

Bouncebacks

The Case of a 37-Year-Old Man with Headaches

In *Bouncebacks*, which appears semimonthly in JUCM, we provide the documentation of an actual patient encounter, discuss patient safety and risk management principles, and then reveal the patient's "bounceback" diagnosis.

The cases are adapted from the book *Bouncebacks! Emergency Department Cases: ED Returns* (2006, Anadem Publishing, www.anadem.com; also available at amazon.com and www.acep.org), which includes 30 case presentations with risk management commentary by Gregory L. Henry, past president of The American College of Emergency Physicians, and discussions by other nationally recognized experts.

Ryan Longstreth, MD, FACEP and Michael B. Weinstock, MD

The Case of a 37-Year-Old Man with Headaches

It is common knowledge that each patient needs to have a symptom-specific evaluation with each visit, but it is easy to be misled by "frequent fliers" who have presented many times with the same complaint. Take this month's case, for example: a 37-year-old man with a headache who had four emergency department and two primary care visits before finally receiving the correct diagnosis.

Accuracy and vigilance must be the goal of each patient encounter, no matter how seemingly benign the chief complaint or previous diagnoses.

Initial Visit

(Note: The following, as well as subsequent visit summaries, is the actual documentation of the providers, including punctuation and spelling errors.)

CHIEF COMPLAINT (at 11:22): Headache

Temp	Pulse	Resp	Syst	Diast
98.9	104	18	112	68

HISTORY OF PRESENT ILLNESS (at 11:54):

Pt. is a 37 year old male who presented with complaint of 20-year history of headaches which occur about once per month. The patient was returning from church the day previously and had a constant pain in the frontal region associated with nausea and one episode of vomiting and was similar to past headaches, but lasted longer. No complaints of rhinorrhea, cough, sore throat, earache, dizziness, neck pain, rash, numbness, slurred speech or facial droop, chest pain, SOB, or abdominal pain.

PAST MEDICAL HISTORY/ TRIAGE:

PMH: Negative

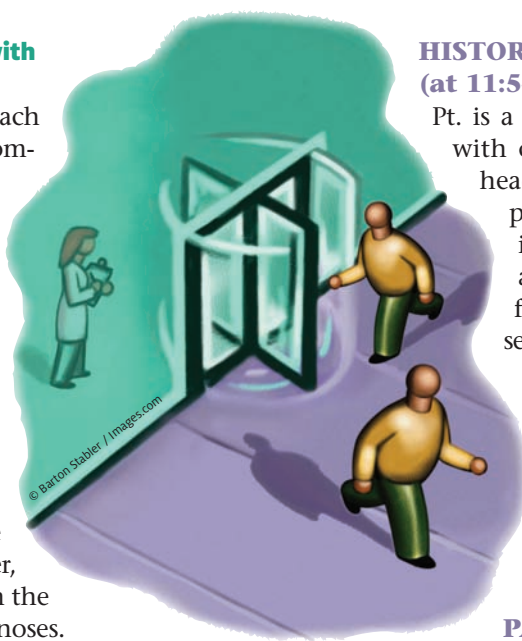
PSH: Negative

Medications: None

SH: Works for Buckeye steel

Physical exam (at 12:00):

General: Alert and oriented X3, well-nourished, in no apparent distress



Head: Normocephalic; atraumatic.

Eyes: PERRL, EOMI

Nose: The nose is normal in appearance without rhinorrhea

Respir: Breath sounds clear and equal bilaterally; no wheezes, rhonchi, or rales

Cardiac: Regular tachycardic rhythm, without murmurs, rub or gallop

Abd.: Non-distended; non-tender, soft, without rigidity, rebound or guarding

Skin: Normal for age and race; warm and dry; no apparent lesions

Neck: No jugular venous distention, no lymphadenopathy, supple without nuchal rigidity.

Neuro: Patient is alert and oriented times three. Cranial nerves III-XII are intact. Sensory and motor functions are intact. Strength is 5/5 for flexion and extension in all 4 extremities. Patellar DTRs are equal and intact. Finger to nose testing is equal and normal bilaterally.

