Facial Paresis Secondary to an Aggressive Acute Bacterial Rhinosinusitis

When approaching a patient with cranial nerve 7 (CN7) palsy, a careful workup must be undertaken in order to rule out the many treatable etiologies, including the malignant and infectious. To guide the need for imaging, a careful medical history must elicit if the CN7 weakness had an abrupt onset or a progressive course. Bell palsy is diagnosed only if potential etiologies of the CN7 lesion have been confidently ruled out.

Report of a Case | A man in his 50s presented to a tertiary care emergency department (ED) with a 5-week history of right facial paresis, facial numbness, and severe ipsilateral headaches. He had presented to an outside ED shortly after the onset of his facial weakness and headaches 5 weeks prior and was diagnosed as having Bell palsy. A computed tomographic (CT) scan was not obtained; he was treated with an unknown antibiotic and did not receive steroids.

The patient had a medical history of poorly controlled diabetes mellitus and hypothyroidism. Physical examination revealed right-sided chemosis and exophthalmos, purulent nasal secretions, and maxillary nerve hypesthesia. Neurological examination revealed complete eye closure with effort, moderate brow weakness, and lip droop with effort, for an overall House-Brackmann III right facial paresis. The left facial nerve was intact. Nasal endoscopy showed polypoid changes of right middle turbinate and purulence within the nasal cavity. No necrotic debris was seen. The patient had a white blood cell count that was at the high end of normal.

A CT scan of the head showed right-sided rhinosinusitis with erosion of the superior (Figure 1) and posterolateral wall of the maxillary sinus (Figure 2). There was evidence of an orbital abscess, as well as purulence extending into the infra-temporal fossa with tracking into the parotid, caudal to the stylo-mastoid foramen (Figure 2). There was no radiographic evidence of neo-osteogenesis (Figure 1) or clinical history of chronic rhinosinusitis.

The patient was initially treated with intravenous antimicrobials, antinociceptive eye drops, steroid nasal spray, and saline sinus irrigations. On the day of admission, he underwent right endoscopic sinus surgery with concomitant endoscopic drainage of the orbital abscess. Transantral drainage of the infra-temporal fossa abscess was also performed through the eroded posterior maxillary sinus wall. Pathologic findings were notable for chronic inflammation and fibropurulent exudate without evidence of fungus. Cultures grew coagulase-negative Staphylococcus aureus and Enterococcus faecalis.

On hospital day 8, the patient began to have sensation return to the right cheek. He was discharged home on hospital day 10 with 6 weeks of oral antibiotics, saline irrigations, and nasal steroid spray. Facial nerve function remained House-Brackmann III at his last examination 4 months after presentation. The patient was lost to follow-up.

Discussion | No case of CN7 palsy secondary to bacterial sinusitis was found in the medical literature. In the current case presentation, the patient’s acute rhinosinusitis was diagnosed as Bell palsy 5 weeks prior to presentation.

After 5 weeks of disease persistence, CT findings of purulence tracking into the parotid near the stylomastoid foramen suggest this location as the site of injury to the facial nerve. The V2 hypesthesia this patient experienced is likely due to inflammatory damage to V2. The involvement of 2 cranial nerves secondary to this patient’s acute rhinosinusitis highlights an unusual link between bacterial sinonasal disease and skull base pathology.

Given the patient’s history of poorly controlled diabetes mellitus, rhino-orbital-cerebral mucormycosis was suspected in this case. Given the lack of pathological evidence of fungal infection and improvement without antifungal agents in this case presentation, a fungal etiology was highly unlikely. While a strong association between sinusitis and facial paresis has not been found, Caroli et al presented a case of sinus aspergillosis associated with cranial nerve seven palsy. Other bacterial infections, such as otitis externa, mastoiditis, otitis media, and eustachitis, can lead to CN7 palsy, albeit at a location proximal to the stylomastoid foramen.
Conclusions | We present the first reported case, to our knowledge, of CN7 paresis secondary to acute bacterial sinusitis. The initial diagnosis as Bell palsy underscores the importance of considering a broad differential diagnosis, particularly in an immunocompromised patient such as one with poorly controlled diabetes mellitus.

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CORRECTION

Error in Byline: There was an error in the byline of the article “A Painless Right Facial Mass,” published online March 19, 2015 (doi:10.1001/jamaoto.2015.0272). The last author’s name should have been listed as Sugoto Mukherjee, MD. This article was corrected online.