contrast-enhancing tumour in the left cerebellopontine angle, obliteration and post-contrast enhancement of the basal cisterns, and ventricular dilation. Four CSF analyses revealed sterile lymphocytic pleocytosis, low glucose levels, and elevated adenosine deaminase levels; CSF cytology detected no malignant cells. The patient received tuberculostatic drugs and corticosteroids due to suspected tuberculous meningitis, but died 2 months later. The autopsy revealed PCNSL with leptomeningeal and perivascular infiltration, as well as microscopic subpial infiltration. In line with the macroscopic findings, subpial infiltration was more marked on the left side, affecting the pons and the middle cerebellar peduncle (see figures 2a and 2b in Berciano et al.[2]).

PCNSL is a subtype of non-Hodgkin lymphoma that exclusively affects the brain, eyes, spinal cord, and leptomeninges, without systemic involvement.[3] Symptoms depend on lesion topography, with most patients presenting symptoms including cognitive impairment, focal neurological signs, and symptoms of intracranial hypertension, developing over the course of several weeks or months. Around 20% of patients display concurrent leptomeningeal infiltration, which is frequently subclinical and only detectable with CSF analysis. In our case, 4 CSF analyses were insufficient to detect malignant cells; in fact, 3 analyses showed elevated adenosine deaminase levels, which led to suspicion of tuberculous meningitis.[4]

In our patient, the histology study revealed mild, extensive perivascular infiltration of the Virchow-Robin spaces with subpial infiltration, occasionally extending to cover large areas of the brain parenchyma, visible on a macroscopic scale. Any lesion that reaches a critical size, including cerebellopontine angle lesions, may cause focal neurological symptoms.

Funding

The study has not received any public or private funding.

References

1. Berrocal-Izquierdo N, Muñoz F, Bosch J, Molet J. Primary central nervous system lymphoma mimicking cerebellopontine angle tumour. Neurologia. 2018;33:614—6.
2. Berciano J, Jiménez C, Figols J, Ferreres JC, Combarros O, Arjona R, et al. Primary leptomeningeal lymphoma presenting as cerebellopontine angle lesion. Neuroradiology. 1994;36:369—71.
3. Han CH, Batchelor TT. Diagnosis and management of primary central nervous system lymphoma. Cancer. 2017;123:4314—24.
4. Ribera E, Martinez-Vazquez JM, Ocaña I, Segura RM, Pascual C. Activity of adenosine deaminase in cerebrospinal fluid for the diagnosis and follow-up of tuberculous meningitis in adults. J Infect Dis. 1987;155:603—7.

J. Berciano*
Servicio de Neurología, Hospital Universitario ''Marqués de Valdecilla (IDIVAL)'', Universidad de Cantabria (UC), Centro de Investigación Biomédica en Red de Enfermedades Neurodegenerativas (CIBERNED), Santander

* Corresponding author.
E-mail addresses: jaberciano@humv.es, joseberciano51@hotmail.com

29 November 2018

https://doi.org/10.1016/j.nrleng.2019.01.009
2173-5808/

Response to ''Spontaneous acute epidural haematoma of the cervical spine with an atypical onset resembling ictal symptom''☆

Respuesta a «Hematoma epidural agudo cervical espontáneo de inicio atípico simulando cuadro ictal»

Dear Editor:

We read with great interest the letter to the editor by Arévalo et al.[1] entitled ''Spontaneous acute epidural haematoma of the cervical spine with an atypical onset resembling ictal symptom.'' We would like to thank the authors for the valuable clarifications on the management of these patients. Most of the conclusions and information on this type of disease are from a small number of case reports with an inherent selection bias, or small series that lack detailed statistical analysis. However, we would like to clarify some points based on our experience and on the only Spanish multicentre study, conducted by members of our working group, which included 29 patients with surgically treated spontaneous epidural spinal haematoma.[2]

We agree with Arévalo et al.[1] that treatment of this type of lesions is essentially surgical. Furthermore, in patients presenting spontaneous improvement or whose health condition contraindicates surgery, a conservative approach should be adopted. Spontaneous improvement is more frequent than we may expect[3]; in our series, we excluded 2 patients who presented excellent progression, eventually recovering, despite not having received surgical treatment. The usefulness of corticosteroids in patients ineligible for surgical treatment has not been clearly demonstrated in the case of spinal haematoma[4]; all the available conclusions and recommendations are from the NACIS multicentre study.[5]

☆ Please cite this article as: Martinez-Perez R and Rayo N. Respuesta a «Hematoma epidural agudo cervical espontáneo de inicio atípico simulando cuadro ictal». Neurología. 2020;35:507—508.

