My Head's Killing Me…

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Case #1

- 15 year old female presents with history of headache that has been present for about 2-3 months.
- She reports N/V occasionally worse in the mornings.
- She also reports occasional blurry vision with exacerbations in the headache.
- She has been “dizzy” and “weak” for the last month

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Case #1

- She is 75kg (>95th%) and 168cm (75th%).
- Blood pressure, Pulse and Temperature are all normal.
- PE without meningismus, otherwise normal

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Case #1
Idiopathic intracranial Hypertension
Pseudotumor Cerebri

- 0.9 per 100,000 individuals
- Associated with obesity increases risk
  - 19.3 per 100,000 in females if >20% ideal body weight
- Diagnosis
  - Signs/Sx's of Increased ICP with normal LOC
  - LP with Increased ICP (>250mm H_2O)
  - Normal CSF, Normal Neuroimaging
  - No other cause of increased ICP found

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Case #1
Idiopathic intracranial Hypertension
Pseudotumor Cerebri

- Tretment
  - Medical
    - Acetazolamide
      - 25mg/kg per day to begin
      - Maximum 2g/day
  - Surgical
    - Optic nerve sheath decompression
    - CSF shunting

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Case # 2

- 8 year old presents with history missing several days of school.
- He reports headache and vomiting and feeling “sick”.
  - Mainly in the morning prior to school
  - Mother has had to miss several days of work
- The mother reports that he has been walking like a “drunk”

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Case #2

- PE remarkable for:
  - Slight horizontal nystagmus
- Gait seems normal

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Case #3

- 12 year old presents to ED with 2 day complaint of severe head pain, diffuse throbbing pain “8/10”
- Unable to go to school, in bed since yesterday
- Vomited twice today
- Took acetaminophen (2 pills) yesterday and 2 Excedrin this morning with minimal improvement

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Case #3

- PMH: prior mild headaches, rare; “nothing like this”
- Otherwise healthy, no medications
- No fever, meningismus, rash, diarrhea, ill contacts or URI symptoms
- No head trauma
- FHx: mother and aunt have migraines

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Case 3

- Exam—complains when lights turned on
- Irritable but fully oriented with normal cognition
- Neuro exam normal including fundoscopic examination

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Case 3

- Evaluation: Imaging
  - Yield of imaging
  - Choice of study
    - CT
    - MRI/MRA/MRV
- Treatment:
  - Acute
  - Preventative

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Acute Treatment: Drug Therapy

- Acetaminophen and NSAIDs
- Analgesics/combination analgesics
- Migraine specific
  - Triptans
  - Ergotamines
- Neuroleptics/antiemetics
- Opioids

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First Line Analgesics

MEDICATION	PEDIATRIC DOSE	Adult Dose
Acetaminophen	15 mg/kg	1000 mg
NSAIDs		
Aspirin	not used	500-1000 mg
Excedrin Migraine (ASA+APAP+caffeine)	not used	1-2 tab
Ibuprofen	10 mg/kg	600-800 mg
Naproxen	5-10 mg/kg	500 mg
Ketorolac IM/IV	0.5 mg/kg	30 mg

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Parenteral Medications

- IV or IM ketorolac (Toradol) 0.5 mg/kg
- Anti-emetics:
  - Phenothiazines
    - Metoclopramide
    - Compazine
    - Phenergan
  - Seratonin agents
    - Zofran
- IV or SC dihydroergotamine (DHE)

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Triptans Available for Migraine

- Almotriptan (Axert)
- Eletriptan (Relpax)
- Naratriptan (Amerge)
- Rizatriptan (Maxalt)
  - Orally disintegrating tablets
- Sumatriptan (Imitrex)
  - Subcutaneous
  - Nasal spray
- Zolmitriptan **(Zomig)**
  - Orally disintegrating tablets

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Caution in Established Headaches

- Triptans much less effective distant from onset
- Not a good test of triptan-responsiveness!

