Acute Otitis Media Evidence Update

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Acute Otitis Media Evidence Update

- Diagnosis
- Prevention: control risk factors
- Prevention: immunization
- Antibiotics: when?
- Complications

Acute Otitis Media Evidence Update

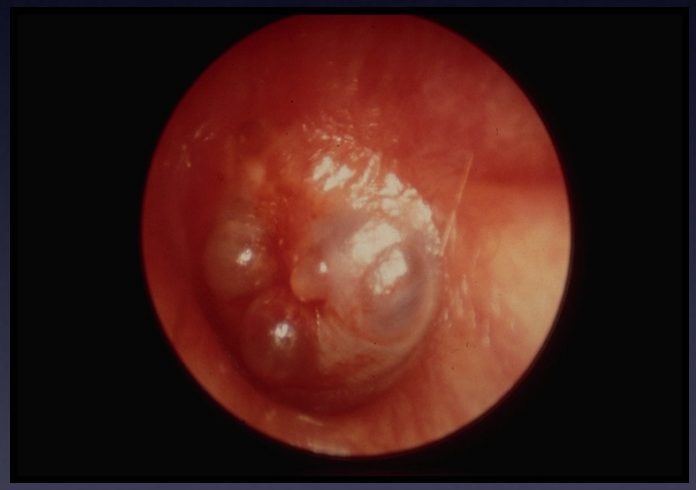
Sources:

- Otitis media CME symposium, Budapest 2008
- AAFP/ACP evidence based guidelines for the diagnosis and management of acute otitis media 2004
- Diagnosis and antibiotic treatment of acute otitis media: report from International Primary Care Network Froom J et al BMJ 1990 300 (6724) 582-6
- Short course antibiotics for acute otitis media: Kozyriskyj AL et al www.cochrane.org/reviews/en/ab001095.html
- Antibiotics for acute otitis media: a meta-analysis with individual patient data. Rovers MM et al. Lancet 2006 368(9545) 1429-35

Acute Otitis Media

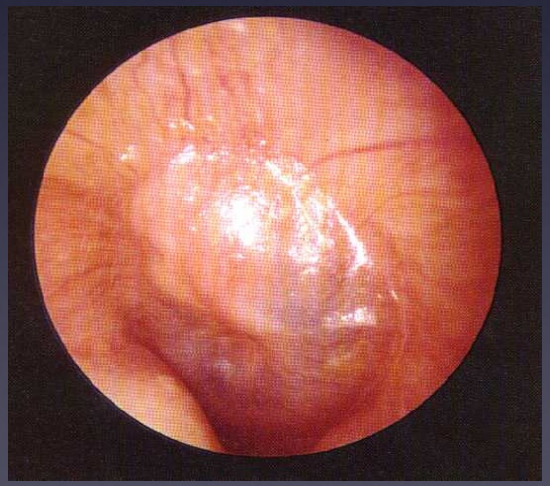
Definition: acute suppurative infection of the middle ear and mastoid

If only it was always this obvious!



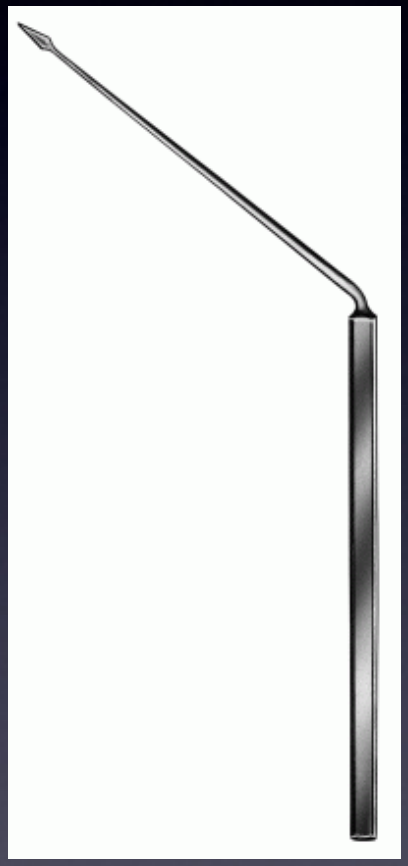
Acute Otitis Media

- Studies of incidence and prevalance conflict
- Most children get at least 1 episode of AOM
- Peak 6-11 months
- Approximately half of children get six or more episodes
- Risk of acute mastoiditis: 4/100,000



