Case 25

History of Present Illness

A healthy 55-year-old man went to see a neurologist for headaches around his eyes. He has a family history of migraine in his paternal grandmother and aunt. He was never car sick as a child. He has had occasional headaches around his eyes that he has attributed to sinus headache since he was 20. They occurred infrequently but especially after drinking red wine. Over the last 10 years he has had steadily worsening sinus headaches unresponsive to acupuncture and sinus medications. He was referred to the neurologist. The pain is behind his eyes, in his forehead and over both cheeks. He has minimal light sensitivity and sound sensitivity but denies nausea or vomiting. The only change that he noticed is that they are getting more frequent—at least weekly and sometimes 2–3 days in a week. When the pain is severe, he thinks he has more nasal stuffiness. He has taken ibuprofen with some success although the efficacy seems to be waning. He wants to know if he should have sinus surgery.

Past medical and ocular history Prostate cancer diagnosed age 54 with normal PSA since Myopic and wears contact lenses	*Past surgical history* Prostatectomy
Medications Occasional flonase Ibuprofen	*Family history* Migraine in a paternal grandmother and two paternal aunts
Social history Married and successful in business	*Review of systems* Per HPI

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Examination
Acuity with correction Right eye: 20/20 Left eye: 20/20
Pupils Equal and no RAPD
Intraocular pressure Right eye: 14 mmHg Left eye: 14 mmHg
External exam Normal
Eye alignment Normal
Slit lamp examination Normal
Visual field Normal
Fundus examination Normal
Neurologic examination Normal

Discussion

Neurologic Perspective—Dr. Digre

I wish I had a dollar for everyone I see that thinks they have sinus headaches—I would be very well off! Sinus headache, contrary to advertising and public belief, is less common than you think. The ICHD 3 beta classifies sinus headache as either acute rhinosinusitis or chronic recurring rhinosinusitis (see Table 25.1). These criteria require evidence of either acute or chronic inflammation and infection either by endoscopy or by imaging. Most individuals end up with normal imaging or minor sinus thickening.

True sinus headaches do not keep recurring every week or month. They also have an abnormal examination. The American Academy of Otolaryngology: Head and Neck Surgery have developed criteria for rhinosinusitis (see Table 25.2). Otolaryngologists point out that sinus headaches from chronic rhinosinusitis do not typically have photo and phonophobia and nausea and vomiting such as what is seen in migraine. The headache more clearly mimics tension-type headache including changes in pressure, nasal congestion, rhinorrhea, and an abnormal ENT examination. Other characteristics include morning worsening with improvement as the day goes on. Furthermore, they point out that the imaging of the sinuses must depict inflammation (Fig. 25.1) in true sinus headache. However, imaging may show sinus thickening in about 30% of scans in even normal non-headache individuals—so imaging alone is insufficient to make the diagnosis. Individuals with more than two bouts of true sinus headache in a year should be worked up for an immune deficiency.

Table 25.1 ICHD 3beta: Acute and Chronic Rhinosinusitis

(A) Clinical, nasal endoscopic and/or imaging evidence of acute (or chronic or past infection) rhinosinusitis
(B) Must have evidence demonstrated by at least two of the following
1. Headache developed in temporal relation to the onset of the rhinosinusitis
2. Either or both:
(a) Headache significantly worsened in parallel with worsening of the rhinosinusitis
(b) Headache has improved or resolved in parallel with improvement in or resolution of the rhinosinusitis
3. Headache is exacerbated by pressure applied over the paranasal sinuses
4. In the case of unilateral rhinosinusitis, headache is localized ipsilateral
(C) Not better accounted for by another diagnosis

Headache Classification Committee of the International Headache Society. The International Classification of Headache Disorders: 3rd edition (beta version). *Cephalalgia*. 2013;33:629–808

Table 25.2 American Academy of Otolaryngology; Head and Neck Surgery

Major criteria
Purulence on examination of the nasal cavity
Face pain/pressure
Nasal blockage or obstruction
Fever (acute sinusitis only)
Anosmia/hypo-osmia
Nasal discharge
Discolored post-nasal drainage
Minor criteria
Headache
Bad breath
Fatigue
Dental pain
Cough
Ear pain or pressure
Fever (non-acute)

Adapted from Houser and Levine, Current Pain and Headache Reports 2008, 12:45–49

Acute frontal sinusitis often causes pain in the medial side of the orbit, maxillary sinusitis causes pain in the cheek and teeth, whereas acute ethmoid sinusitis causes pain at the bridge of the nose or behind the eyes, and sphenoid sinusitis causes pain to the top of the head or whole head.