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Triptan Contraindications

- History, symptoms, or signs of ischemic cardiac, cerebrovascular, or peripheral vascular syndromes
- Uncontrolled hypertension
- Concurrent administration of MAO-A inhibitors; use within 2 weeks of discontinuation of MAO-A inhibitor therapy is contraindicated
- Hemiplegic or basilar migraine
- Use within 24 hours of treatment with an egotamine-containing or ergot-type medication or another 5-HT_1 agonist
- Hypersensitivity to sumatriptan or any of the ingredients

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Triptans: Children and Adolescents

- Triptans are under study in the pediatric population
- Doses
  - Sumatriptan nasal spray, 5 to 20 mg; tablets, 25 to 100 mg
  - Rizatriptan tablets, 5 mg
  - Zolmitriptan tablets, 2.5 to 5 mg
- Efficacy for pain relief is similar to adults, but higher placebo rates; triptans were well tolerated in the adolescent population

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Overview of Acute Treatment

- Treat at least 2 to 3 migraines with initial treating agent to evaluate efficacy and adverse events
- Evaluate the effectiveness of the rescue medication
- Redirect management as needed

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Migraine Prevention

- IHA and AAN recommendations:
  - Offer prophylaxis for headaches > 1/week
- Risk/benefit assessment
  - Likelihood of compliance
  - Side effects of treatment
  - Comorbid conditions that might benefit from therapy
    - Obesity
    - Sleep disorder
    - Depression
- Non-prescription alternatives

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Case 4

- Urgent referral from primary care physician Monday morning
- 15 year old hit head on basketball court floor during game on Saturday
- Finished the game, confused on the way home
- Constant, steady, diffuse headache since then, “6/10”

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Case 4

- Didn’t recognize his godfather who visited on Sunday, couldn’t find his way home from the local store
- No fever, vomiting, ill contacts or other sign of illness

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Case 4

- Exam:
  - Oriented to person, not day or date, can't recall name of clinic
  - Unable to perform serial 7's or 5's
  - Recalled only 1 of 3 items
  - Neuro exam otherwise normal

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Case 4

- Imaging:
  - CT: Fast; sensitive for acute blood
  - MRI: higher sensitivity for injury
  - Imaging commonly negative
- Treatment :
  - Acute pain relief
  - Prophylaxis similar to migraine therapy
- Restrictions:
  - No contact sports till symptom-free
  - Second concussion: out for season

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Colorado Medical Society Guidelines for the Management of Concussion

Grade	Signs and Symptoms	1st Concussion	2nd Concussion	3rd Concussion
1 (mild)	Confusion without amnesia; no loss of consciousness	May return to play if without symptoms for at least 20 minutes	Terminate contest or practice; may return to play if without symptoms for at least 1 week	Terminate season; or may return to play in 3 months if without symptoms
2 (moderate)	Confusion with amnesia; no loss of consciousness	Terminate contest or practice; may return to play if without symptoms for at least 1 week	Consider terminating season; may return to play in 1 month if without symptoms	Terminate season; may return to play next season if without symptoms
3 (severe)	Loss of consciousness	Terminate contest or practice and transport to hospital; may return to play in 1 month after 2 consecutive weeks without symptoms	Terminate season; may return to play next season if without symptoms	Terminate season; strongly discourage return to contact or collision.

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Case 5

- 13 yo football player presented with frontal and left sided headaches for 3 mos.
- Denies fever, n/v, visual changes, trauma, changes in school performance or ADLs, motor or sensory symptoms.
- Exam: normal

