Microvascular decompression: which role for endoscopy?
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Introduction: Idiopathic trigeminal neuralgia (TN), glossopharyngeal neuralgia (GN) and hemifacial spasm (HFS) are usually sustained by a neurovascular conflict. Microvascular decompression (MVD) is a non-ablative surgical procedure designed to resolve these neurovascular conflicts. Today endoscopy has widely spread and it is considered an essential tool in the armamentarium of the neurosurgeon.

Objective: To assess the usefulness of endoscopy during MVD, in particular in improving detection of neurovascular conflicts in cases of uncertainty or in confirming their complete resolution.

Methods: Between January 2010 and December 2011, 87 MVD procedures were performed (70 TN, 16 HFS and 1 GN). The operative technique was always carried out in supine position, drilling a small elliptical craniectomy followed by gentle CSF leakage allowing to open, without the aid of a spatula, the cerebellopontine angle (CPA) and minimizing brain retraction. This procedure included a careful examination of the whole nerve course to identify all possible areas of vascular compression. A non-compressive resolution of the neurovascular conflict is achieved by means of tiny ball shaped pieces of oxidized regenerated cellulosa (Tabotamp, Ethicon, Jhonson and Jhonson) placed to retain the vessel in its new position. When the conflict was not found under microscopic view, the endoscope was then introduced to look for areas of compression. The visualization techniques were fully microscopic in 54 (62%) cases and fully endoscopic in 7 (8%) cases. In the remaining 26 (30%) cases the combined microscope/endoscope approach was used.

Results: A neurovascular conflict was found in 79 (91%) cases. The microscope or the endoscope alone were able to show the conflict in 72 cases, respectively in 65 and 7 cases. In the 26 microscopic endoscopic assisted cases, the endoscope revealed 7 more conflicts and confirmed a complete conflict resolution in 8 cases. Eight patients had no intraoperative evidence of neurovascular conflict. In the series no surgical related neurovascular complications occurred. During combined procedures, the introduction of the endoscope under microscopic magnification decreases the chances of damaging the neurovascular structures of the CPA. This increases the confidence of the surgeon with the endoscopic technique, shortening the learning curve, while the fully endoscopic approach requires more experience and training.

Conclusion: MVD under microscopic view is still the treatment of choice for neurovascular conflicts in the CPA. The endoscope is a useful adjunctive imaging tool in confirming nerve-vessel conflicts identified by the microscope, revealing conflicts missed by microscopic survey alone and verifying adequate decompression. In our experience fully endoscopic approach require complex dissection in a delicate region; furthermore it is necessary a wider craniotomy to allow enough room for the endoscope itself and for surgical instruments.