Purpose. This article discusses the possible pathophysiological conditions responsible for magnetic resonance imaging (MRI) finding of transient focal lesions in the splenium of the corpus callosum on the basis of our experience and a review of the literature.

Materials and methods. In six patients undergoing computed tomography (CT) and MRI examinations, focal nonhemorrhagic lesions of the splenium of the corpus callosum were incidentally discovered. Patients had been referred for suspected encephalitis (n=2), dural sinus thrombosis (n=1) and multiple sclerosis (n=3). MRI examinations were repeated after 4, 8 and 12 weeks and in two cases also after 6 and 9 months. MRI and medical records were retrospectively reviewed with respect to patients’ clinical history, medication and laboratory findings to define lesion aetiology.

Results. In all patients, the lesions were isolated, reversible and with no contrast enhancement. In four patients, the lesion disappeared after complete remission of the underlying disease, whereas in two patients, they persisted for 6 and 9 months, respectively.

Conclusions. To our knowledge and according to previous reports, the fact that these lesions are detected in a relatively large number of conditions with heterogeneous etiopathogenetic factors leads to the hypothesis that a common underlying pathophysiological mechanism that, considering signal characteristic, reversibility and white matter location, could be represented by vasogenic oedema.

Key words Magnetic resonance imaging • Corpus callosum • Splenium • Focal lesions

Le lesioni focali transitorie dello splenio del corpo calloso: imaging RM e ipotesi eziopatogenetiche

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Introduction

Over the last decade, detection of transient focal lesions in the splenium of the corpus callosum (CC) during magnetic resonance imaging (MRI) examinations of the brain has become more frequent and has been described in the literature by several authors. Morphological and signal features of these lesions are usually unambiguous: they appear hyperintense in long TR sequences [T2-weighted and fluid attenuated inversion recovery (FLAIR)] and either slightly hypointense or insignificant in T1. Definite enhancement after intravenous injection of paramagnetic contrast media has not been described. Lesions are usually divided into two types according to extent and shape: oval, circumscribed, with well-defined borders and located in the middle portion of the splenium; or wider, with less regular borders and involving the entire splenium.

Because such findings have been detected in a large number of clinical conditions, there is still controversy regarding their pathogenesis. In the first published studies, Chason et al. [1] and Kim et al. [2] detected the lesions incidentally in patients treated for seizures. The authors postulated that the lesion aetiology and evolution could be related to medications used during treatment, as they were transient in nature and disappeared upon suspension of Phenytoin and Vigabatrin [3]. In subsequent studies, several authors reported the detection on MRI of transient focal cerebral abnormalities in patients with no evidence of seizures who were undergoing examination due to suspected viral encephalitis [4], rotavirus encephalopathy [5], acute cerebellitis [6], low-grade glioma [7], haemolytic-uraemic syndrome [8], salmonella-enteritis-related encephalitis [9] and high-altitude cerebral oedema [10].

Although the majority of lesions were described in patients treated for seizures, the same findings were described in a wide spectrum of clinical conditions, suggesting that it is inappropriate to view them as a clearly defined disease pattern. Rather than ascribing the findings to a distinctive pathology, it is more reasonable to believe that they represent a common specific pathophysiological condition developing in the splenium of the CC during different clinical situations.

The aim of this study was to analyse the possible pathogenetic conditions responsible for the appearance of such lesions, attempting to provide an explanation and clinical correlation based upon our experience and on the published data.

Materials and methods

Six patients with transient focal lesions in the splenium of the CC were studied in our university department of radiological sciences. The patients, three men and three women, with a mean age of 21 (range 16–34) years, underwent brain MRI due to suspected infectious brain disease (n=2), venous sinus thrombosis (n=1) and demyelination disease (n=3). Each patient was studied by brain CT and MRI (Shimadzu

Materials e metodi

Presso l’Istituto di Scienze Radiologiche dell’Università degli studi di Sassari sono state riscontrate in 6 pazienti lesioni transitorie localizzate a livello dello splenio del corpo calloso. I pazienti, 3 maschi e 3 femmine, età media 21,8 anni (ran-