Diagnosis (at 13:11):

Acute cephalgia, recurrent

Plan:

Rx for vicodin and phenegan, work excuse, instructions for HA, follow up family practice clinic

Discussion of Documentation and Risk Management Issues at Initial Visit

Error #1: Inadequate history.

Discussion: The chief complaint should be approached both forward and backward—forward as a detailed exploration of the chief complaint (the HPI) and backward by excluding serious illness from the differential diagnosis (review of symptoms).

Though most headaches will be from migraine or tension, life-threatening illnesses such as meningitis, cancer, subarachnoid hemorrhage (SAH), and carbon monoxide (CO) toxicity must be part of every evaluation, usually explored during the ROS.

This is not to say that headache patients need diagnostic testing with each visit, as most serious illnesses can be excluded with a good history and physical exam, but only if done. Our patient was not questioned for onset of headache (sudden onset/less than one minute concerning for subarachnoid hemorrhage), history of fever (meningitis/encephalitis), weight loss (cancer), or if contacts have had headaches (CO toxicity).

Teaching point: No matter how benign seeming a chief complaint, maintain vigilance for life-threatening

diagnosis with each visit.

Error #2: Funduscopic exam not documented.

Discussion: The funduscopic exam is quick, painless, and has the potential to reveal a large amount of information, including blurring of the disc margins (increased intracerebral pressure due to tumor or benign intracranial hypertension/pseudotumor cerebri), changes of hypertensive retinopathy, diabetic retinopathy, or AIDS retinopathy (toxoplasmosis or cytomegalovirus).

Teaching point: Document a funduscopic exam with all headache patients.

Error #3: Tachycardia not addressed or repeated.

Discussion: In a previous installment of Bouncebacks, we discussed a study of a retrospective cohort of ED patients.¹ A 10-year data review of 387,334 ED visits identified 117 patients who died within seven days of being discharged from the ED, equating to a death rate of 30/100,000. Surprisingly, tachycardia occurred in 25 of the 35 “possible error” cases.

Teaching point: Tachycardia is an oft-unrecognized warning sign of a more serious problem. A finding of tachycardia should be discussed in a progress note, the pulse should be rechecked, and evaluation revisited to ensure exploration of potentially serious illnesses.

Error #4: Inadequate aftercare instructions.

Discussion: Aftercare instructions need to be time- and action-specific. The patient should have a defined time to follow up and know specifically why to return. A patient with diagnostic uncertainty should understand this fact and a notation made that this was discussed with the patient.

Teaching point: Patients need to know when to return and why to return.

SUMMARY OF ED VISIT 2

- Returned 3 days later with frontal headache
- History notes he had seen PCP 2 days previous and was diagnosed with sinusitis and prescribed Zithromax. Now complains of emesis and decreased appetite. Pain worse when bending forward. No fever, no help with vicodin
- **Exam:** No change from initial exam, except nasal mucosa edematous and erythematous with tenderness to palpation over the frontal and maxillary sinuses
- **Brain CT – Radiology reading:** Right maxillary antrum air fluid level – Sinusitis?
- **Dx:** Cephalgia and sinusitis

- **Plan:** Entex. Continue vicodin and zithromax

SUMMARY OF ED VISIT 3

- Returned two days later at 6 AM. History included extensive synopsis of past visits and treatments including that pt. had seen PCP again yesterday (the 5th health care visit in 6 days) but the only description of current HA was “facial pressure on the right side”
- **ED course:** Demerol and phenergan IM
- **Dx:** Cephalgia secondary to sinusitis
- **Plan:** Change ATB to augmentin, continue vicodin and phenergan

SUMMARY OF ED VISIT 4

- Return same day at 4 PM (10 hours later). History now documents demographics: “37 year male from Guinea who has been in the US for 6 years”. Now complains of “fevers at home”. This is the worst HA of his life.
- **PE:** Normal except tenderness over frontal sinuses. Temperature is 99.0 degrees
- **ED course:** LP performed to look for atypical infection
- **LP results:**
 - RBC: Tube 1 = 250, tube 3 = 11
 - WBC = 5 (1 poly and 4 lymph)
 - Gram stain negative
- **Dx:** Complicated sinusitis
- **Plan:** Change vicodin to percocet. Will add cryptococcal antigen to CSF. D/C to home

SUMMARY OF ED VISIT 5

- Pt. called to return to ED a few hours later with positive india ink stain for cryptococcus.
- **Additional history:** 35 lbs. weight loss in 8 mo.
- **Exam:** No thrush, OHL, adenopathy
- **Dx:** Cryptococcal meningitis
- **Plan:** Started on amphotericin B and admitted to Infectious Diseases. Subsequent HIV test and CD4 count confirms diagnosis of AIDS

Discussion of Documentation, Diagnosis, and Patient Safety Issues

Why did the doctor miss the diagnosis?