AOM Bacteriology

- Microbiology has varied with time: host, pathogen, and treatment factors
- Early 20th century: Group A streptococcus (1% risk of mastoiditis)
- Late 20th: Strep pneumonia, H influenzae type B, Moraxella catarrhalis
- Now: nontypable H influenzae (NTHi)



AOM Bacteriology

- Microbiology has varied with time: host, pathogen, and treatment factors
- Widespread use antibiotics leads to antibiotic resistance
- Pnuemoccal vaccine ? change in bacteriology

AOM and URTI

- Chonmaitree T Clin Inf Dis 2008 46:815-23
- Longitudinal study 294 children 6 mo- 3yo
- >1200 URTIs >400 AOM
- Risk of OM after URTI: 61%, 37% AOM and 24% OME
- Distinguishing OME from AOM vital

AOM Diagnosis

- Wide spectrum of clinical presentation
- Variable natural history
- Otoscopy standard part of examination of young child
- Adequate view of TM often difficult
- AAFP/ACP:
  - Recent onset of signs and symptoms
  - Middle ear fluid (otoscopy, pneumatic otoscopy, tymps)
  - Inflammation (either erythema or otalgia)
  - “Often made with a degree of uncertainty”

AOM Diagnosis

- Practice, practice, practice
- Proper equipment
- Use a tympanometer
- Froom J et al: GPs reported “diagnostic certainty” in approx. 60% cases where they diagnosed AOM

Prevention: avoidance of risk factors

- Many potential avoidable risk factors:
  - Passive smoking
  - Child care
  - Bottle feeding
  - Reflux
  - Allergy

- Unfortunately, no evidence significant reduction risk

Pneumoccocal Vaccine

- Pneumococcus causes more severe AOM
- Higher risk invasive infection
- Prevalence 33-62% in AOM
- Some strains are a true “superbug”