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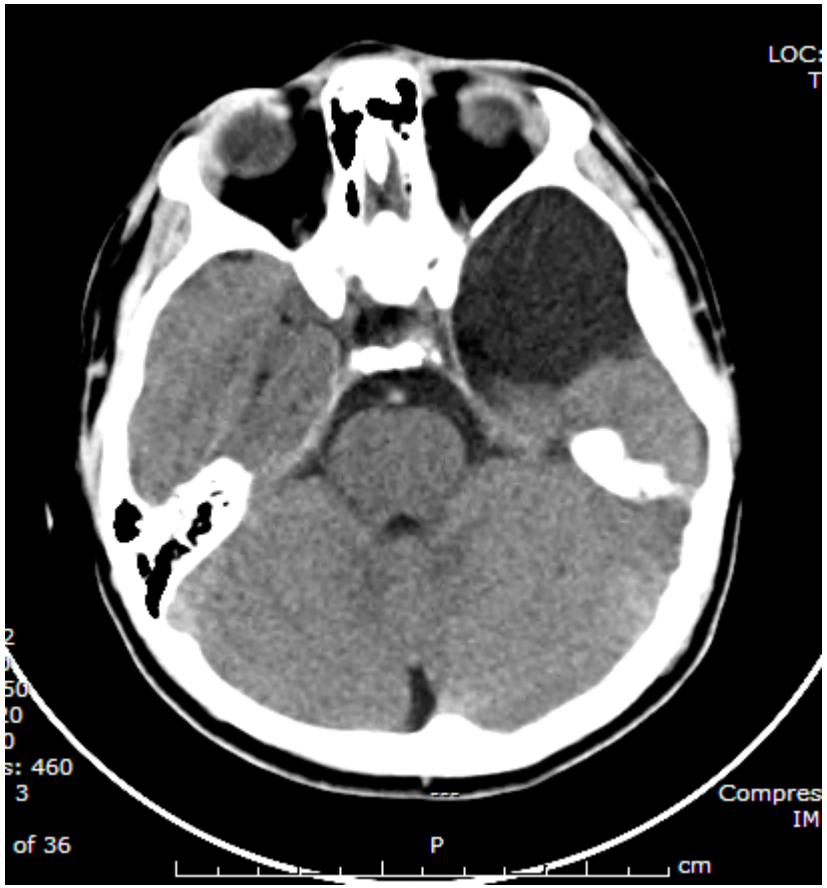
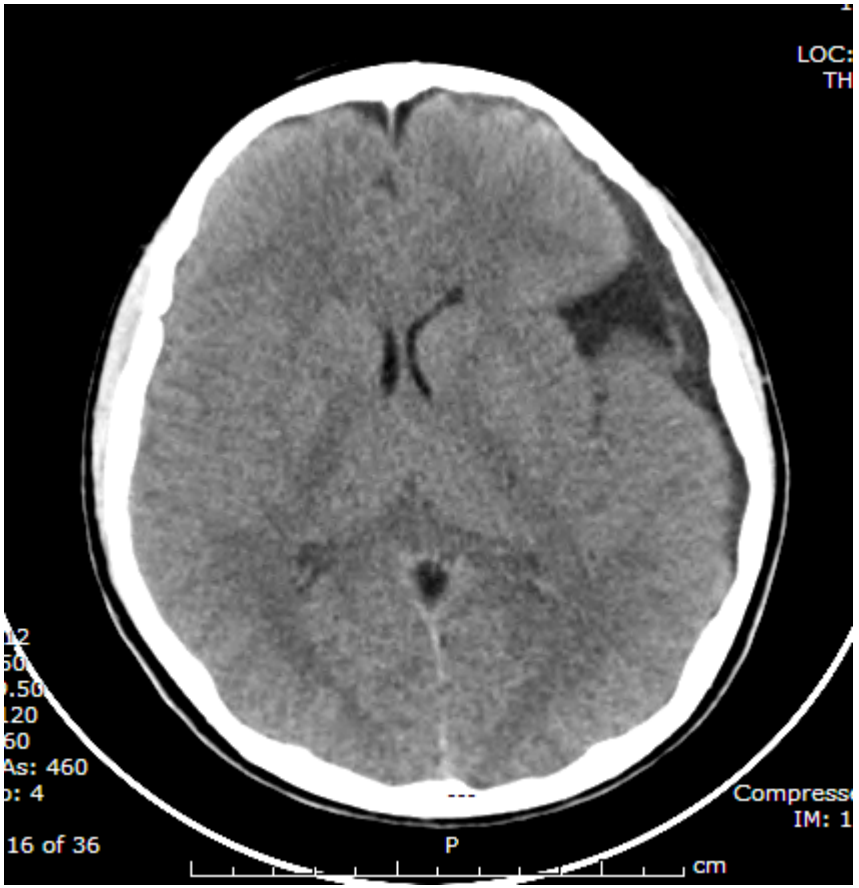
Case 5





