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Odontogenic Cellulitis Complicating Multifocal Brain Abscess and Bacterial Meningitis in a Pregnant Woman: about a Case

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Abstract

A brain abscess, an intracerebral purulent collection caused by bacterial, fungal, or parasitic infections, often arises from primary infectious foci in the ENT sphere or by contiguity. Although rare, it poses significant risks, especially in vulnerable populations such as pregnant women. This report presents the case of a 24-year-old woman at 29 weeks of amenorrhea, admitted for progressive worsening headaches. Initial symptoms included nocturnal paroxysms with bilateral frontal location radiating to the neck, evolving into language disorders and right hemibody functional impairment without convulsive seizures, all in a febrile context suggesting an infection. Notably, the patient had undergone a pus drainage procedure for odontogenic cellulitis one week prior. Clinical examination revealed febrile status, meningeal syndrome, and neurological deficits including dysarthria and right hemiparesis. MRI results showed multiple brain abscesses with peri-lesional cerebral edema. Antibiotic and corticosteroid therapy yielded significant clinical improvement. However, post-treatment imaging revealed hydrocephalus, necessitating extended antibiotic therapy. This case underscores the importance of timely diagnosis and treatment of ENT infections to prevent severe intracerebral complications, particularly in immunocompromised patients.

Introduction

A brain abscess is an intracerebral purulent collection due to a bacterial, fungal or parasitic infection [1]. Its etiologies are mainly made up of primary infectious focal in the ENT sphere or by contiguity. It is a rare pathology but of significant seriousness, especially if it develops in vulnerable areas, like pregnant women [2].

Observation

Our case relates to a 24-year-old woman, at 29 weeks of amenorrhea, admitted to hospital for further diagnostic and therapeutic management of recent unusual headaches of progressive worsening, evolving for two weeks. Headaches are characterized by nocturnal paroxysms on a continuous background, of bilateral frontal location often radiating towards the nape of the neck, non-positional. After a week, the symptoms are then accompanied by language disorders due to difficulty articulating words; with functional impotence of the right hemibody type of heaviness in progressive appearance. The patient did not have any disturbances in vigilance during the illness, nor any convulsive seizures. Everything evolved in a febrile but unquantified context, suggesting an infectious mechanism. Note that one week before the onset of headaches, the patient underwent a pus drainage procedure, in the maxillofacial surgery department, on left odontogenic cellulitis.

On physical examination upon admission, the patient was febrile at 39.1°C with frank meningeal syndrome. Headaches were rated 8/10 on the numerical scale. We identified understandable dysarthria and right hemiparesis of the pyramidal type, notably the predominance of extensor deficits in the right upper limb; and flexors in the right lower limb. The osteotendinous reflexes were strong on the right with an extensional cutaneous-plantar reflex on the right as well. The rest of the neurological examination, notably the higher functions and the cranial nerves, was without abnormality. The patient did not have any sphincter problems. We did not find any other infectious foci at the clinic; the cellulite drainage procedure wound was clean; and the patient had tooth decay at 36.

Furthermore, fetal heart sounds were well heard with normal fetal active movements. Faced with this clinical picture, we prescribed brain Magnetic Resonance Imaging with Gadolinium injection, the results of which (fig 1.2.3.4) showed (in T1, T2 sequence) multiple rounded hyposignal lesions; well limited; surrounded by hypersignal; multiloculated at the infra- and supra-tentorial level: left pontine, left ponto-cerebellar angle, left frontal linked to multiple brain abscesses. All surrounded by a range of subcortical hypersignal in favor of peri-lesional cerebral edema.