Otolaryngologists know that the most likely diagnosis is migraine when someone presents with "sinus headache." In fact, studies have shown that among people who think they have sinus headaches, 90% have migraine instead. Why would this be? Well, first the sinuses are innervated by the same trigeminal system that is operant in migraine. Second, nasal congestion, tearing, and rhinorrhea are frequently also seen with migraine.

There are many controversies about sinus headache—especially in discussing mucosal "contact points," septum deviation, enlarged turbinates, and nasal

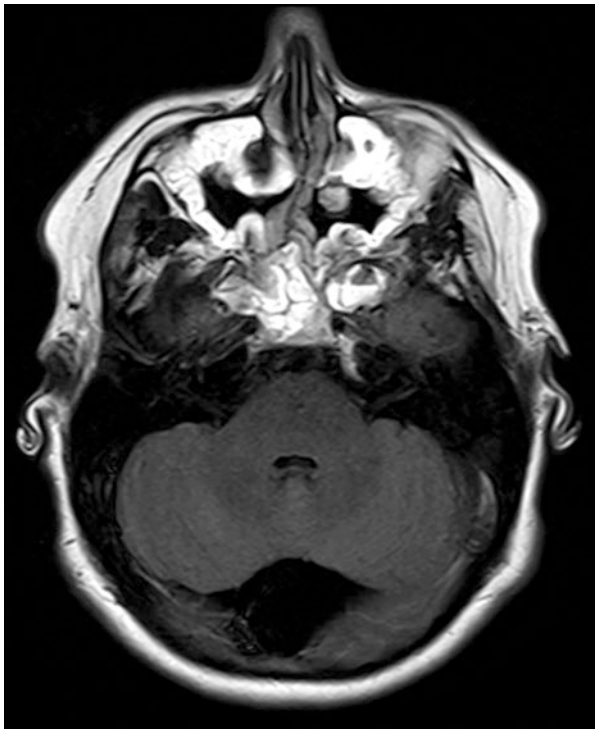

Fig. 25.1 Axial T1 MR scan of chronic sinus disease of the maxillary and sphenoid sinus in a patient with true sinus headache (not the Patient herein)

obstruction. This confusion increases in children who often have viral-mediated rhinitis and headaches. These diagnoses then lead to many unnecessary surgeries.

Make the correct diagnosis here—sinus headache is RARE-less than 4% of all headaches. There are criteria to make the diagnosis. Treatment with nasal decongestants most of the time are treating migraine. Think migraine first when someone complains of sinus headache.

Ophthalmic Perspective—Dr. Lee

I very much agree with Dr. Digre. In fact, I do not send patients with eye pain to otolaryngology, and our otolaryngologists are not interested in seeing headache presumed from sinus disease unless they have clear evidence of sinusitis on imaging. However, to some hammers everything looks like a nail and patients may have repeated sinus surgeries to help their "sinus headache." Postoperatively, they feel better but that is because their migraine resolved. When the migraine returns, the patient undergoes another sinus surgery.

Non-ophthalmic/Non-neurologic Perspective

Sinus disease is such a common symptom coming to a primary care provider. When can you diagnose true sinus headache? First, think migraine—since most individuals who think they have sinus headache will have migraine. If the person meets criteria for sinusitis, treatment with antibiotics may be appropriate. If patients are chronic, they deserve imaging and possible referral to an ENT.

Follow-up

He received a diagnosis of migraine and treated his headaches with sumatriptan which worked far better than all of the previous nasal decongestants and ibuprofen. *Final diagnosis: Migraine masquerading as Sinus headache*.

For Further Study

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