Case Lessons

Microsurgical rhizotomy and microvascular decompression for trigeminal neuralgia in a MS patient

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Introduction: Compression of the trigeminal nerve root is not the main mechanism of TN, brainstem lesions as MS are reported at some cases [3]. Vascular compression also has been noted in patients with MS and TN. Also, MS patients afflicted with TN commonly endure years with minimally effective pain relief from medications and undergo multiple procedural interventions but MRS seems to be effective. MSR often referred to as partial sensory rhizotomy or Dandy procedure, may offer more effective, durable, and cost-effective pain relief than medical management or other surgical procedures[2].

Keywords: MS, TN, Microsurgical rhizotomy (MRS), Micro vascular decompression (MVD)

Case report: A 49-year-old woman from Kosovo, with 4-5 years history of left TN, pharmaco-resistant to mono and polytherapy (PGB, CBZ, LTG) given in optimal doses and MS (recently diagnosed on brain MRI performed for TN, where periventricular, infratentorial demyelinating lesions were evident, fulfilling the imaging criteria of McDonalds for MS, examination of LCS is not done). (Fig 1)

Past history: Ovarian cancer on 2019, post hysterectomy and ovariectomy followed by CHT with PFS till now. Neurological examination: Hyperalgesia according to V3 sin, positive trigger point and tactile hypoesthesia according to V2-V3 sin. PFP sin HB1. Bilaterally increased osteo-tendinous reflexes, ataxic syndrome with lateropulsion to the left side GCS 15 NIHSS 3 KPS 90 CCI 6 BNI pain score 4-5 and MS scale EDSS 2

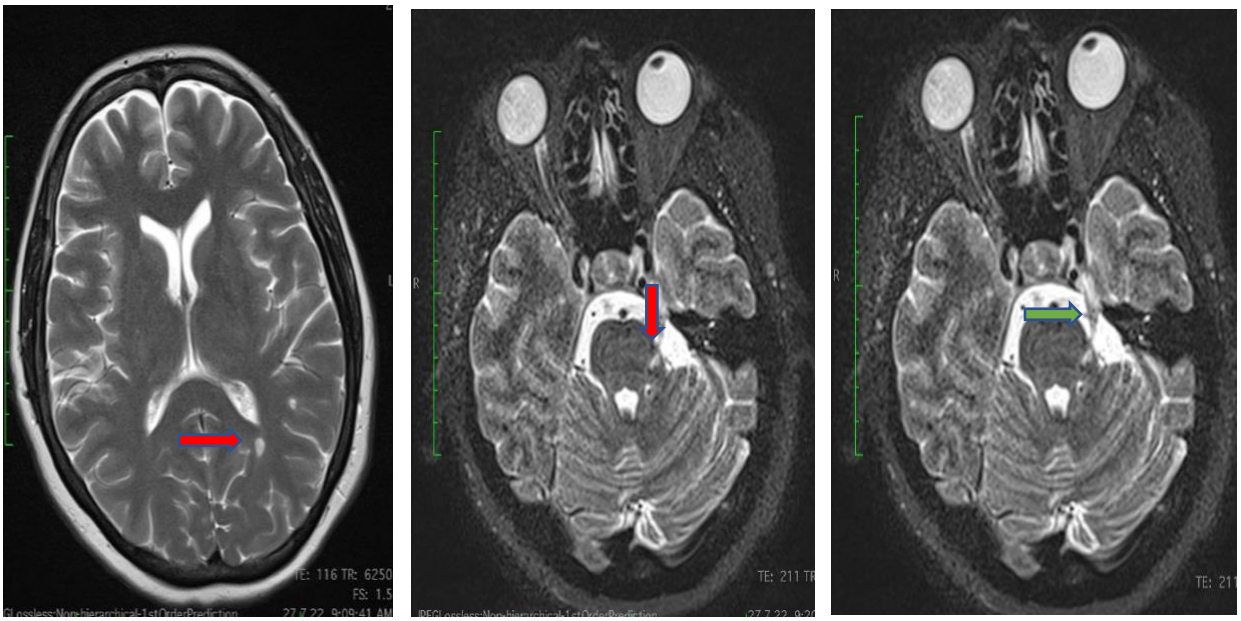


Figure 1: Brain MRI which shows demyelinating lesion, periventricular and pontine root entry zone of TN (red arrow), neurovascular conflict (green arrow)

Considering a farmacoresistant MS, and vascular conflict associated TN, MSR and MVD was proposed.

Through a left retrosigmoid minicraniotomy, under the operating microscope, the trigeminal nerve is identified in multi vascular arterial conflict, posteriorly with AICA and anteriorly with SCA. The nerve is decompressed from the arachnoid bands and then from the vessels. Once satisfactory mobility of the nerve is achieved. Rhizotomy is performed caudally at 1/3 inferior of TN, immediately 2-3 mm from the pons. Two Teflon patches are placed posteriorly and anteriorly to the nerve, isolating it from the AICA and SCA. (Fig 2 a,b,c,d,e)

