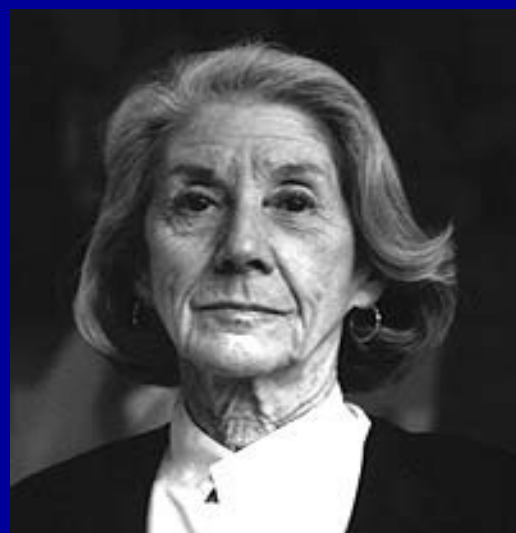
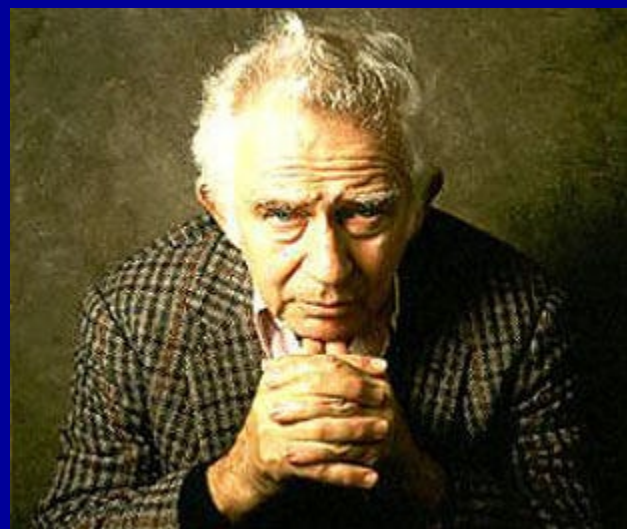


Neurology/Psychiatry Interface in Geriatric Emergency Medicine (GEM) Patients

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Case # 1

CC: 74 year old female presents with right hip pain, slight difficulty ambulating

HPI: Fell in apartment; stumbled over rug onto carpeted floor landing on right side; No pre-fall symptoms; No LOC; No head or neck trauma; No other physical complaints

Case # 1

- PMHx: HTN, CRI, NIDDM, Arthritis
- Meds: Enalapril, Avandia, ASA, Celebrex
- NKDA
- Social Hx: Lives with husband; completes all ADLs and IADLs
- PE: AVSS, NCAT, neck supple, CTA, RRR, Abd benign, Ext: mild ttp over right hip, no deformity/lesions, FROM, NVI distally, able to bear wt. and ambulate with only slight limp

Case # 1

- Blood work: Negative
- ECG: NSR
- Xrays: Negative
- Despite ortho consult stating ok for d/c, you are sufficiently aware of “atypical” presentation of femur fractures in elderly that you order a CT of hip/pelvis

Case # 1

- CT Hip/Pelvis: Negative!
- Patient is d/c'd home with appropriate follow-up with ortho and PMD; excellent discharge instructions are given
- Nothing prevents you from sleeping well that night!
- 2 Days later.....@#%\$&!!!!