Our patient had a case of cryptococcal meningitis from undiagnosed AIDS. His doctors had a case of “diagnosis momentum” from placing too much credence in previous physicians’ evaluations.

In 2002, Pat Croskerry, an ED physician from Canada, described specific features present in the evaluation of

patients which may lead the physician astray.² *Diagnosis momentum* occurs when a diagnosis becomes established without adequate supporting evidence, and then gathers momentum with each subsequent provider.

Our patient had a CT suggesting sinusitis, a sensitive but not specific finding. He was started on antibiotics and when he did not improve, the azithromycin was changed to augmentin.

If the initial antibiotic does not work for sinusitis, another antibiotic may be tried, but caution should be applied due to the minimal efficacy of antibiotics for sinusitis. The number needed to treat (NNT) with antibiotics is five to 14 and number needed to harm is 17.³ In other words, antibiotics will only help 6% to 20% of patients and will harm 6%. If the first antibiotic does not work, the chance of the second helping is even less and the initial diagnosis should be revisited to ensure there is nothing else occurring.

New Guidelines from ACEP

Two key questions

In June 2008, The American College of Emergency Physicians (ACEP) released new headache guidelines which answer several questions related to evaluation of patients with acute headache.⁴ The two points with the most relevance for urgent care are:

- Which patients with headache require neuroimaging?
 - Patients with older age (over 50-60 years old) with new headache
 - Occipital location of pain
 - Worsening headache with valsalva
 - Headache waking patient from sleep
 - Headache associated with syncope, nausea, or sensory distortion
 - Sudden onset severe headache (reaching maximum intensity over seconds to a minute)
 - HIV/AIDS patients with new or different headache
 - Pregnant patients
 - Abnormal finding on neurologic examination
- Does a lumbar puncture need to be performed in patients being evaluated for subarachnoid hemorrhage after a normal brain CT?
 - Limitations of brain CT include inability to identify small hemorrhages in areas obscured by artifact or bone, inability to diagnose other conditions such as idiopathic intracranial hypertension, meningitis, carotid or vertebral artery dissection and some cases of cerebral venous sinus thrombosis or pituitary apoplexy, and decay in sensitivity with time (sensitivity 92% day of rupture and 58% five days later).

- Of all cases of subarachnoid hemorrhage with normal CT, between 2% and 10% will be identified by positive lumbar puncture
- Conclusion (from ACEP guidelines): “The totality of the evidence suggests that lumbar puncture must still be performed after [a] negative CT scan result in patients being evaluated for subarachnoid hemorrhage.”

Tricks for Initial Diagnosis of HIV in Asymptomatic Patients

In an undiagnosed patient, the first clue that a patient may have HIV/AIDS is assessment of risk factors, including HIV-positive sexual contacts, injection drug use, hemophilia, multiple unknown sex partners, or travel to/from areas where HIV is endemic. White, gay men no longer represent the majority of new HIV infections in

the U.S.; over a third of recently infected individuals acquired HIV via heterosexual contact and 46% by homosexual contact. Over half of new infections are diagnosed in African-Americans, and 27% are in women.

History may provide clues; AIDS patients presenting with major opportunistic infections typically give a history of repeated minor mucocutaneous infections, such as thrush, recurrent herpes simplex, candida vaginitis, or shingles. Weight loss, night sweats and anorexia are commonly present in late stage HIV.

Physical exam clues to HIV diagnosis depend on the CD4 count. Skin exam may show seborrheic dermatitis, especially over the malar eminences, zoster scars, genital or perianal herpes simplex virus, and tinea. Oral lesions include thrush, oral hairy leukoplakia (pathognomonic for HIV) and linear gingivitis. Generalized lymphadenopathy, with strings of 1 cm to 2 cm nodes

“Search others for their virtues, thyself for thy vices.”

