Sphenoid sinus tuberculosis: A rare cause of visual dysfunction in an adolescent girl

Sir,

Isolated involvement of the sphenoid sinus by a disease process is a rarity. The common pathologies in this location are inflammatory, fibro-osseous or neoplastic with non-specific and fungal sinusitis being the causative factor in more than 75% of the cases. English literature survey identified only seven cases of isolated tuberculosis infection of the sphenoid sinus. We report one such case.

An 11-year-old girl presented with transient diplopia of 3 months duration and gradual painless loss of vision of 1 month duration. The diplopia resolved with a short course of steroids administered by a local physician. Examination revealed a visual acuity of 6/60 in the right eye and 2/60 in the left. Ocular fundi showed bilateral optic atrophy. There were no other neurological deficits. The hormonal profile was normal. Cranial magnetic resonance imaging (MRI) [Figure 1] showed a 3.7 cm lesion filling the entire sphenoid sinus with negligible extension into the sellar-suprasellar region. The lesion was isointense on T1-weighted images and was of heterogeneous intensity on T2-weighted images. There was heterogeneous contrast enhancement with central non-enhancing areas. Computed tomography scan showed erosion of the sphenoid bone and adjacent clivus.

The diagnostic possibilities considered were a fungal inflammatory lesion or clival chordoma. She underwent an endoscopic transnasal biopsy of the lesion. At surgery, the sphenoid sinus was filled with soft necrotic material with moderate vascularity. The histopathology was suggestive of a necrotizing granulomatous inflammation evidenced by the presence of confluent granulomata, composed of Langhans’ multinucleate giant cells and epithelioid histiocytes, bordered by a dense infiltrate of lymphocytes and plasma cells. The culture grew Mycobacterium tuberculosis sensitive to first-line antituberculous therapy. She was administered weight-adjusted doses of isoniazid and rifampicin along with pyridoxine for 18 months and pyrazinamide for 3 months. MRI [Figure 2] done at 2-year follow-up showed no residual lesion. However, there was no change in her visual status.

Clinical presentation of patients with isolated sphenoid sinus disease is non-specific, and the symptoms include headache (65%), nasal obstruction (22%), and post-nasal drip (11%). Visual disturbances (15%) and cranial nerve paresis occur less frequently (10%). The mean age of the seven previously reported cases of sphenoid sinus tuberculosis was 5.8 ± 5.5 years (range, 2-17 years) and clinical features included proptosis in three, lateral rectus paresis in two, impaired vision in one, and ptosis in one. Four out of the seven patients had a concomitant tuberculous infection – pulmonary, CNS, lymph node, or skeletal. There was no such focus in our patient. The radiological features are non-specific and can mimic other inflammatory and neoplastic lesions such as chordoma, Wegner’s granulomatosis, invasive fungal disease, allergic fungal sinusitis, sarcoma, carcinoma, and even metastasis. A histopathologic/microbiological diagnosis...
is always warranted. Endoscopic trans-sphenoidal biopsy/excision is the most straightforward solution. Although direct compression in the optic canal or orbit can result in progressive loss of vision, the cause of visual loss in patients with inflammatory pathology of the sphenoid sinus cannot always be determined. In patients with mucoceles, the visual loss can be sudden and direct compression of the optic nerves may not be seen on imaging studies. In such cases, a vascular compromise of the optic nerves due to inflammation of the vessels is thought to be a possible cause and a similar process might have been the cause of visual loss in our patient. Visual outcome in patients with inflammatory lesions of the sphenoid sinus may be poor even after surgical treatment and complete resolution of the lesion. This was seen in our case and has also been reported by others.  

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