Case # 1

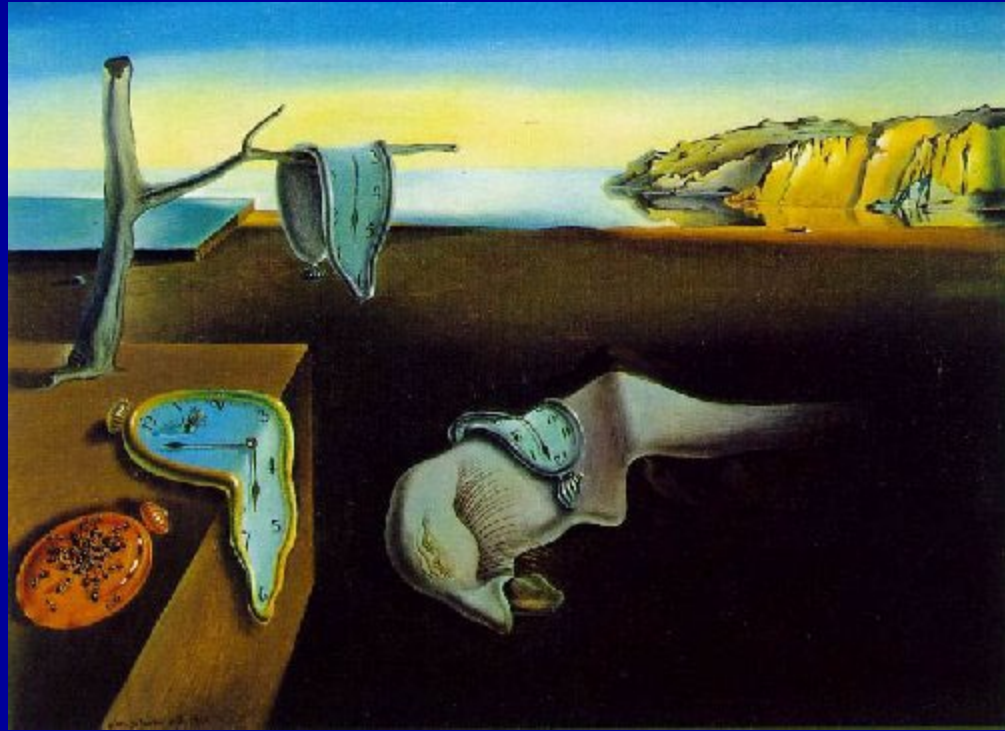
- Same patient returns to ED 2 days later s/p falling three more times
- No prodromal symptoms of HA/dizziness/palp./CP/SOB/N/V/D; No physical complaints; No LOC (as per husband) but “She’s been acting funny off/on today.”
- Patient now has obvious delirium
- No other findings on VS or PE

Case # 1



Case # 1

- Was the work-up appropriate during the first ED visit?
- Could anything else have been done?



Delirium

Common in the elderly ED patient

- 385 ED patients > 65 years old
 - 10% had delirium by CAM¹
- 188 ED patients > 70 years old
 - 9.6% had delirium by CAM²

Delirium

Frequently missed in the ED

- Only 17% identified delirium & 38% of delirium patients were discharged³
- Delirium documented in only 30% of cases & 37% of delirium patients were discharged⁴

Delirium

Often a manifestation of significant illness

- Overall 75% increase in mortality
- Without delirium, 3-month mortality in elderly is 8%
- If delirium present, 3-month mortality is 14% in the elderly⁵

Delirium

Definition

- Disturbance of consciousness
- A change in cognition
- Develops over a short period of time
- Fluctuates during the course of the day
- Not explained by dementia

DSM-IV 1999

Delirium

Multifactorial

- Precipitated by any condition that:
 - 1) impairs cerebral metabolism
 - 2) promotes neurotransmitter disequilibrium
- Only slightest shift is sufficient for delirium

Causes of Delirium

- **VAMPIRE**

Vitals (BP, Temp, O₂, hydration, metabolics)

Acute events (MI, PE, CVA)

Medications (sedative-hypnotics, narcotics, anticholinergics, antidepressants, antipsychotics, anti-Parkinson, anti-hypertensives, diuretics, beta-blockers, digitalis, steroids, polypharmacy, excessive dosage, medication withdrawal)

Pain (Control)

Infection (UTI, PNA)

Restricted mobility

Environment (sleep deprivation, multiple stimuli, vision and hearing impairment)

Delirium

Risk factors:

- Age
- Cognitive/functional impairment
- Severity of medical illness
- Medications
- Trauma (esp. hip fx)
- Closed head injury
- Surgery
- Substance abuse

Delirium

Geriatric cascade: the complex interplay of

- Compromised host defense mechanism
- Decreased physiologic reserve
- Pre-existing co-morbidities
- Atypical or sub-clinical presentation
- Transient decline in cognitive ability

Delirium

- NOT a normal part of aging!
- NOT a psychiatric diagnosis!
- Medication-related is most common!
 - 30% of elderly (>75 yrs) admissions are due to adverse drug events
 - 15% of these present as delirium⁸

Delirium

- May be the only sign of significant medical illness in the elderly
 - Pneumonia (cough/fever often absent)
 - Sepsis (fever unreliable)
 - AMI (chest pain/dyspnea often absent)
 - Abdominal infections (exam often subtle)

Delirium

- May co-exist with dementia and/or psychiatric illness
 - If in doubt, assume the cognitive dysfunction is delirium
- Family or nursing home staff often needed to help diagnose

Presentations of Delirium in the ED

- Infection/sepsis
 - ~30% of patients will have delirium
- Falls
 - delirium can be a contributing factor
 - often no significant injury pattern
- “Not acting right”
 - vague complaints as per family

Delirium

More likely to develop if:

- Physical restraints are used
- Indwelling bladder catheter is placed
- > 3 new medications added recently
- Malnutrition
- Prolonged ED stay (>12 hours)⁹

Delirium

- Suggested by the presence of cognitive impairment with:
 - 1) Acute onset (hours to days) and fluctuating course
 - 2) Inattention (difficulty maintaining focus)
 - 3) Disorganized thinking OR altered level of consciousness

Delirium

Diagnosis in the ED

- CAM (Confusion Assessment Method)
- Validated in clinical trials to be as good as lengthy psychiatric interviews⁶
- Detection rates similar to geriatrician's assessment⁷
- Takes < 5 minutes to complete

CONFUSION ASSESSMENT METHOD (CAM) SHORTENED VERSION WORKSHEET

EVALUATOR:

DATE:

I. ACUTE ONSET AND FLUCTUATING COURSE

a) Is there evidence of an acute change in mental status from the patient's baseline?

No _____

Yes _____

b) Did the (abnormal) behavior fluctuate during the day, that is tend to come and go or increase and decrease in severity?

No _____

Yes _____

II. INATTENTION

Did the patient have difficulty focusing attention, for example, being easily distractible or having difficulty keeping track of what was being said?

No _____

Yes _____

III. DISORGANIZED THINKING

Was the patient 's thinking disorganized or incoherent, such as rambling or irrelevant conversation, unclear or illogical flow of ideas, or unpredictable switching from subject to subject?

No _____

Yes _____

IV. ALTERED LEVEL OF CONSCIOUSNESS

Overall, how would you rate the patient's level of consciousness?

-- Alert (normal)

-- Vigilant (hyperalert)

-- Lethargic (drowsy, easily aroused)

-- Stupor (difficult to arouse)

-- Coma (unarousable)

Do any checks appear in this box?

No _____

Yes _____

If all items in Box 1 are checked and at least one item in Box 2 is checked a diagnosis of delirium is suggested.

Adapted from Inouye SK et al, Clarifying Confusion: The Confusion Assessment Method. A New Method for Detection of Delirium. Ann Intern Med. 1990; 113:941-8.

Delirium

To CAM or not to CAM?