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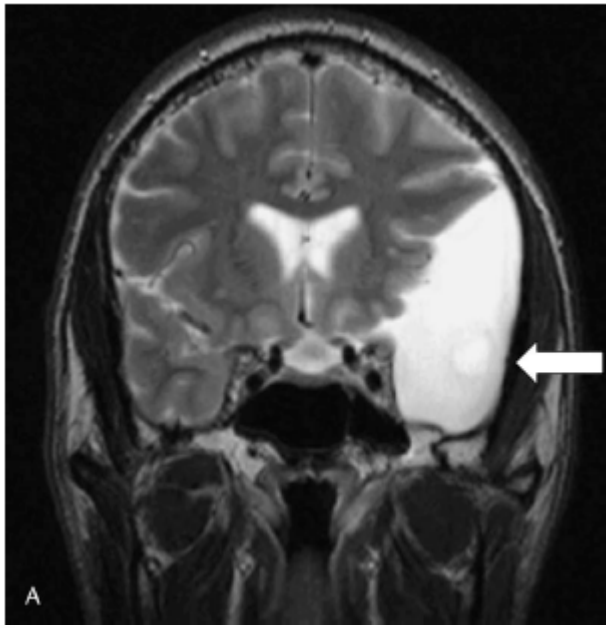
Incidental Findings in Cerebral Imaging: Arachnoid Cyst in a Professional Football Player

Seth C. Gamradt, MD, Robert Brophy, MD,* Ronnie Barnes, ATC,† Sherri Birchansky,* Scott A. Rodeo, MD,* Russell F. Warren, MD,* and Michael A. Apuzzo, MD‡*

(*Clin J Sport Med* 2008;18:97–99)



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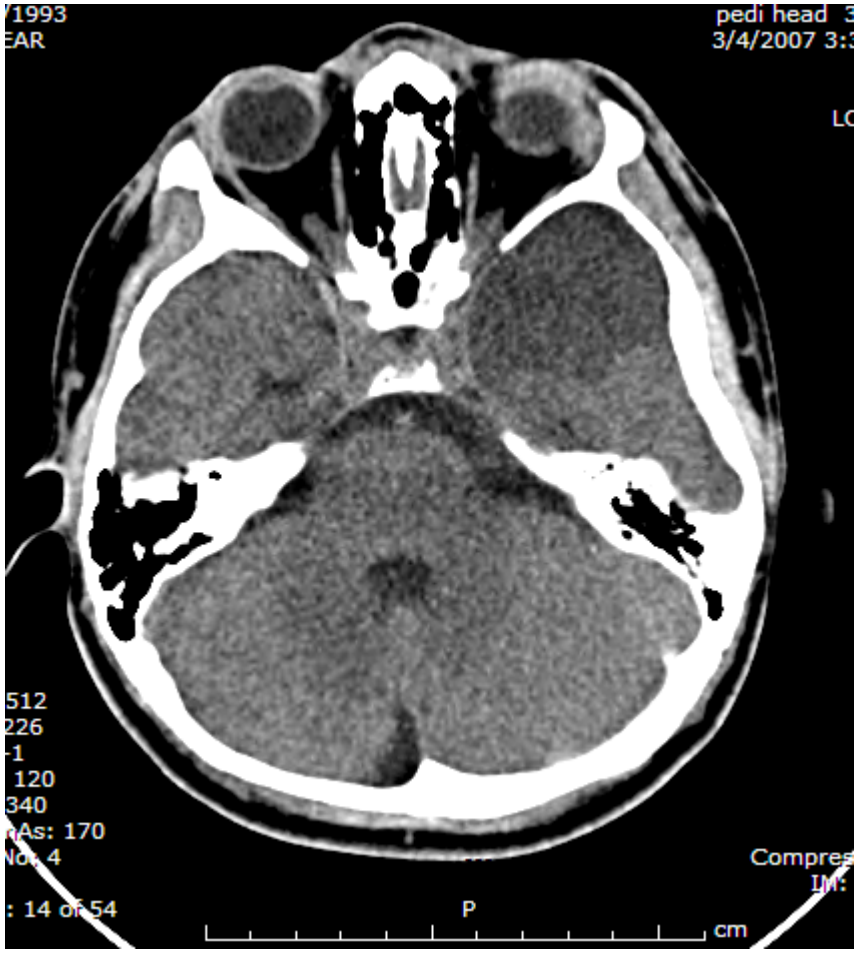

