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## CORRESPONDENCE

# Invasive fungal rhinosinusitis presenting as Bell's palsy in a kidney and liver transplant recipient



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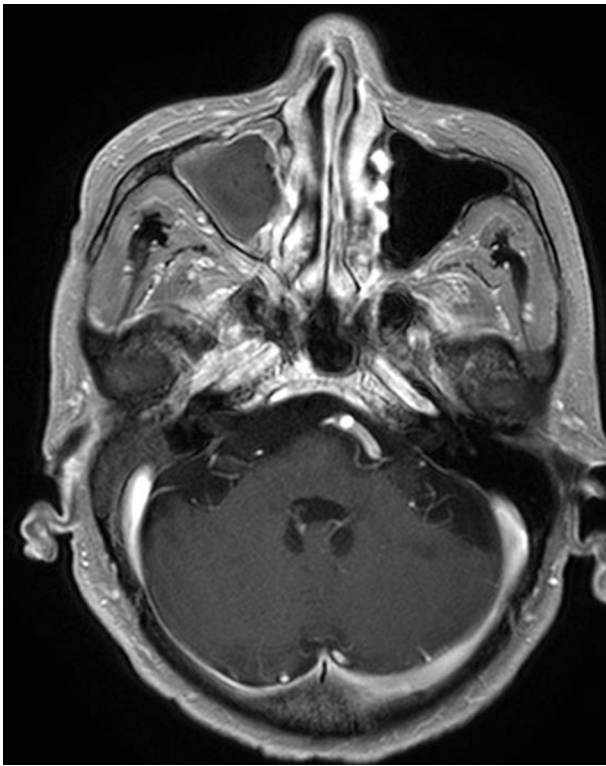
A 73 year-old man with type II diabetes mellitus, hepatitis C related liver cirrhosis received a live-donor liver transplant in 2004. A year later, he was diagnosed to have mesangio-proliferative glomerulonephritis with deteriorating renal function unresponsive to a course of corticosteroid. He required regular hemodialysis in 2006. He received a cadaveric renal transplant in 2008. The post-transplant course was uneventful. His maintenance immunosuppression included prednisolone 5 mg daily, cyclosporin A (trough level around 70 µg/L) and mycophenolate sodium 180 mg twice daily. Serum creatinine level had been stable at 100–110 µmol/L. He presented with symptoms of sinusitis in 2014, and was treated with amoxicillin/clavulanate 375 mg thrice daily for a week, intranasal corticosteroids, and nasal irrigation. Intermittent use of intranasal corticosteroids was continued for recurrent symptoms. Six months later, he presented with right-sided facial palsy of sudden onset and right ear pain. Physical examination showed lower motor neuron type of right cranial nerve (CN) VII palsy without additional neurological abnormality. He was afebrile with normal white cell count. There were no

vesicles around the right auricle. Bell's palsy (House-Brackmann Grade V) was diagnosed and he was treated with prednisolone 60 mg daily for one week. Magnetic Resonance Imaging of the brain (Fig. 1) performed a week later revealed right mastoid effusion, otitis media and maxillary sinusitis, and also superior sagittal sinus thrombosis. Right myringotomy and maxillary sinus anastomy were performed immediately, which showed a fungal ball lesion. Histological examination revealed fungal hyphae with leucocyte infiltrates, but fungal culture was negative. By internal transcribed spacer sequencing, the fungus was identified as *Aspergillus* species. Endoscopic sinus debridement was performed twice. He was treated with intravenous anidulafungin for 4 months and oral voriconazole was extended for 15 months. He is continued on oral voriconazole as interval imaging still demonstrate sinusitis. His CN VII palsy had complete recovery.

This patient illustrates an unusual presentation of fungal rhinosinusitis masquerading as Bell's palsy. Invasive fungal infection is relatively uncommon in kidney transplant recipients. An incidence rate of 1.3% at 1-year has been reported, compared with 4.7% in liver transplant recipients.<sup>1</sup> Common risk factors include diabetes mellitus, high-dose corticosteroid therapy, recent or prolonged antibiotic use, long-term hospitalization, neutropenia, and graft failure.<sup>2</sup> Diabetes mellitus is also associated with a

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**Figure 1** Post-gadolinium T1-weighted fat saturated magnetic resonance image showing retention and mucosal enhancement and thickening over right maxillary sinus in keeping with sinusitis. Abnormal enhancement was also noted over right middle ear and petrous part of right temporal bone in keeping with otitis media and inflammatory changes involving the temporal bone.

higher risk of Bell's palsy, especially in those greater than 40 years-old.<sup>3</sup> This patient was exposed to a short course of high-dose systemic corticosteroid prior to the diagnosis. Whether the prior course of antibiotics and prolonged

use of intranasal corticosteroid inhalation might have precipitated the fungal infection, or the latter had been present from the start when the patient presented with sinusitis remained speculative.<sup>4</sup> *Aspergillus* and *Mucorales* are the two micro-organisms most commonly associated with invasive fungal rhinosinusitis. Both show a tendency for vascular invasion, giving rise to tissue infarction and thrombosis, as demonstrated in our patient. Other potential consequences include bony erosion, complications affecting the eyeball or surrounding cranial nerves, and meningoencephalitis. Fungal rhinosinusitis is thus a serious complication which could result in mortality. Treatment should be rapid and aggressive, involving both surgical debridement and prolonged systemic anti-fungal treatment.<sup>5</sup>

### Conflicts of interest

The authors have no conflicts of interest relevant to this article.

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