- High risk patients
 - 1) Admitted patients: “Infection/ r/o sepsis”
 - 2) Discharged patients: “Status post fall, no serious injury”

Delirium

In-patient statistics:

- Noted in 1/3 of elderly patients admitted with infections¹⁰
- Occurs in 30-60% of elderly patients s/p hip surgery
- Complicates 14-56% of hospitalized elderly patients
- Increases mortality 25-33%
- > \$5 billion in Medicare expenditures¹¹

Delirium

Summary

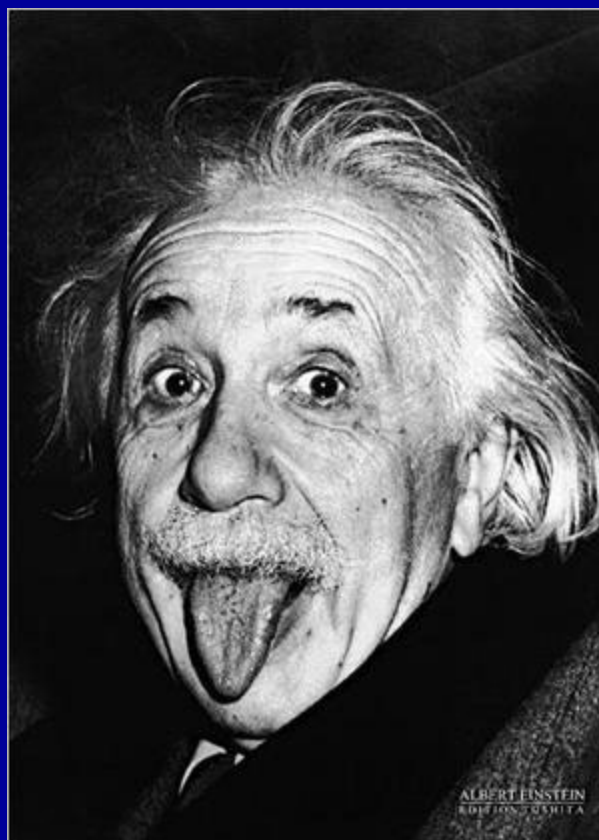
- Importance of detecting delirium in the elderly
- Delirium can represent serious illness in elderly ED patients
- Use CAM, especially in patients who fall and will be discharged

Subdural Hematoma



“The Great Imitator”

- Cerebral atrophy leaves room for large hematomas!
- Sxs can be insidious and nonspecific!
- Presentations may be a mild headache, subtle mental status changes, or a new gait disturbance without other focal deficits



Case # 2

- CC: 82 year old man presents with fatigue, anorexia, generalized body pain; He is concerned he has cancer
- HPI: Progressive over last 2 months, but worse over last week; No localizing complaints; No trauma; No reported weight loss; Saw PMD last month for “check up”
- PMHx: Parkinson’s disease, HTN, Stable angina

Case # 2

- Meds: Sinemet, Lopressor, Lasix, Ecotrin
- Social Hx: Lives alone; retired
- PE: AVSS, Unremarkable physical exam except for mild baseline resting tremor
- Blood work: Negative
- ECG: NSR with mild LVH
- CXR: Unremarkable, ? Borderline CM
- Urine: Negative

Case # 2

- You decide to gentle hydrate, observe, re-examine
- Patient states he is OK now & wants to go home
- After successful PO challenge and gait assessment, you discharge the patient with follow-up with PMD early next week

Case # 2

- Was the ED work-up appropriate for this patient?
- What else could have been done?



Depression

- Not a normal part of aging!
- Common, affecting over 6 million people > 65 yrs old
- Prevalence of 2-10% for major depressive disorder (MDD) and 15-30% for depressive sx's in community-dwelling elderly^{12,13}
- Prevalence in GEM patients is ~30%¹⁴

Depression

- ~50% of patients with late-life depression are suffering their first episode
- Significant impact on all-cause mortality (e.g. cardiovascular disease)
- Elderly have 4x odds ratio of dying vs. non-depressed peers¹⁵

Depression

Risk factors for MDD:

- Female gender
- Single marital status
- Low socioeconomic status
- Poor social support
- Co-morbid medical illness
- Chronic pain syndromes
- Cognitive/functional impairment
- Decreased mobility
- Adverse life stressors

Depression

- Elderly represent ~13% of U.S. population but account for 25% of suicides¹⁶
- >75% of older patients who commit suicide were suffering from major depression (often their 1st episode)
- Vast majority visited PMD/ED for general medical problems or somatic complaints within 1 month of suicide¹⁷

