Asymptomatic Brain Finding Results on MRI in a Patient with Crohn’s Disease: a Case Report

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Abstract

The association of inflammatory bowel disease with neurological involvement is unusual and often controversial. We report the case of a 39-year old man with Crohn’s disease and an intracranial benign primary tumor, detected on MRI scan. The patient had been suffering from extensive perianal fistulas for 8 years, before inflammatory bowel disease was diagnosed six months ago. The patient, being enrolled in a research protocol, underwent brain MRI examination. Despite the absence of neurological symptoms and electromyography abnormalities, a meningioma was evidenced. Whether this is an incidental finding on brain MRI or whether it might be linked to Crohn’s disease development as an extraintestinal, neurological disorder remains unclear. This information is especially important in view of the ethical and practical issues involved in the management of incidental findings in CD. This report might provide further confirmation of the hypothesis that central neurological disorders occur during CD.

Keywords

Crohn’s disease – MRI – brain findings.

Introduction

Extraintestinal manifestations are common in ulcerative colitis and Crohn’s disease (CD), occurring in at least 25-40% of patients and can be classified as related to disease activity or not. The exact incidence of neurological complications is unknown, with reports varying from 0.2% to 35.7% [1, 2]. The variation could be due to selection bias or to different disease definitions [3]. We present the case of a 39 year old man with CD and asymptomatic brain meningioma. The clinical relevance and natural course of this unexpected asymptomatic finding is largely unknown. This information is especially important in view of the ethical and practical issues involved in the management of incidental findings. However, this report might provide further confirmation of the hypothesis that neurological disorders can occur during CD.

Case Report

A 39 year old male patient presented with extensive perianal fistulas, persistent for 8 years. Crohn’s disease was suspected and the patient underwent lower gastrointestinal endoscopy which revealed ileocecal disease compatible with CD. Biopsies confirmed the diagnosis. Antibiotics failed to improve the patient’s condition. Therefore, infliximab in combination with azathioprine was provided. An impressive improvement was noted after the second infusion.

The patient had never reported neurological symptoms. Being enrolled in a research study, he underwent a brain MRI in order to identify central nervous system disorders. The MRI scan revealed an intracranial tumor size 5 x 7 mm with regular contour and no sign of malignancy or hemorrhage, with the most probable diagnosis: meningioma (Fig. 1). Further examinations with electromyography did not reveal any abnormality.

The patient has remained asymptomatic and is following close clinical and radiologic monitoring to rule out a rapidly enlarging tumor.

Discussion

Neurological involvement in CD is unusual. Central nervous system disorders could either be part of extraintestinal symptoms in this disease or precede diagnosis [4]. However, their frequency is not well known or documented.

A wide variety of diseases affecting the peripheral nervous system has been reported. Peripheral neuropathy is one of the most frequently described neurological complications [2, 3]. Stalberg et al reported a prevalence of almost 40% of either
Moreover, there are a few cases that present cerebral venous and dural sinus thrombosis in association with IBD [11, 12] as well as ischemic stroke and peripheral arterial thromboembolism [13].

On the other hand, it is well known that incidental findings on brain MRI in the general population are common [14, 15]. Katzman et al reported a prevalence of 1.1% for clinically serious abnormalities, such as brain tumors, in a retrospective study of a heterogeneous population of volunteers, 3 to 83 years old, who participated in a variety of research studies. One population-based study, conducted to determine the prevalence of incidental brain findings recorded benign primary tumors at 1.6%, with meningiomas being described most often, 0.9% among patients 45 years of age or older [16].

Our patient was a 38 year old man with no previous brain MRI. The diagnosis of the tumor was made on the basis of imaging. Pathological confirmation was not obtained, since the tumor did not require surgery and the patient remained asymptomatic.

The rate of growth of meningiomas is typically slow [17] and most of them remain asymptomatic throughout life, which explains why 50% are discovered at autopsy [18]. The prevalence of meningiomas found at autopsy in persons over 60 years of age is 3% and the majority of the lesions are less than 1 cm in diameter [19]. In our case, the tumor was bigger in size at the moment of discovery but it is difficult to prove that the presence of Crohn’s disease might have been a factor to accelerate the rate of growth.

Nevertheless, it is generally believed that asymptomatic meningiomas require close clinical and radiological follow-up to rule out rapidly enlarging tumors [20]. Currently, our patient follows close monitoring and the next MRI is scheduled in six months.

In conclusion, whether, this meningioma represents an incidental finding on brain MRI or it might be linked to CD development as an extraintestinal, neurological disorder remains unclear. Further prospective studies are necessary in order to confirm the hypothesis that such central neurological disorders may occur during Crohn’s disease.

References


Fig 1. Brain finding on MRI: a small meningioma is shown on a T1-weighted axial image.

Paresthesias and/or increased threshold for temperature in patients with CD treated with metronidazole and 20% in the group not treated with metronidazole [5]. In the largest reported series of peripheral neuropathy patients, neurological disorders other than peripheral neuropathy were observed in 67% of the CD and 53% of the ulcerative colitis patients [6]. Another study described headaches as by far the most common neurological complaint, although they were mild, non-debilitating, nonmigrainous, and commonly exacerbated by disease relapses and the introduction of new medications. They also observed small vessel and large vessel cerebrovascular disease, epilepsy, Bell’s palsy and transient chorea [7]. But in this study, patients did not systematically undergo brain MRI unless initial findings of the neurological work-up indicated otherwise.

In our case, peripheral neuropathy was not diagnosed despite detailed examinations.

An additional subclinical involvement of the spinal cord in CD patients, difficult to differentiate on clinical grounds from pure neuropathy, may always play a role in the sensory complaints experienced by patients with low or borderline low B12 levels and cannot be ruled out, considering the presence of brisk reflexes in some CD patients with pure sensory complaints and normal nerve conduction studies. Our patient’s blood test did not reveal any abnormality.

In our case an intracranial tumor was detected, with no neurological complaint from the patient, nor electroencephalogram and electromyography abnormalities found.

One study reports two cases of CD and a central nervous system deficit. In both cases, MRI confirmed the presence of T2 hypersignal in the white matter (4). Other reports describe focal white-matter lesions on the brain MRI of patients with inflammatory bowel disease [8, 9].

Inflammatory bowel disease has been linked to cerebrovascular lesions, but mechanisms of these vascular complications are unclear. There is a case series report which describes cerebrovascular arterial and venous thromboembolic events in 4 pediatric patients [10].