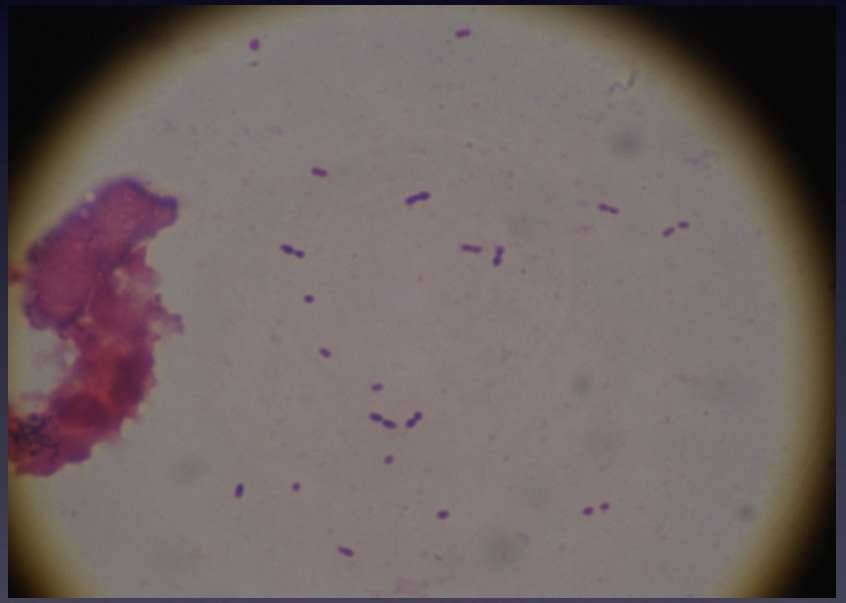
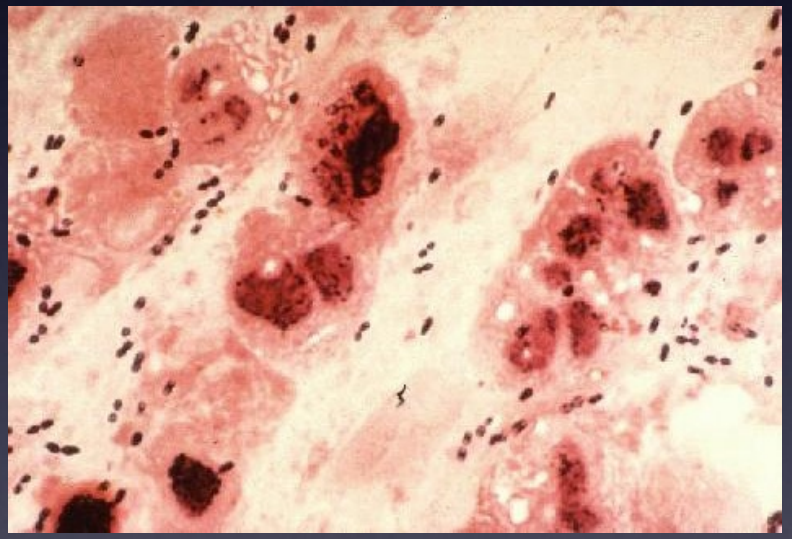