Depression

Risk factors for suicide:

- Depression
- Older age
- Male gender
- White race
- Unmarried status
- Alcoholism
- Co-morbid medical illness
- Recent death of a loved one

Suicide rates highest for older white males
(5x national average)

Depression

- Unrecognized and undertreated in elderly
- Only ~10% of elderly are receiving treatment
- Often, MDs incorrectly associate signs and sxs of depression with normal aging process or another medical condition

Depression

Overlap:

- Hypothyroidism & apathetic thyrotoxicosis
- Malignancy
- Frontal lobe syndrome
- CVA (20-25% suffer post-stroke depression)
- Parkinson's disease (~40%)
- Dementia (15-20% of Alzheimer patients)

Depression

Clinical presentation

- Depressed mood less prominent
- Other neurovegetative sx's prevail (anorexia, sleeplessness, anhedonia)
- More likely to express somatic complaints (chronic pain, fatigue, hypochondriasis)
- More likely to have psychosis, agitation, irritability, or frank catatonia
- Delusional depression more common

Depression

- May result in significant cognitive impairment - “dementia syndrome of depression”
 - rapidly progressive intellectual impairment
 - can present as extreme general apathy
- *Can usually distinguish from dementia by their cognitive performance on MMSE

Mini-Mental State Exam (MMSE)

Add points for each correct response.

Orientation

1. What is the:	Year?	—	1
	Season?	—	1
	Date?	—	1
	Day?	—	1
	Month?	—	1
2. Where are we?	State?	—	1
	County?	—	1
	Town or city?	—	1
	Hospital?	—	1
	Floor?	—	1

Registration

3. Name three objects, taking one second to say each. Then ask the patient to repeat all three after you have said them. — 3
- Give one point for each correct answer. Repeat the answers until patient learns all three.

Attention and calculation

4. Serial sevens. Give one point for each correct answer. Stop after five answers. Alternate: Spell WORLD backwards. — 5

Recall

5. Ask for names of three objects learned in question 3. Give one point for each correct answer. — 3

Language

6. Point to a pencil and a watch. Have the patient name them as you point. — 2
7. Have the patient repeat "No ifs, ands, or buts." — 1
8. Have the patient follow a three-stage command: "Take a paper in your right hand. Fold the paper in half. Put the paper on the floor." — 3
9. Have the patient read and obey the following: "CLOSE YOUR EYES." (Write it in large letters.) — 1
10. Have the patient write a sentence of his or her choice. (The sentence should contain a subject and an object and should make sense. Ignore spelling errors when scoring.) — 1
11. Have the patient copy the design. (Give one point if all sides and angles are preserved and if the intersecting sides form a quadrangle.) — 1



— = Total 30

In validation studies using a cutoff score of 23 or below, the MMSE has a sensitivity of 87%, a specificity of 82%, a false-positive ratio of 39.4%, and a false-negative ratio of 4.7%. These ratios refer to the MMSE's capacity to accurately distinguish patients with clinically diagnosed dementia or delirium from patients without these syndromes.

FIGURE 7-3 Mini-Mental State Examination (MMSE). Courtesy Marshall Folstein, MD. Reprinted with permission from Folstein MF, Folstein S, McHugh PR. Mini-Mental State: a practical method for grading the cognitive state of patients for the clinician. *J Psych Res.* 1975;12:189-198. Elsevier Science Ltd., Pergamon Imprint, Oxford, England.

For additional information on administration and scoring refer to the following references:

1. Anthony JC, LeResche L, Niaz U, et al. Limits of "Mini-Mental State" as a screening test for dementia and delirium among hospital patients. *Psych Med.* 1982;12:397-408.
2. Folstein MF, Anthony JC, et al. Meaning of cognitive impairment in the elderly. *J Am Geriatr Soc.* 1985;33(4):228-235.
3. Spenser MP, Folstein MF. The Mini-Mental State Examination. In: Keller PA, Ritt LG. *Innovations in clinical practice: a source/book.* 1985;4:305-310.