Our study on prognostic factors in patients with surgically treated spontaneous spinal haematomas[2] showed that late surgery was associated with poor prognosis and absence of neurological improvement. However, up to 43% of the patients undergoing surgery in the first 24 hours showed some degree of objective neurological improvement. Likewise, contrary to the results of studies into spinal cord trauma,[6] the degree of neurological involvement before surgery was not significantly associated with prognosis. In view of these 2 findings, we may conclude that although neurological recovery is multifactorial, surgical decompression is a relatively safe technique that should be performed as early as possible in patients with neurological involvement. However, persistence of symptoms beyond 24 hours or presence of complete spinal cord lesion should not be considered contraindications for surgical treatment in patients with compression due to spinal haematoma.

The study by Arévalo et al.[1] introduces several elements into the description of the radiological image that, despite being interesting from a descriptive point of view, are of little prognostic value. The most relevant radiological images include an increased length of the intra-axial lesion shown by an increased intra-axial signal in T2-weighted sagittal MRI sequences of the spinal cord, which is the only radiological prognostic factor found to date.[2] The length of the extra-axial haematoma and the percentage of occupation of the spinal canal are not as relevant as the latter radiological finding. The benefit of having radiological variables that may help predict prognosis with some degree of certainty becomes especially relevant in circumstances in which proper neurological examination is not possible: patients under sedation or who are uncooperative.[6] We should mention that the extension of the lesion is a time-dependent variable: it is thought to increase in length by approximately 10 mm per day.[7] Therefore, the prognostic value of MRI becomes significant when it is performed in the first 48-72 hours after symptom onset.[8] Arévalo et al.[1] report that the patient was surgically treated after diagnosis by CT scan and that MRI was performed after the procedure. It would be interesting to analyse the motives leading to that decision.

Based on the above, we recommend performing a spinal MRI scan and prescribing surgical treatment as early as possible in patients with spinal cord compression. Creation of a radiological protocol including sagittal T2-weighted sequences as the main diagnostic study would help to save time in the management of these patients, who require urgent treatment. Adding the length of the intramedullary lesion to the radiological description would provide a better idea of recovery expectations in these patients. In those cases in which performing an MRI scan would delay surgical treatment beyond 48 hours, it would be appropriate to prioritise emergency surgical treatment over the prognostic value of MRI.

Funding

This study has received no external funding.

References

1. Arevalo A, Navas M, Pulido P, Garcia de Sola R. Spontaneous acute epidural haematoma of the cervical spine with an atypical onset resembling ictal symptom. Neurol. 2018;33:408—10.
2. Martinez-Perez R, Paredes I, Rayo N, De la Rosa P, Diaz Molina J, Lagares A. Factors predicting outcome of surgical treatment of spontaneous spinal hematomas: A retrospective cohort study in four tertiary reference centers. Journal of Neurosurgical Sciences. 2017. Sep 7. doi: 10.23736/S0390- 5616.17.03975-3. [Epub ahead of print].
3. McQuarrie IG. Recovery from paraplegia caused by spontaneous spinal epidural hematoma. Neurology. 1978;28:224—8.
4. Kreppel D, Antoniadis G, Seeling W. Spinal hematoma: A literature survey with meta-analysis of 613 patients. Neurosurgical review. 2003;26:1—49.
5. Bracken MB, Shepard MJ, Collins WF, Holford TR, Young W, Baskin DS, et al. A randomized, controlled trial of methylprednisolone or naloxone in the treatment of acute spinal-cord injury. Results of the second national acute spinal cord injury study. N Engl J Med. 1990;322:1405—11.
6. Martinez-Perez R, Paredes I, Cepeda S, Ramos A, Castano-Leon AM, Garcia-Fuentes C, et al. Spinal cord injury after blunt cervical spine trauma: Correlation of soft-tissue damage and extension of lesion. AJNR Am J Neuroradiol. 2014;35:1029—34.
7. Leypold BG, Flanders AE, Burns AS. The early evolution of spinal cord lesions on mr imaging following traumatic spinal cord injury. AJNR Am J Neuroradiol. 2008;29:1012—6.
8. Martinez-Perez R, Cepeda S, Paredes I, Alen JF, Lagares A. Mri prognostication factors in the setting of cervical spinal cord injury secondary to trauma. World Neurosurg. 2017;101:623—32.

R. Martinez-Perez[a,b,*], N. Rayo[c]

[a] *Servicio de Neurocirugía. Hospital 12 de Octubre. Madrid, Spain*
[b] *División de Neurocirugía. Instituto de Ciencias Neurológicas. Universidad Austral de Chile, Valdivia, Chile*
[c] *Wester University, London, Ontario, Canada*

[*] Corresponding author:
E-mail addresses: rafa11safin@hotmail.com, rafa11safn@hotmail.com (R. Martinez-Perez).

12 October 2018

https://doi.org/10.1016/j.nrleng.2018.12.012
2173-5808/