

Meningioma En Plaque Associated with Spontaneous Cerebrospinal Fluid Rhinorrhea: A Case Report with Systematic Review of the Literature



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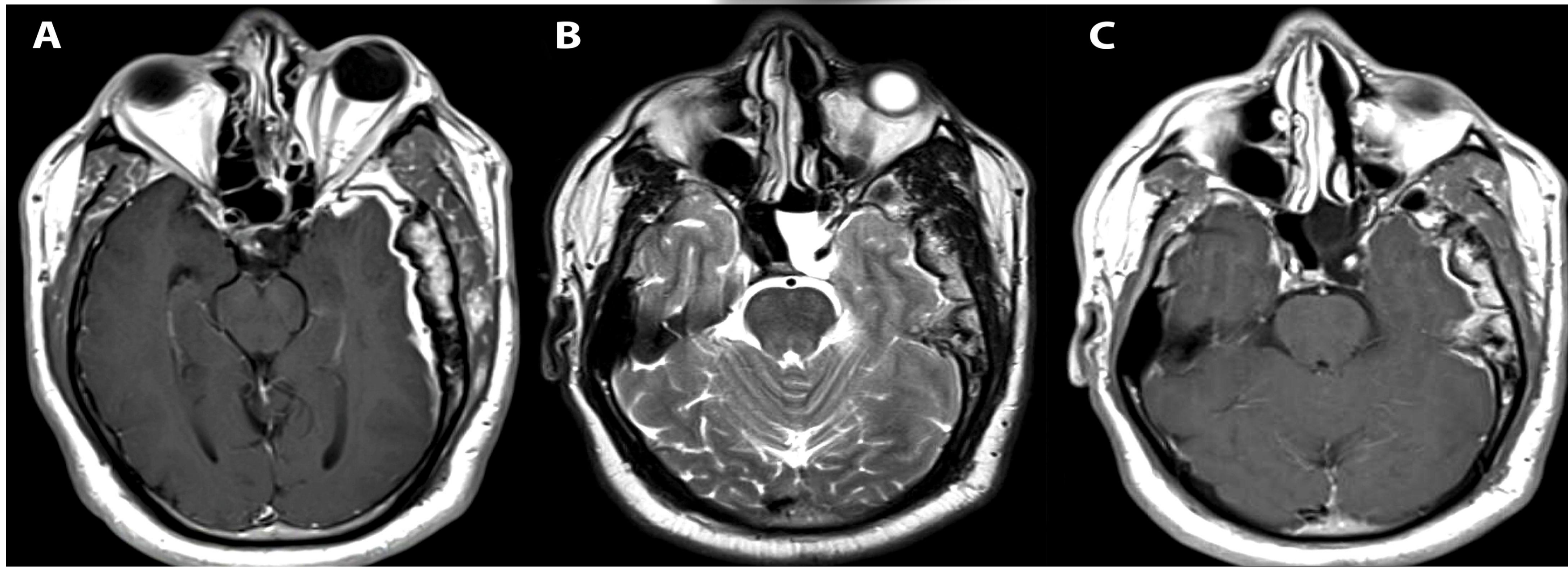