Depression

Diagnosis

- What to do in the ED?
- Structured psych interviews of low utility
- To screen or not to screen? And who?
 - 1) ≥ 80 years old
 - 2) complaint of lack of energy, sleep disturbance, poor appetite, or somatic complaint – “just feeling bad”
 - 3) suffer a functional decline
 - 4) have difficulty taking medications

Depression

- 2-Item Depression Screening Tool¹⁸
 - used primarily to rule out depression
 - patients who rule in should be referred for further evaluation & should be screened for substance abuse & suicidality

Depression

2-Item Screening Tool:

“During the past month, have you often been bothered by feeling down, depressed, or hopeless?” AND “During the past month, have you often been bothered by little interest or pleasure in doing things?”

- “No” to one → likelihood ratio of 0.25
- “No” to both → likelihood ratio of <0.01

Depression

Treatment

- Response rates comparable to those of younger patients (60-80%)¹⁹
- Anti-depressants typically not initiated in ED
- SSRIs over TCAs
- Benefit of psychotherapeutic interventions

Depression

Summary

- Significant prevalence
- Significant morbidity and mortality
- Atypical presentation, often with dominant somatic component
- Rule out organic etiology for symptoms
- Highly treatable



Case # 3

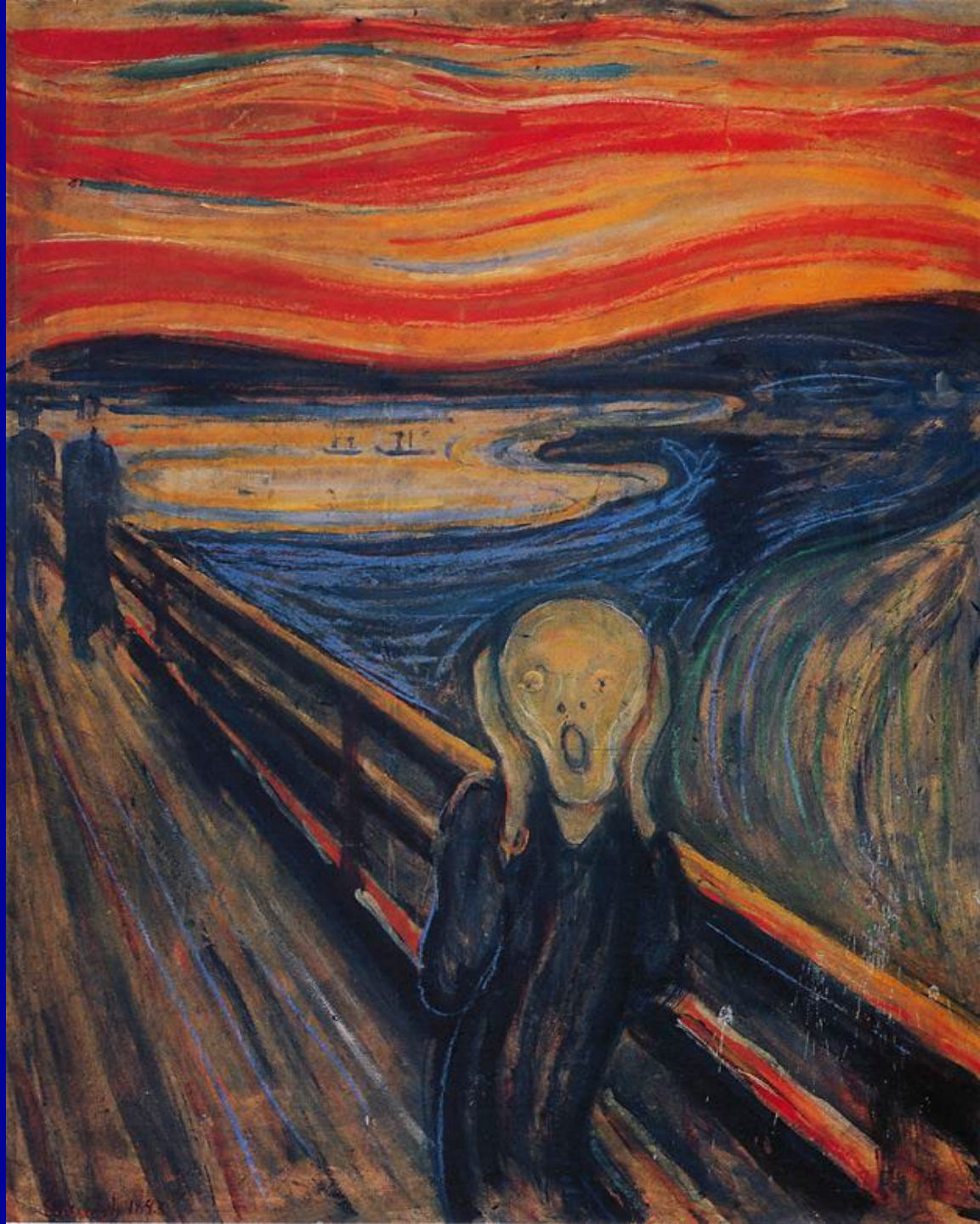
- CC/HPI: 81 year old woman transferred from a NH for altered mental status, combativeness with aides x two days; No trauma reported; no physical complaints
- PMHx: Moderate Alzheimer's dementia, CVA x 2 in the past (with baseline right-sided weakness), breast CA in distant past; bed-bound

