Case 20

History of Present Illness

A 45-year-old sales clerk with a family history of migraine began having headaches in high school. She treated her headaches early on with over-the-counter medications. After the birth of her two children, her headaches increased in frequency to 1–2 headaches each week. She then saw her primary care physician in her mid 30s who diagnosed migraine and while she tried sumatriptan once, she did not like how it made her feel, so the provider prescribed butalbital, acetaminophen, and caffeine, which worked most of the time. However, over the last 5 years her headaches have slowly increased in frequency and severity and over the last 1 year, the headaches are daily with her needing to go to bed at least 1–2 days each week. She takes her triptan at least 2–3 days in a week and the combination analgesic (acetaminophen, butalbital, caffeine) 4 days each week.

The worst headache is focused around her right eye and forehead and can switch to the left side rarely. The pain is throbbing, she has light and sound sensitivity as well as nausea and vomiting for the most severe headaches. The pain is usually worst in the morning and will respond to her acute medication. She denies any tearing, conjunctival injection, rhinorrhea, or ptosis. She is now missing work and fears her job will be terminated. She is also having trouble sleeping, and is somewhat depressed. Her PHQ 9 depression scale is ten indicating moderate depression. Her MIDAS score is 60 indicating severe disability from migraine.

What can we do to help her?

Past medical and ocular history	*Past surgical history*
Hypothyroidism treated	Cholecystectomy
Obesity	Hysterectomy
Depression	
Wears reading glasses	

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Medications Synthroid 0.1 mg each day Sertraline 100 mg each day Prilosec prn Zolpidem prn Acetaminophen, butalbital, caffeine 1–4 every other day Rizatriptan 2–3 days each week	*Family history* Migraine in her mother, maternal grandmother Depression in father
Social history Married with two children; no smoking; rare alcohol use	*Review of systems* Poor sleep; knee pain Snores at night Anxiety about her job

Examination
Acuity with correction Right eye: 20/20 Left eye: 20/20
Pupils Equal without RAPD
Intraocular pressure Right eye: 15 mmHg Left eye: 15 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

We first need to diagnose the problem with this woman. She has migraine (see Case 19), which has increased to near daily headaches—with more than 15 per month signifying chronic migraine. As with many individuals, she started with episodic migraine and then had gradual worsening. She has many risk factors for chronification of her migraines including: her gender, migraine history, attack frequency, obesity, snoring, depression, and frequency of use of medication. See Table 20.1 for risk factors for chronification of migraine.

Table 20.1 Risk factors that lead to chronic migraine

Non-modifiable factors:
Sex (women more frequent)
Migraine history
Low education
Lower socio-economic status
Head injury
Modifiable factors:
Medication overuse*
Attack frequency
How well acute treatment works
Frequent nausea
Stressful life events
Snoring
Depression

*see Table 20.2

Overuse of medication can lead to medication overuse headache (MOH). While migraine is very common chronic migraine occurs in about 3–4% of adults. The combination of chronic migraine and MOH is very debilitating and occurs about 1–2% of the population. Criteria for MOH are listed in Table 20.2. Other names used for MOH include: rebound headache, drug-induced headache, and medication misuse headache.

Medication overuse headache is most prevalent in women in their 40s. Patients most frequently have a previous primary headache disorder like migraine or tension-type headache. Risk factors for the development of MOH are primarily frequent use of an acute rescue medication (ergotamine, triptan, opioid, and combination analgesic). Barbiturates (butalbital), which this woman is on, is notorious for causing MOH. In fact, 70% of patients using barbiturates and 40% of those using opioids develop chronic migraine. Other risk factors include depression and other psychiatric contributions, and frequent migraine.