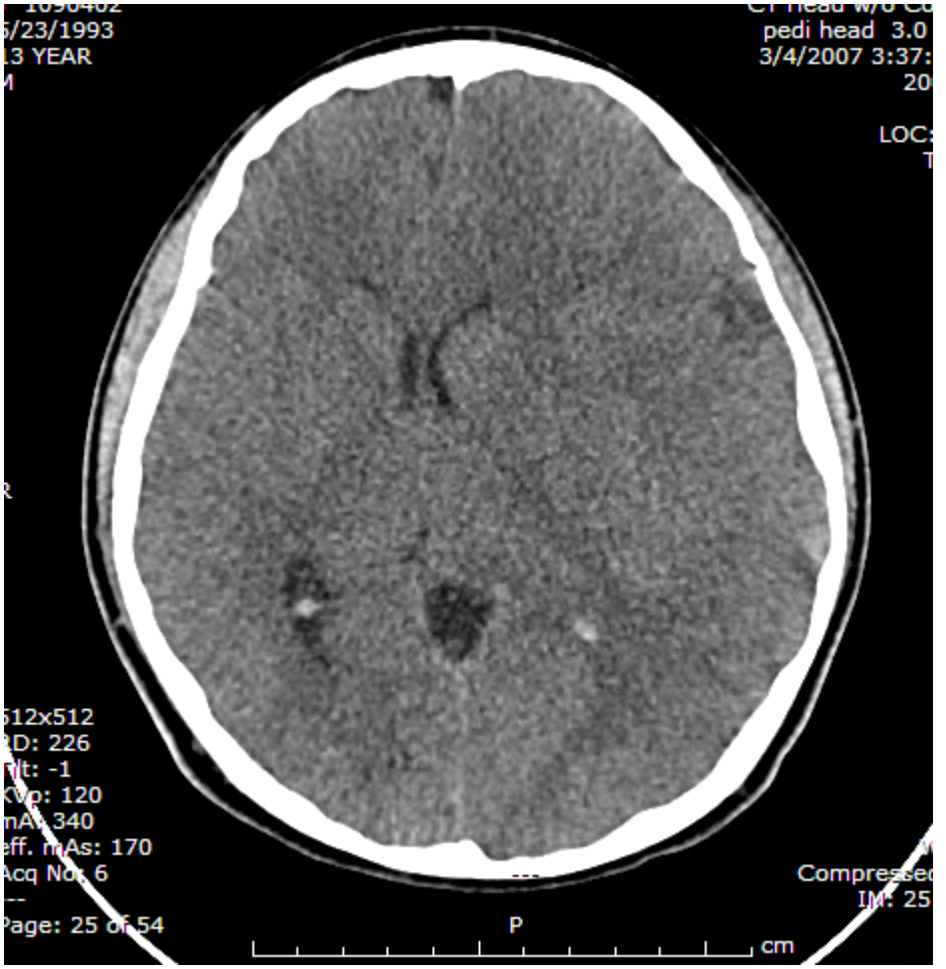

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Arachnoid Cyst

- Literature Search in Medline
  - ‘arachnoid cyst’ = 1229 articles
  - ‘intracranial cyst’ = 33 articles
- Natural History: most are incidental and generally have a very benign course
- Classification of Sylvian Fissure Cyst
  - I: mainly in the temporal fossa
  - II: temporal fossa, widens Sylvian fissure into ‘square’
  - III: plus mass effect, bulging of cranial vault

