TUMOUR-LIKE LESIONS IN MULTIPLE SCLEROSIS
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Introduction
The presence of tumefactive demyelinating lesions (TDLs) in multiple sclerosis (MS), can cause diagnostic difficulties on MRI, sometimes requiring biopsy, because they can mimic a brain tumour.

Purpose
This study aims to describe TDL MRI appearance and to characterize a series of patients with TDL, identifying the most common clinical presentations, cerebrospinal fluid profile, response to therapy and clinical outcome / prognosis.

Methods
We used a retrospective analysis of clinical files of MS patients with TDL, followed up in Hospitais da Universidade de Coimbra. Inclusion criteria were atypical MRI features of MS, consisting an lesion >2 cm, mass effect, vasogenic oedema and/or ring enhancement.

Results
- We included 19 patients (median age: 30.8 years).
- 14 females and 5 males were studied.
- Polysymptomatic presentations were found in 78.9% of patients (Table 1).
- Oligoclonal IgG bands (IgG-OCB) in the cerebrospinal fluid (Table 2):
  - CSF OCB profile
    | Freq. (%) |
    |-----------|
    | Profile 1 (negative) | 8 (42.1%) |
    | Profile 2 (positive) | 10 (52.6%) |
    | Profile 5 (monoclonal) | 1 (5.3%) |
- Multiple lesions on MRI were found in 79% of patients. The median largest lesion size on T2-WI was 3.6 cm; 31.6% of lesions demonstrated mass effect and 73.7% oedema, with strong association between these three factors.
- After a mean follow-up of 6.3 years, 89.5% converted to clinically definite MS.
- Based on serial MRI studies, stereotactic biopsy and response to treatment, the diagnosis of TDL was confirmed in every case.
- In four patients the diagnosis of MS was carried out by brain or medullar biopsy.

![Fig. 1](image1.png)
![Fig. 2](image2.png)
![Fig. 3](image3.png)
![Fig. 4](image4.png)

Conclusion
A thorough analysis of MRI is a useful diagnostic tool in differentiating TDLs from intracranial neoplasm, which is the most relevant differential diagnosis in these cases, and may therefore reduce the indication for unnecessary surgical biopsy.

References

Fig. 1: Pathology of an active biopsied multiple sclerosis medullar lesion. The features of active inflammatory demyelinating disease consisting of hypercellular lesions with myelin loss. a) and b) Haematoxylin eosin reveals destruction of myelin sheaths and relative axonal preservation. c) Küber-Barrera. d) Immunohistochemical evaluation of CD68 reveals macrophages.

Fig. 2: A 42-year-old male with acute facial paralysis of the right leg. The diagnosis of MS was carried out by brain. a) Axial T2-WI. b) Coronal T1-WI.

Fig. 3: A 36-year-old woman with sensory changes. a) and b) Axial FLAIR images. c) Axial post-contrast T1-WI.

Fig. 4: A 41-year-old woman with MS. a) Sagital FLAIR image. b) Axial post-contrast T1-WI.