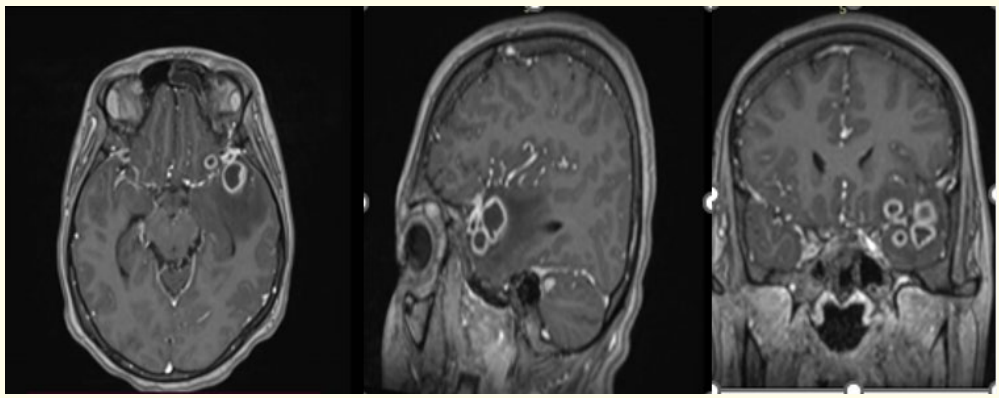

Figure 1 ***Figure 2*** ***Figure 3***

The rest of the assessment came back with a biological inflammatory syndrome including hyperleukocytosis with a neutrophil predominance; a urine dipstick returned negative; a blood culture was ordered.

For etiological management, the antibiotic therapy administered was C3G and metronidazole at a meningeal dose. Parenteral corticosteroid therapy, including Methylprednisolone 120 mg/day, was started for 5 days to reduce peri-lesional edema, relayed orally at 1 mg/kg in a decreasing dose over a month. In addition to analgesics, the patient also benefited from motor physiotherapy sessions as well as supportive psychotherapy sessions.

The patient had a good progress with a clear improvement in symptoms after four days of antibiotic therapy and corticosteroid therapy. A pelvic ultrasound was done and revealed an active intrauterine pregnancy of 29 weeks and 6 days of amenorrhea without complications. The biological inflammatory syndrome has reduced. Note that parenteral antibiotic therapy in the etiological treatment of brain abscesses must last at least for 45 to 60 days.

A control brain scan with injection was carried out after 45 days of meningeal dose antibiotic therapy, since the patient was readmitted to hospitalization for recent paroxysmal headaches in a febrile context. The CT scan came back normal, with complete disappearance of the multifocal abscesses and the peri-lesional edema.

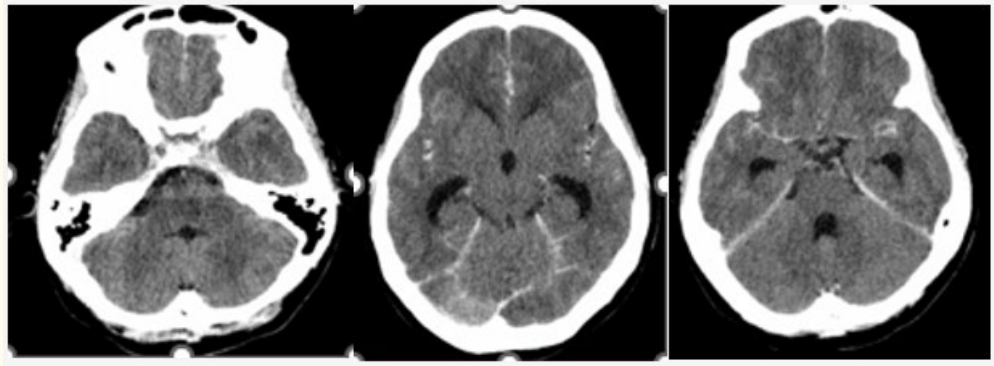

Figure 4 *Figure 5* *Figure 6*

On the other hand, the cyto-bacteriological and biochemical examination of the CSF was in favor of bacterial meningitis and we had to reintroduce antibiotic therapy for 21 days with parenteral corticosteroid therapy. A good clinical and paraclinical evolution was observed after three days of treatment.

We found in the literature a few cases similar to our patient, notably cerebral abscesses and empyema due to contiguity of ENT infectious sites (odontogenic cellulitis [3], otitis media [4], nasopharyngitis [5]) leading to alert patients not to neglect these infections. Health professionals must also be rigorous in the therapeutic education of these patients, especially those who are weakened and immunocompromised, like pregnant women; diabetics and polytaric patients [6].

Conclusion

This case highlights the critical importance of timely diagnosis and comprehensive treatment of ENT infections to prevent severe intracerebral complications, particularly in immunocompromised individuals such as pregant women. Prompt intervention and approriate therapeutic stategies are essential for favorable outcomes in brain abscess cases. Enhanced awareness and rigorous patient education can significantly mitigate risks associated with these infections.

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