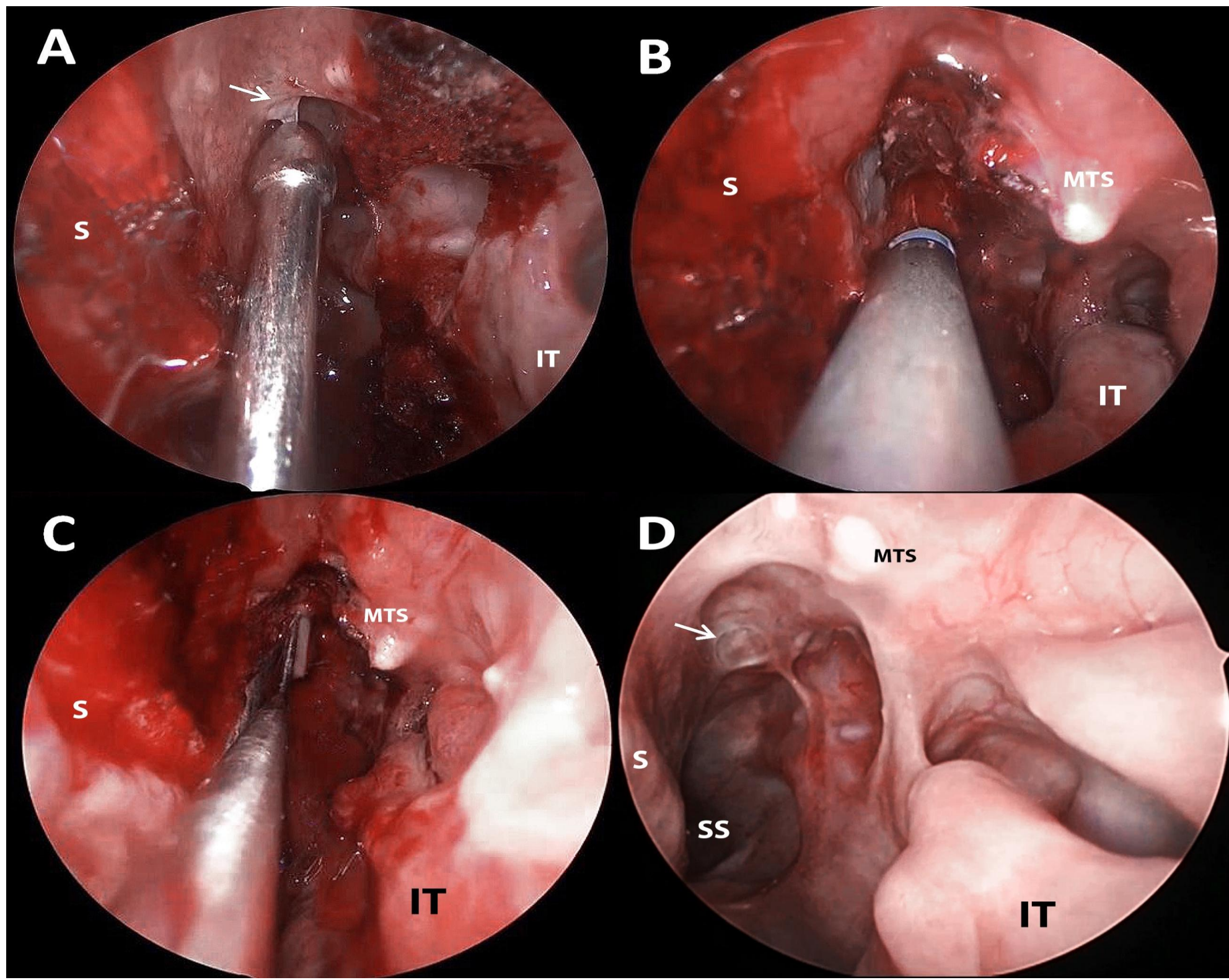
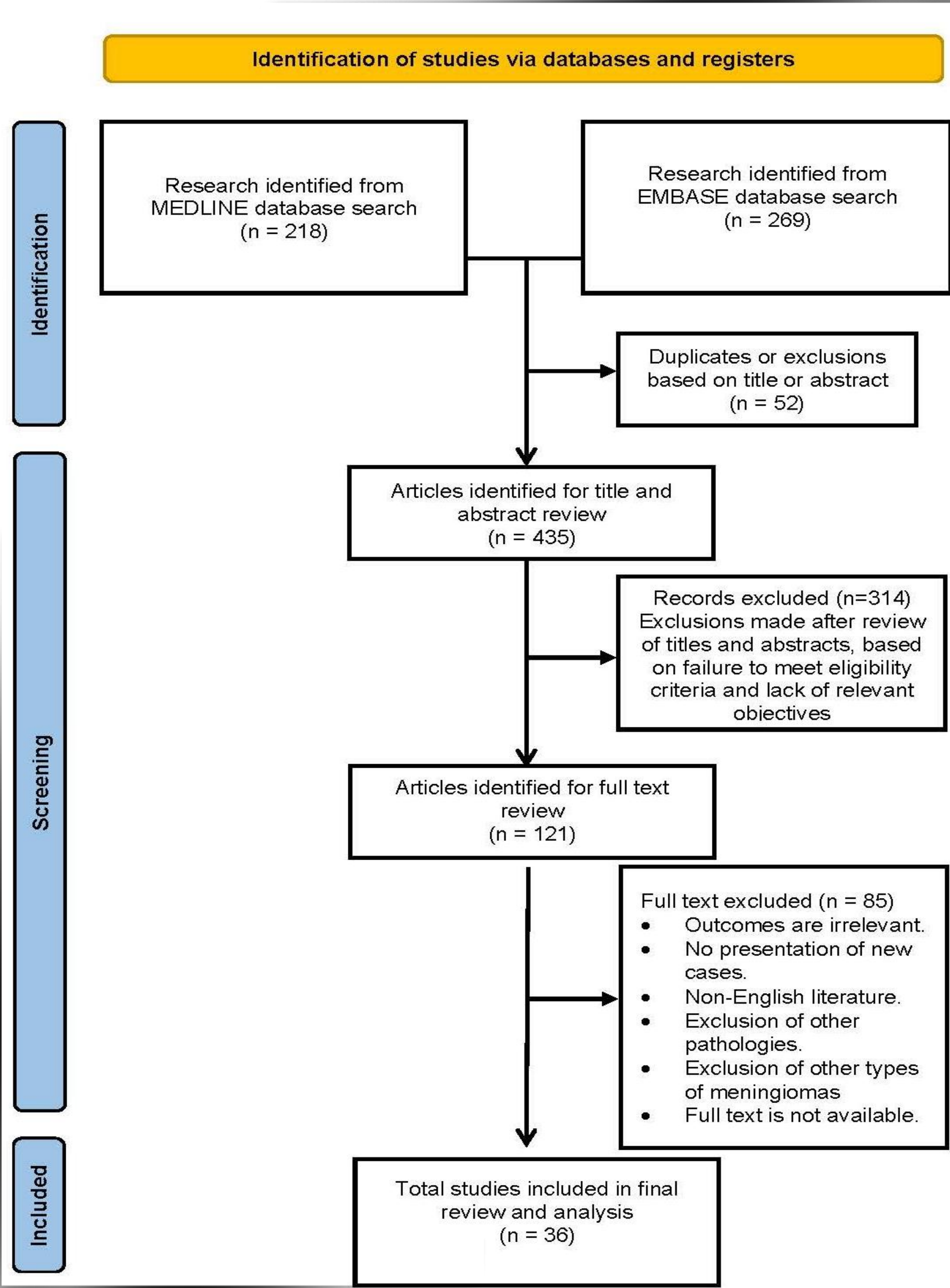
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Background