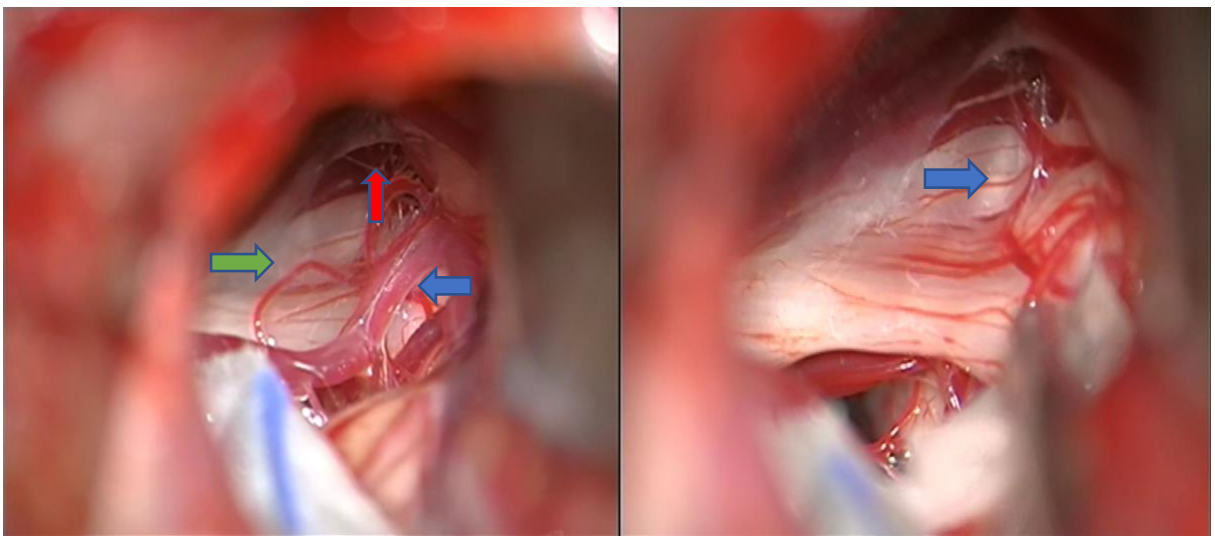
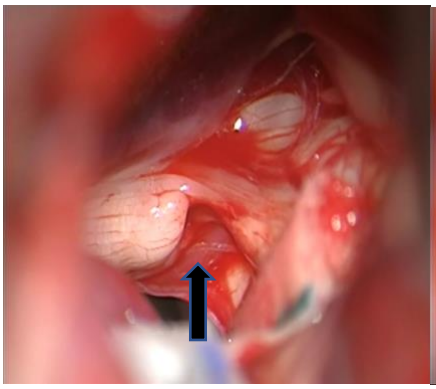
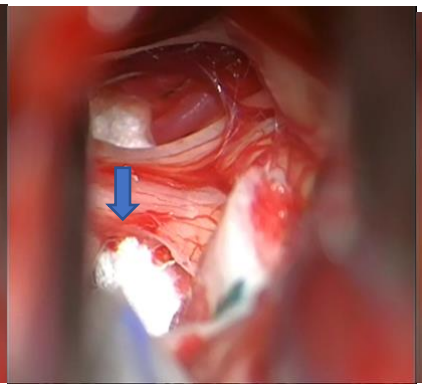


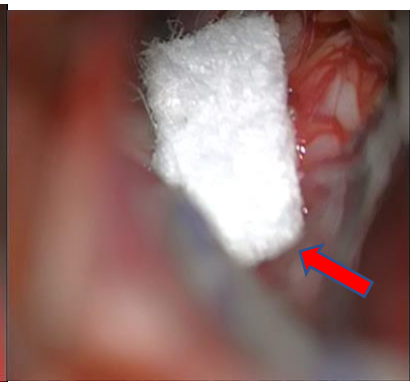
Fig2a. *TN (green arrow) on vascular conflict, Posteriorly with AICA (blue arrow), Anteriorly with SCA (red arrow)* ***2b****.TN groove from vascular conflict(blu arrow)*



2c. *Post MRS (black arrow)*



2d*. Anterior patch (blue arrow)*



2e*.Posterior patch (red arrow)*

After the intervention the patient was free of pain with BNI pain score 1 and cessation of drug was started gradually.

Discussion: Considering a MS-associated TN (MS-TN), treatment can be particularly challenging. There is evidence that demyelinating plaque and neurovascular compression coexist as a cause in MS-TN[2-3.] . In MS, a plaque of demyelination typically occurs in the root entry zone of TN[4,5,7]. In some cases, such brainstem lesions may be present years before the onset of TN symptoms, suggesting a role for chronic inflammation or central sensitization to the development of TN [4,5]. MVD was not an option for most MS-TN patients because the pathophysiology of pain is typically not related to neurovascular compression. SRS is a safe and effective modality to achieve pain freedom in MS-TN with pain relief significantly less durable than in cases without MS[7]. But in cases of drug resistance of MS-TN with vascular conflict as in our case, MVD and MRS should be considered and is well reported[2].

Conclusion: Optimal treatment for this group of patients remains to be determined. Given the high rates of pharmacological treatment failure, shorter pain-free intervals between treatments, and high volume of lifetime procedures, management of these patients must be carefully considered. MSR and MVD provides superior pain outcomes and longer time to retreatment compared to Gamma Knife and percutaneous procedures and should be considered earlier in the disease course for patients with refractory MS-associated TN[2].

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