Case # 3

- Meds: No list sent over
- NKDA
- Social: No family; Full code
- PE: AVSS; General: Yelling, belligerent, uncooperative elderly woman with paranoid ideation; Exam: Unremarkable physical exam, +diapers; no new neuro deficits

Case # 3

- What to do?
- What work-up is appropriate?



Psychosis

Definition

- Any major mental disorder of psychiatric or emotional origin characterized by personality derangement and thought disturbance
- New-onset psychosis relatively uncommon in elderly
- But accounts for up to 10% of psych admissions in patients > 60 yrs old²⁰

Psychosis

Most common functional causes in elderly:

- Psychotic depressions (15%)
- Paranoid delusional disorder
- Schizophrenia (LOS)
- Bi-polar disorder

Anxiety and depression (with psychotic features)
particularly common in frail and institutionalized
elderly patients

Psychosis

Risk factors:

- Cognitive impairment
- Female gender
- Chronic bed rest
- Sensory impairment
- Social isolation

Psychosis

Clinical presentation

- Onset is variable, but usu stable over days
- Selective cognitive impairment
- Attention +/- (not globally disordered)
- Predominantly auditory hallucinations
- Delusions often sustained, complex, and systematized
- Agitation is frequent (PMA is variable)
- Speech is typically coherent

Psychosis

- Because of significant association of psychosis with delirium, dementia, and other medical conditions → must rule out organic etiologies
- ~50% of patients with late-onset psychosis have identifiable underlying brain disease²¹
 - alterations in frontal lobe vascular flow & metabolism
 - ventricular enlargement
 - subcortical encephalomalacia