Meningiomas are the most frequently diagnosed benign intracranial tumors. However, meningioma en plaque (MEP) is a rare subset characterized by a flat, carpet-like proliferation along the dura. MEP, accounts for only 2.5% of all meningiomas, typically arising in the spheno-orbital region; therefore, it often causes symptoms such as proptosis, decreased visual acuity, visual field defects, headaches, and orbital pain. The management of MEP is complex due to its extensive dural involvement and potential infiltration into adjacent bone and soft tissues, which complicates surgical intervention.

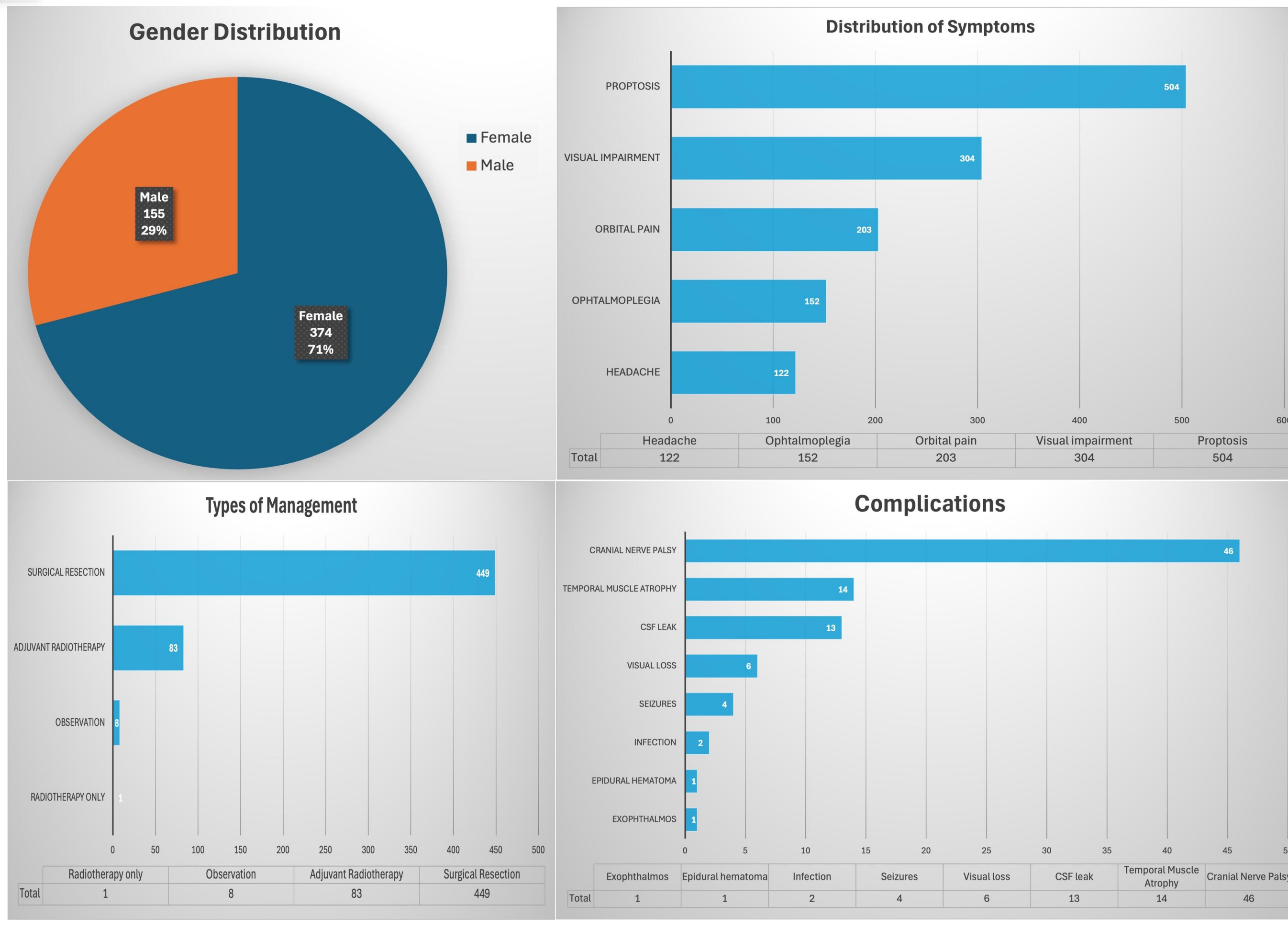
Methods

Following PRISMA guidelines, a systematic search was conducted in PubMed and Embase databases. Keywords and standardized index terms related to MEP were used. The search was performed on April 21, 2024, without restriction on the publication date. Screening, data extraction, and quality assessment were carried out by independent reviewers, with any discrepancies resolved by a third reviewer. Data on demographics, clinical presentations, management modalities, and treatment outcomes were analyzed.



Results

The study yielded 487 titles, with 36 studies eligible for inclusion. A total of 530 patients with MEP were reported, with a weighted mean age of 50.1 ±11.62 years. Proptosis was the most common symptom (95%), followed by visual acuity impairment (57.3%), orbital pain (38.3%), ophthalmoplegia (28.6%), and headache (23%). Our patient represented the only case with a spontaneous CSF leak. Surgical resection was performed in 85%, adjuvant radiotherapy was performed in 15.7%, one patient received primary radiotherapy, while close observation and follow-up were applied in 8 patients. Proptosis improved in 77.4% of the patients, while visual acuity improved in 6.2%. The overall recurrence rate was 12.4%.



Conclusion

MEP associated with spontaneous CSF rhinorrhea is extremely rare and poses significant diagnostic and therapeutic challenges. This systematic review emphasizes the need for heightened clinical suspicion and tailored management strategies to address other challenges associated with MEP. A multidisciplinary approach is essential for optimizing patient outcomes. Further research is necessary to enhance understanding of MEP's pathophysiology and to develop more effective treatment protocols.