Benjamin Franklin (1706-1790), American author, diplomat, inventor, printer, scientist, and Founding Father

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in the posterior cervical chain, are typically found. A funduscopic exam may reveal cotton wool spots. Papilledema can be seen with cryptococcus, toxoplasmosis, or CNS lymphoma.

In November 2002, reliable, rapid testing for HIV antibodies became available, making the diagnosis of HIV quick and simple.⁵ Even more recently, the Centers for Disease Control and Prevention initiated a campaign to encourage physicians to obtain HIV testing of all persons deemed at risk for HIV infection.

Routine laboratory studies commonly show abnormalities and can support suspicions of undiagnosed HIV infection. Leukopenia with lymphopenia is the rule; its absence argues against HIV. A normochromic, normocytic anemia is common but not universal. Thrombocytopenia is seen in 10% of patients. Patients are commonly co-infected with hepatitis, resulting in abnormal LFTs.

Opportunistic infections (OI) such as cryptococcus or toxoplasmosis typically occur in the later stages of HIV infection when the CD4 count is under 200. Since the CD4 cell count falls 60 to 100 cells per year of HIV infection, it may take years after the initial viral infection for patients to present with an OI.

Evaluation of Headaches in Patients with HIV/AIDS

In patients with AIDS, the differential diagnosis includes CNS mass lesions, and a spinal tap should be withheld until a head CT scan is performed, confirming there is not a midline shift. While cryptococcus would be the most common cause of subacute meningitis in an AIDS patient in the U.S., other OIs of the central nervous system include cytomegalovirus (CMV), herpes simplex virus (HSV), herpes zoster (VZV), progressive multifocal leukoencephalopathy (PML), tuberculosis (TB), *Mycobacterium avium* complex (MAC), B-cell lymphoma, toxoplasmosis, syphilis, listeria, histoplasmosis, and coccidioides. A cerebrospinal fluid (CSF) examination and cultures of the CSF are needed to help sort out these possibilities.

Symptoms and Diagnosis of Cryptococcal Meningitis

Cryptococcus is a ubiquitous organism with a portal of entry via the lungs. It spreads to the CNS hematogenously. The most common symptoms of cryptococcal meningitis in HIV patients are chronic headache, fever, and malaise.⁶ Our patient's lack of nuchal rigidity is typical in cryptococcal disease; less than half of patients have a stiff neck. Temperatures normally do not exceed 39° C, and are absent in a quarter of patients.⁷

In AIDS patients with cryptococcal meningitis, the CT

scan is normal in most patients, but hydrocephalus and gyral enhancement can be found in some. Cortical atrophy is seen in a third of patients.

An LP was performed on our patient but no opening pressure was noted. This would have been helpful and may have suggested the diagnosis, as opening pressures are elevated (>200 mm of water) in three-fourths of patients with cryptococcal meningitis and AIDS. In fact, the increased intracranial pressure not infrequently causes cranial nerve palsies and visual impairment and is the main determinant of outcome.

An easy diagnostic trick is to check a serum cryptococcal antigen test, positive in about 95% of cases. This can be used to screen patients for cryptococcal disease without having to do a lumbar puncture.

Summary of Case

During the repeated visits, it seems that the history and physical exam were changing to fit his previous diagnosis of sinusitis without concerted efforts to look for other causes of headache. Pain worse when bending over (mentioned on the second visit) suggested the possibility of increased intracranial pressure, though this can also occur with sinusitis. Red flags included fever and the fact that he was of African descent (first mentioned by his doctor on his fourth ED visit).

The onset of this patient's cryptococcal meningitis was insidious, as was his AIDS. It was only through repeat visits and good thinking that the diagnosis was found. There are some clues on history and physical exam such as fatigue, fevers, lymphadenopathy, oral thrush, and seborrheic dermatitis, which may be suggestive of immunosuppression due to HIV/AIDS, but from examining our patients charts, it is difficult to say if these processes were occurring. The correct diagnosis was eventually made and the patient was appropriately treated, but his outcome could have been far different. ■

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