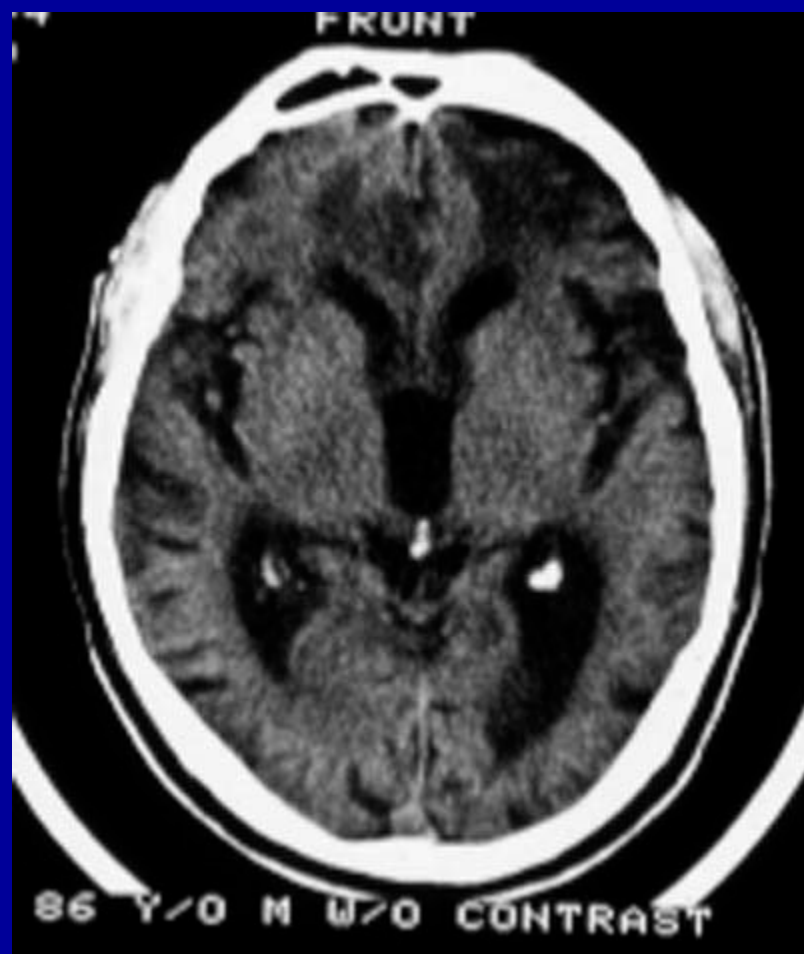
Psychosis

Organic etiologies:

- Neurologic: Dementia, Parkinson's, CVA, Tumor, Temporal Lobe Seizures
- Metabolic: Hypo/hyperglycemia, Hypo/hyperthyroid, Cushing's syndrome, B12 deficiency, electrolyte abnl
- Toxic: Benzos, Etoh, anti-cholinergics, antiparkinson agents, opiates, corticosteroids, stimulants

CVA

- Anterior cerebral artery distribution infarct
→ ACA syndrome
 - contralateral lower ext. paresis or paralysis
 - contralateral lower ext. sensory defect
 - urinary incontinence
 - **abnormalities in behavior!!**

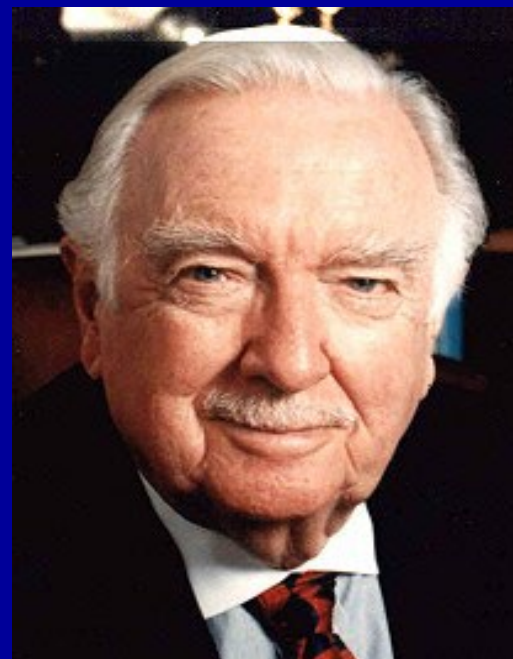


Psychosis

Treatment

- Stabilize and conduct thorough ED evaluation of potential medical and neurologic causes
- Newer atypical antipsychotics (olanzipine, risperidone)
- Admission and psychiatric evaluation





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- 8) Chan et al; *Internal Med Journal*, 2001 May-June
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Thank You

- Dr. Sunday Clark
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