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Arachnoid Cyst

- Refractory headaches (Δ ADL)
- Neurological deficits
  - Vary depending on location
  - Developmental Delays
  - Hydrocephalus
  - Seizures
- Need to R/O other types of lesions
  - Epidermoid cysts
  - Neurenteric/Endodermal/Enterogenous cysts
  - Neoplasms
  - Aneurysms
  - Ventricular Diverticula

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Arachnoid Cyst Management

Treatment:

- Nonsurgical
  - Observation
  - Medical
  - Pain Management
- Surgical
  - Open craniotomy
  - Endoscopic
  - Shunt
  - Stereotactic/Percutaneous
    - w/wo reservoir

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Arachnoid Cyst Management

Type of Surgery Based on Cyst Location

- Sylvian Fissure

	Age <2	Repeat surgery
Open		
Endoscopic		
Shunt		

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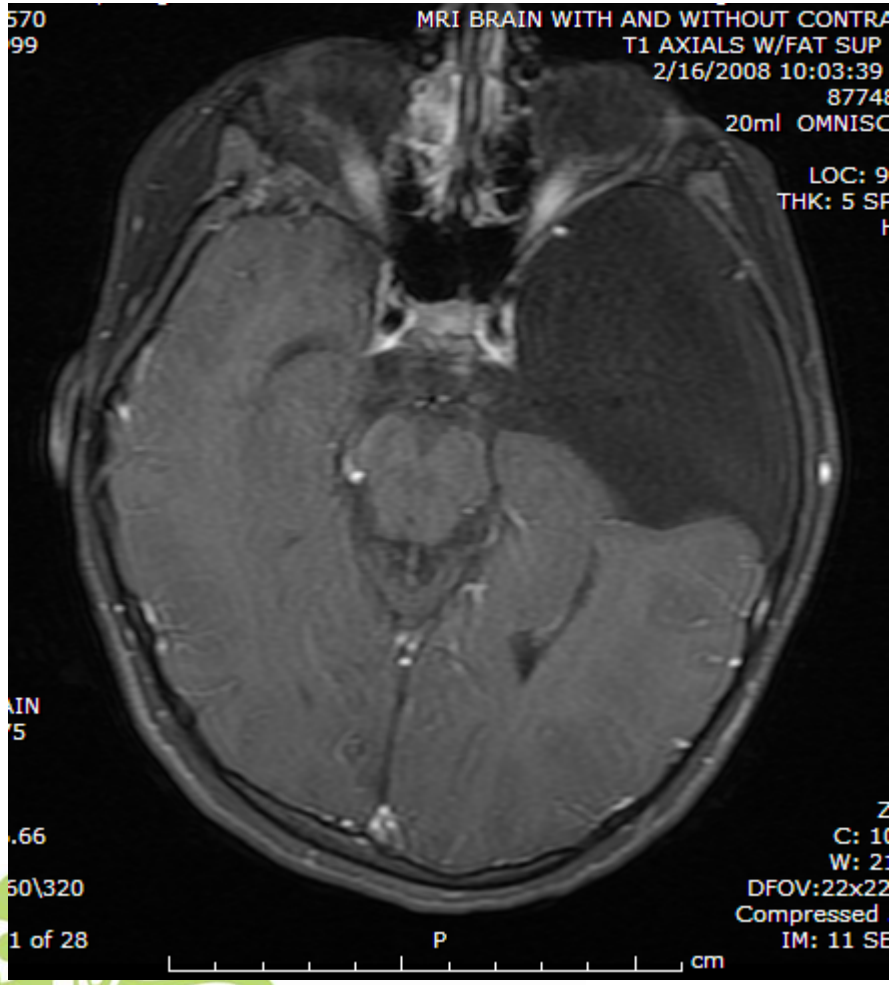

