theoretically or statistically linked to the pathology or to the surgical technique. To help the reader we will apply Bedeschi’s classification, which analyzes all the causes of failure or partial success of the surgery, in order to guide daily clinical evaluation. In line with this classification we do not consider mistakes due to a wrong diagnosis. These, in fact, will always exist, but they are included in the diagnostic field, which is widely and effectively treated in this text.

Analysis of Complications Using Bedeschi’s Classification

Persistence of Symptoms

We should consider here only those cases in which we suppose that the absence of clinical improvement is really due to technical defects. As analyzed in the previous chapters concerning clinical and instrumental diagnosis, the lesion of the nerve can be so advanced that it would not allow an improvement in the clinical set-
Incomplete or Nonexistent Decompression of the Median Nerve

An incomplete decompression of the nerve is the most frequent consequence of a missing or partial opening of the carpal annular ligament. In this second case the symptomatology tends to get even worse, because all of the compression forces converge on only one point of the nerve. According to the literature, such an situation has “a major incidence with the closed techniques” compared to the mini-invasive technique [4, 19]. In fact, the lack of direct visualization of the whole ligament due to an incorrect or “timorous” use of the optical fibers results in a tendency to cut only the proximal part of the ligament, and considering it as a complete surgical operation. This is the most common situation that occurs during the learning curve of the endoscopic procedure, surely more compelling than the two-portal techniques and less than the single-port technique as described by Agee [1, 2, 16, 17].

Incomplete Section of the Carpal Annular Ligament

This is the most common complication in the endoscopic dissection of the ligament, due to the difficult visualization of the distal edge of the ligament by an inexperienced operator. The fear of causing a vascular or nervous lesion, the presence of adipose membrane distally to ligament usually not well identified, and the inflammation of the peritendinous tissues are considered to be among the most common reasons.

In fact, a perfect execution of the procedure avoids this complication: as a consequence, when some transversal fibers persist in the distal part of the ligament, the already-opened proximal part assumes a V-shape, while the final result of the operation must have a U-shape.

Whenever a V-shaped conformation at the end of the surgical procedure is seen, an incomplete distal opening of the ligament should be suspected [15]. Nevertheless, the section of the remaining fibers can not be easy, especially in more severe stages because of the herniated nerve in the operational field. For this reason some maneuvers with the endoscopy are required to move the nerve just for the time needed for the dissection of the ligament, without causing any kind of trauma, and particularly without being tempted to use the instrument in an incorrect manner, as though it were a classic endoscopy. For this reason it is advisable, during the learning curve, in case of failure or malfunction during the operation, to proceed with the traditional opening of the carpal annular ligament (conversion of the technique).

Whenever there is a persistence of the symptoms after the operation, without any kind of clinical evolution and with a positive Tinel test as described by Luchetti, it is advisable to proceed with a surgical review, which must be done with a traditional and complete lancing.

Incomplete Distal Section of the Antebrachial Fillet

This really rare case happens when opening of the transverse carpal ligament (TCL) occurs following Agee’s technique, modified by Foucher [15]. As a matter of fact, preserving the interthenar muscular fascia allows a quick recovery of strength, but does not allow the nerve to emerge too close to the surface and makes the section of the antebrachial fascia not useful as described by Peiner.

For this reason, and due to the fact that no complications of any kind are described in the literature, those surgeons who have been using this technique in the last 5 years have abandoned the subcutaneous section of the antebrachial fascia.

Missing Section of the LTC

This event should not be considered as a complication, because it is more likely to be a mistake in the procedure itself: paradoxically it is a complication which requires resolution by the same operation that generated it.

Nevertheless, it must be included in the complications for this treatment. This consequence, in fact, excludes the chance to proceed with the endoscopic technique, making necessary the open one, and furthermore prevents the patient from taking advantage of a therapeutic opportunity.

This consequence is due only to the inability of surgeons and can occur with any method, open or closed.

Recurrence of Symptoms

Gilbert recently stated that when a recurrence of symptoms occurs this simply masks a technical incapacity. Whichever approach in opening of the TCL is used, in every operation cicatricial fibrous perinervous proliferation should be checked by an expert operator. Bedeschi describes, in all second stage procedures, flexor tendons hypertrophic tenosynovitis.

A surgical technique, protecting nervous and tendinous structures, together with a postoperative rehabilitation protocol without articular immobilization and with a progressive strengthening of the involved structures, permits a good nerve and tendon sliding. In this way the newly formed scar tissue will not be an obstacle to the operated structures.

Only if another major disease is present (such as patients with rheumatoid arthritis or in patients under di-