Treatment rests with withdrawal of the offending medication—sometimes patients need to be detox'ed. Often the addition of a preventive is helpful. Sometimes patients go through withdrawal especially from opiates and butalbital containing compounds. The best evidence suggests stopping the offending agent and starting a preventive such as topiramate or onabotulinum toxin. Coming off the offending medication can be tricky too. Slow tapering off butalbital or switching short acting butalbital to long acting phenobarbital and then tapering is what I would recommend in this patient. Overuse of opiates would require slow taper to avoid withdrawal symptoms. Sometimes the addition of clonidine to fight the opiate withdrawal can be helpful. One can stop ergotamines and triptans abruptly without untoward effects. Education about migraines and how to avoid them, and an acute and preventive treatment plan are critical to stopping this headache.

With education and stopping the offending agent, 50–90% of patients revert to episodic migraine. Teaching non-medication ways to handle pain including lifestyle

Table 20.2 ICHD 3 beta: medication overuse headache criteria

A.	Headache occurring on 15 days per month in a patient with a pre-existing headache disorder
B.	Regular overuse for >3 months of one or more drugs that can be taken for acute and/or symptomatic treatment of headache*
C.	Not better accounted for by another ICHD-3 diagnosis

*Regular intake risk varies by class
Ergotamine: More than 10 days per month for more than 3 months
Triptans: More than 10 days each month for more than 3 months
Simple analgesics (acetominophen, aspirin, non-steroidal anti-inflammatory): More than 15 days per month for more than 3 months
Opioids: More than 10 days per month for more than 3 months
Combination analgesic: More than 10 days each month for more than 3 months
Multiple drug classes (any combination of ergotamine, triptans, simple analgesics, NSAID, and/or opioids): More than 10 days per month for over 3 months
Headache Classification Committee of the International Headache Society. The International Classification of Headache Disorders: 3rd edition (beta version). *Cephalalgia*. 2013;33:629–808

management and avoidance of trigger factors, mindfulness, and deep relaxation all have been shown to be helpful in some individuals. Finding a migraine-specific treatment like a triptan, sometimes the longer acting triptans like frovatriptan and naratriptan can be helpful in treating patients. Limit acute triptan use to no more than 2 days in a week. Start a preventive such as topiramate, amitriptyline, or onabotulinum toxin. Even in the best of hands, unfortunately, 20–40% of patients can relapse after detox usually within the first 12 months.

Why these headaches occur is not completely understood, but some believe them to have genetic underpinnings. The medications themselves may change the way a person responds to pain medication as well. Clearly this is an area that needs further study and understanding.

Ophthalmic Perspective: Dr. Lee

For the ophthalmologist, it is important to rule out eye disease that could cause pain. Make sure there is no dry eye, uveitis, posterior scleritis, orbital inflammation, etc. More than anything, it is critical to ask how many days per month they are taking analgesics (see Table 20.2) and *recognize* that MOH exists. Referral to a neurologist experienced in headache is important.

Non-ophthalmic/Non-neurologic Perspective

Primary care physicians play a vital role in discovering, diagnosing, and treating MOH since most patients have contact with their *primary care* at least annually. Also, most primary care providers will know all of the medications that a patient has

been prescribed. Just educating people that the medication they are taking is CAUSING their headache is often enough to get individuals to taper off and avoid medication overuse headache. Just knowing about medication overuse and its treatment is one giant step for recovery.

Follow-Up

We educated the patient about chronic migraine and also about MOH. Because of her obesity we started her on topiramate 25 mg at night with slow increase to 50 mg twice daily. We also educated her on lifestyle and the importance of sleep and trigger avoidance. We tapered her off butalbital by putting her on phenobarbital at night 40 mg and slowly tapered her off this medication over 1 month. We added in a longer acting triptan frovatriptan 2.5 mg at onset and repeat in 2–4 h up to 7.5 mg/24 h—to be used no more than 2 days a week. In between we suggested naproxen 500 mg 1 day each week. We also adjusted her antidepressant medication to 150 mg each day to control anxiety and depression. She resumed episodic migraine (so far!). *Final diagnosis: chronic migraine with medication overuse headache*.

For Further Study

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