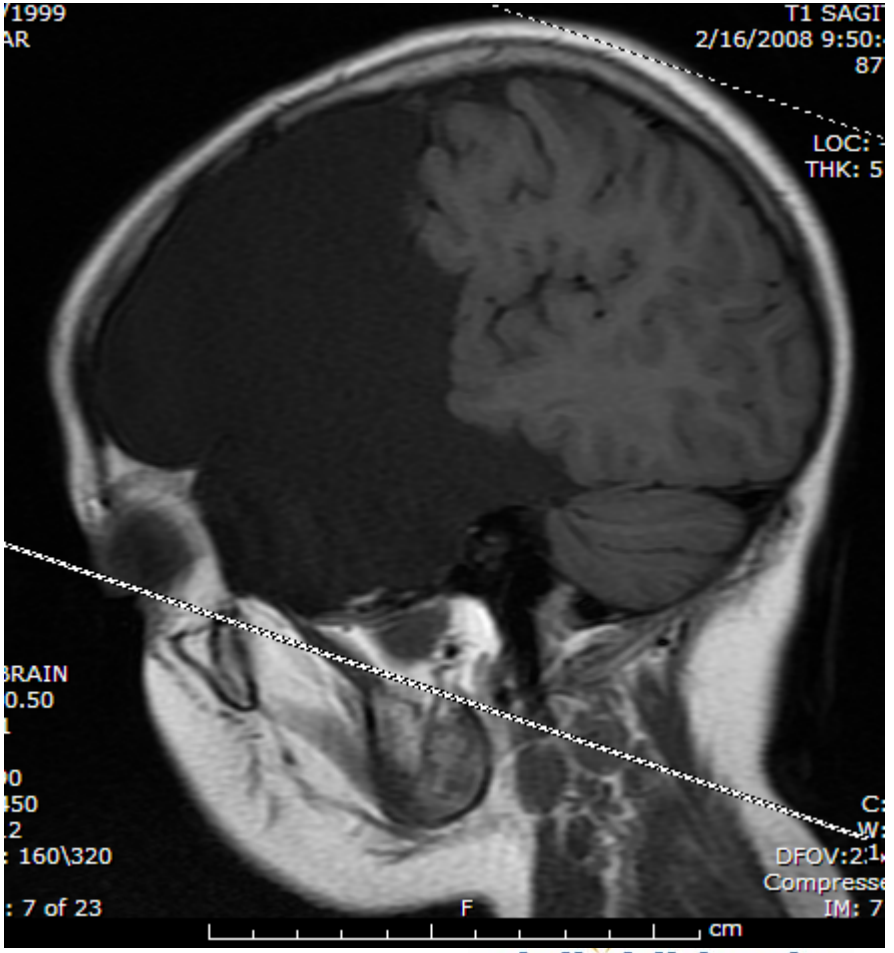

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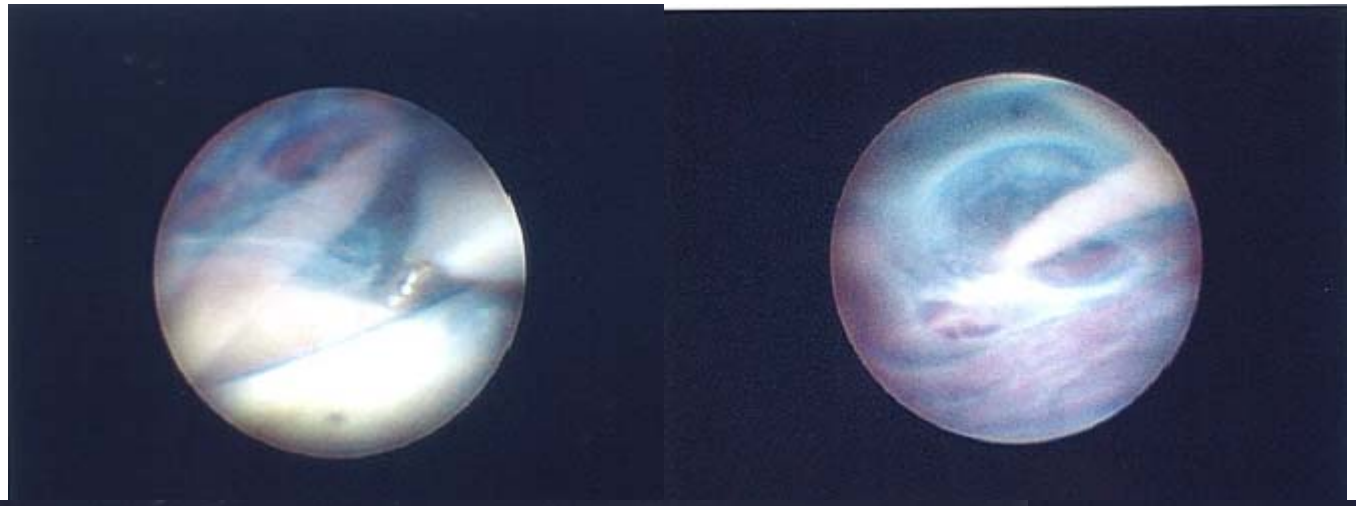

