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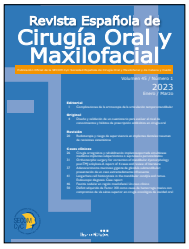

Editorial

Complications of temporomandibular joint arthroscopy

Complicaciones de la artroscopia de la articulación temporomandibular

Last 22nd to 24th of March, the European Society of Temporomandibular Joint Surgeons (ESTMJS) celebrated its annual meeting at Oxford (UK), with the theme "Complications in TMJ surgery". The main goal was to establish the complication rates for minimally invasive TMJ surgery, open TMJ surgery, and also TMJ replacement surgery in order to classify them in four major categories to help the TMJ surgeon to inform about risks to patients undergoing TMJ surgery. These categories were: 1) Common complications all patients should be warned: generally being reported in >5 % of cases; 2) Rare complications all patients should be warned: generally being report in >1 to 5 % of cases; 3) Discretionary complications surgeon consider to advise in each case: generally reported in >0.1 % to 1 % of cases; and 4) Rare complications not required to be warned: generally reported in <0.1 % of cases. The Spanish group was designed to approach the incidence of complications following minimally invasive TMJ surgery, basically by means of arthroscopy.

Concerning the most relevant papers dealing with complications following TMJ arthroscopy, little effort has been spent in trying to differentiate between intra-op and post-op complications, while the most difficult aspect is to draw a clear distinction in relation to complications based on the degree of complexity of the arthroscopic procedure performed, but instead, overall complication rates between 1.8 and 10.3% have been reported, while overall complication rates of 4.5-9 % and 5 % have been reported for shoulder and knee arthroscopy, respectively. In a classic paper by McCain and colleagues[1], in which the authors reported a retrospective, multicenter study including 3,000 patients and 4,800 joints followed for more than 2 years, an extremely low complication rate was reported for the whole series, concluding that TMJ arthroscopy was a highly effective, minimally invasive, safe surgical technique for the diagnosis and treatment of intra-articular TMJ pathology.

Other large retrospective series, such as the one published by our group in 2006[2], have shown that the overall complication rate for TMJ arthroscopy is as low as 1.34 %, while most of complications were related to intra-articular bleeding, with some post-op complications such as temporal paresis of the facial nerve and auriculotemporal nerve, all less than 1%. However, we believe that this complication is the typical example of a rare complication that all patients should be warned of a consent form document. Also, the more recent paper by Fernández Sanromán et al.[3], in a series of 475 consecutive TMJ arthroscopies, pointed a 8.21 % complication rate with 5.26 % of complications recognized intraoperatively, whereas most of them occurred during the initial steps of the learning curve, also reinforcing the feeling about the safety of TMJ arthroscopy for double-portal techniques with coblation technologies once the operator has advanced skills and a thorough understanding of the anatomical landmarks.

The fact demonstrating that the learning curve plays a central role in determining the occurrence of complications following TMJ arthroscopy is observed in the complication rates reported by Chowdhury et al.[4] in an initially-based experience in 50 patients. Some of them are temporary facial nerve deficit (10 %), lacerations of the external auditory canal (EAC) (6 %), hemorrhage through the trocar skin puncture (5 %), post-operative pain (10 %) and reduction in spontaneous mouth opening (30 %). It is obvious that these results are extremely high in comparison with most published series with much larger series from expert

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surgeons. The authors also confirmed that complications were mostly clustered around the initial stages confirming the steep learning curve of arthroscopy. At the opposite site, Zhang et al.[5], in a series of 2,431 TMJ arthroscopies for the treatment of internal derangement, only reported 5 joints bleeding of known blood vessels, 5 joints with masseteric nerve damage, 3 joints with instrument fracture, 2 joints with suture reaction, and 2 joints with perforation of the EAC. They concluded that if the operator is well trained and masters the puncture technique, complications will decrease significantly.

Otherwise, we have to keep in mind that TMJ arthroscopy has 3 levels of complexity: 1) level 1 or arthroscopic lysis and lavage; 2) level 2 for operative arthroscopy by means of electrocoagulation, biopsy and infiltrations; and 3) level 3 for the more advanced arthroscopic discopexy by means of sutures or rigid fixation with resorbable pins. This is an interesting point as we can expect a different complication rate or even a different type of complications depending on the performed arthroscopic level. For instance, it is obvious that loosening of the resorbable pin in discopexy or breakage of instruments such as the radio-frequency device shield can only be present in operative arthroscopy but not in the more simple arthroscopic lysis and lavage. Ângelo et al.[6] approached this differentiation between level 1 and level 2 arthroscopy trying to elucidate if there was any specific difference in the observed complication rate. When dealing with post-operative complications, they reported up to 5% temporary facial nerve damage, which is a little higher than other previously reported, but maybe quite near to what is happening in the initial steps of the learning curve. Besides, in a multicenter observational study of almost 900 arthroscopies, González et al.[7] wanted to evaluate if there was any difference when comparing arthroscopy without discopexy (AwoD) against arthroscopy with discopexy (AwD) and found that anatomic-related complications were more frequent in the first group, while instrument-related complications were much more frequent in the discopexy group.

In conclusion, Figures 1 to 4 illustrate the complication rates for the reported TMJ arthroscopic intra-operative and post-operative complications from most relevant literature. In an effort to summarize these results, the following complications should be considered by the surgeon:

1. Common complications that all patients should be warned: preauricular edema, parapharyngeal edema, reduced mouth opening, post-operative pain and auriculotemporal nerve hypo-esthesia.
2. Rare complications all patients should be warned: hemorrhage within the upper joint compartment, temporary facial and trigeminal nerves hypoesthesia, and laceration of the EAC.

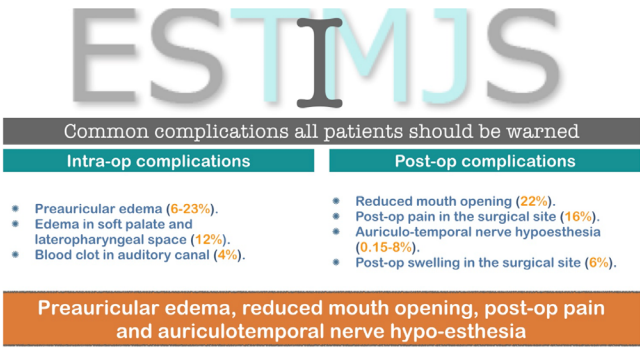

Figure 1.

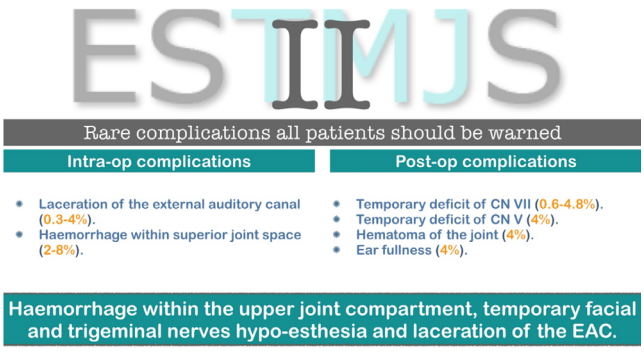

Figure 2.

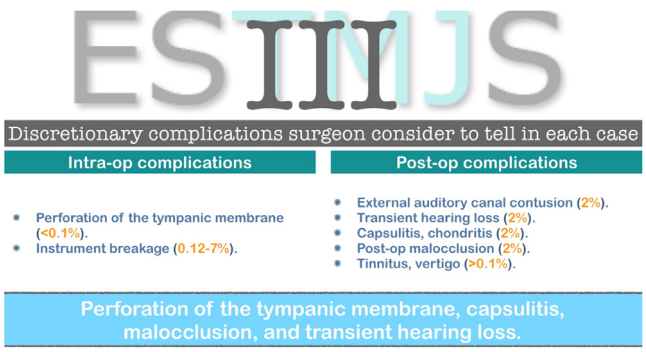

Figure 3.

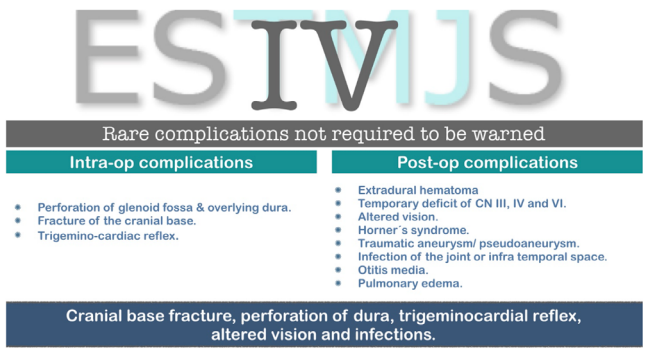

Figure 4.

3. Discretionary complications the surgeon should consider to advise in each case: perforation of the tympanic membrane, capsulitis, malocclusion, and transient hearing loss.
4. And are complications not required to be warned: cranial base fracture, perforation of dura, trigemino-cardial reflex, alerted vision and infections.

These and other relevant aspects of TMJ minimally-invasive and also open and TMJ replacement surgery will be promptly published in a incoming document from the ESTMJ to help the TMJ surgeon when communicating information regarding complications to patients. Meanwhile, an effort is mandatory to conduct better studies and perform systematic reviews to consolidate the highest achievable evidence.

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