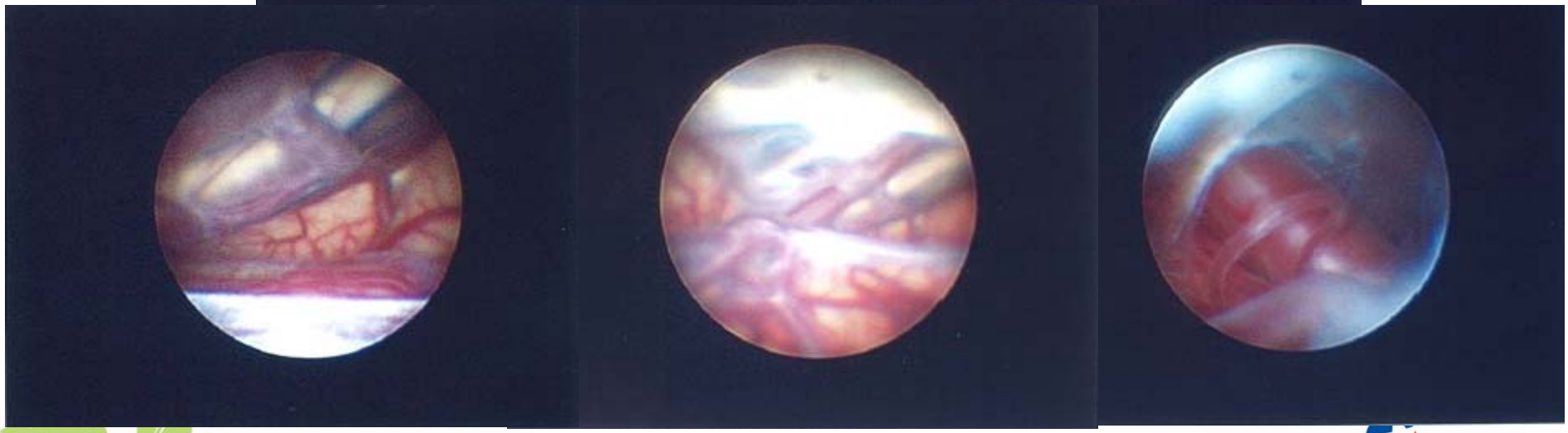

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CONTROVERSY IN NEUROSURGERY

Sylvian fissure arachnoid cysts: a survey on their diagnostic workout and practical management

Gianpiero Tamburrini · Mateus Del Fabbro · Concezio Di Rocco

Childs Nerv Syst (2008) 24:593–604

"In most cases, the decision is based on a presumed prophylactic value of the surgical treatment in order to avoid further clinical deterioration or spontaneous or traumatic bleeding from the fine vessels, which might be found within the cyst linings."

"Actually, the surgical decision seems still to depend on the surgeon's attitude more than on a rational base."

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