photo: Chris Mansell

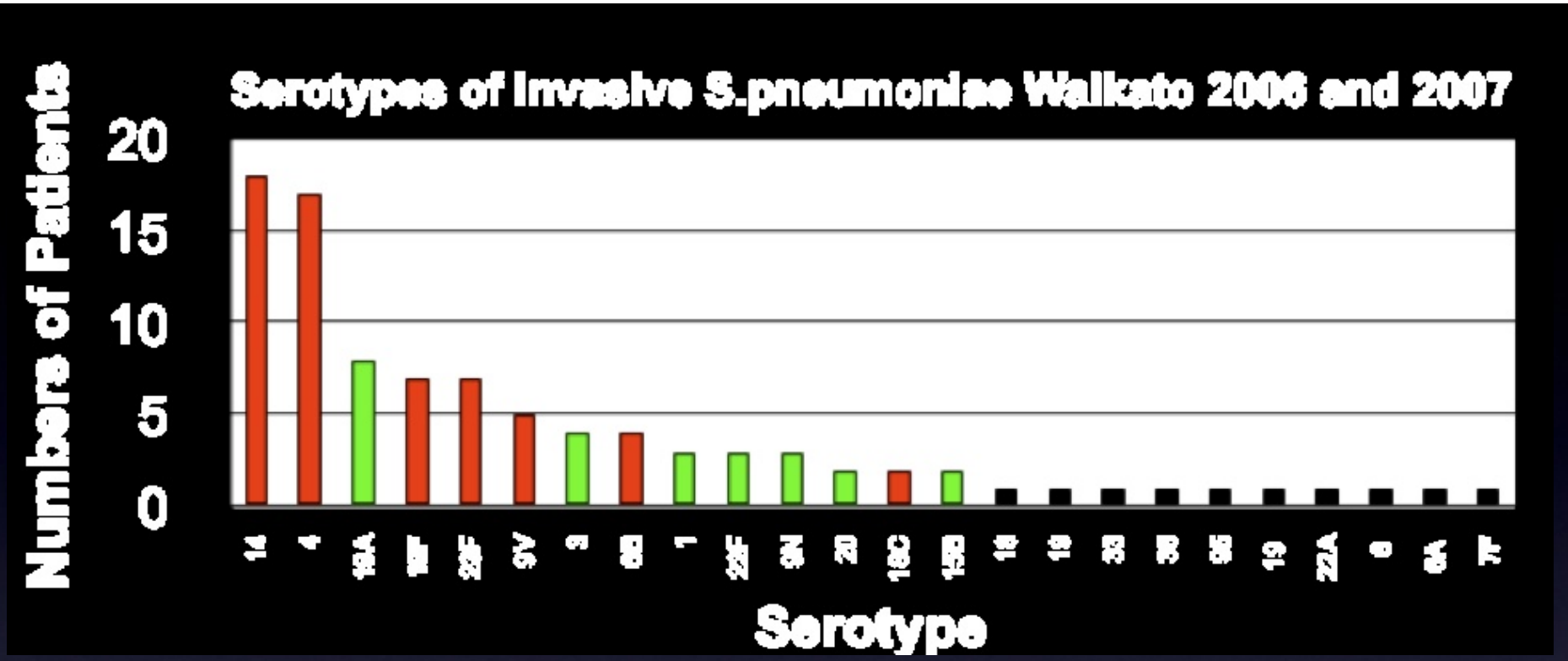
Pneumoccocal Vaccine

- Benefits: reduction AOM (Europe ≤34%)
- Particularly reduces risk severe AOM
- Potentially reduces antibiotic prescription rates
- Published articles probably underestimate benefit
- May increase prevalence of AOM due to NTHi
- Combination vaccine being developed



Pneumoccocal Vaccine

- New Zealand
  - Introduced 1 June 2008!
  - Placed on the schedule for neonates
  - For older high-risk children
  - 19A not covered
- Dr F Dumble, MOH, Waikato Hospital



Serotype 19A:

2006 1 patient

2007 7 patients

Serotype 19A penicillin susceptibility:

For pneumonia 7/7 susceptible

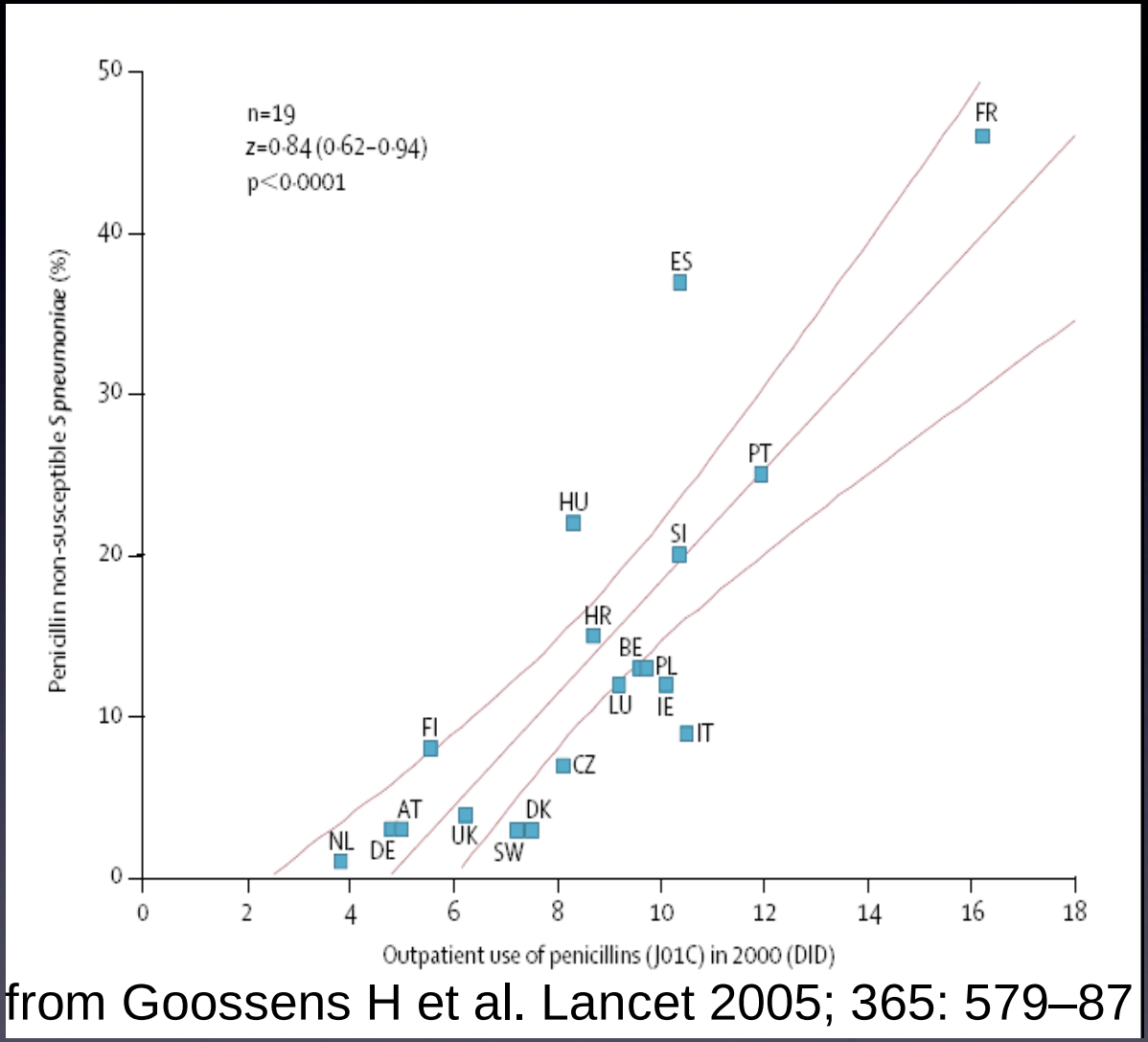
For meningitis 3/7 susceptible

Thanks to Dr C Mansell, microbiologist, Waikato Hospital

Antibiotics for AOM: When?

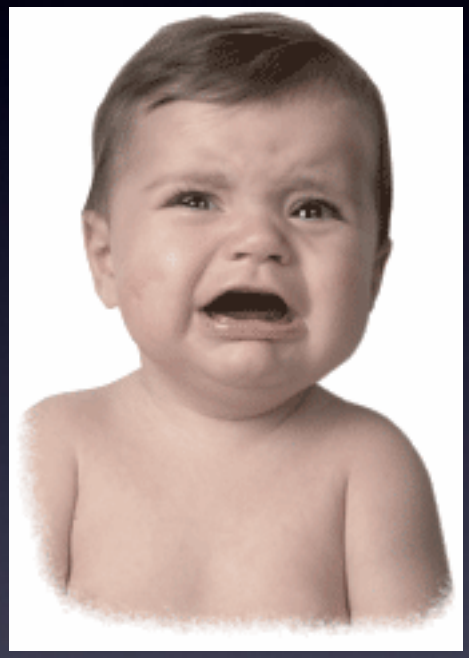
- NNT: Number needed to treat to benefit one patient
- Overall NNT for AOM ~ 15
- NNH ~10 (rashes, diarrhea, etc)
- “Medicilization” of AOM leads to increasing workload

Penicillin use vs resistance in Europe



from Goossens H et al. Lancet 2005; 365: 579–87

Antibiotics for AOM: When?



Withholding antibiotics isn’t easy sometimes...

Antibiotics for AOM: When?

- Meta-analysis of 6 RCTs *using individual patient data*
- N = 1643 children
- Which children benefit the most?
- NNT:
  - Overall ~15
  - Children <2 yo bilateral AOM ~4
  - Acute otorrhea ~3
  - Children ≥2 unilateral AOM ~25

Which antibiotic?
How long?

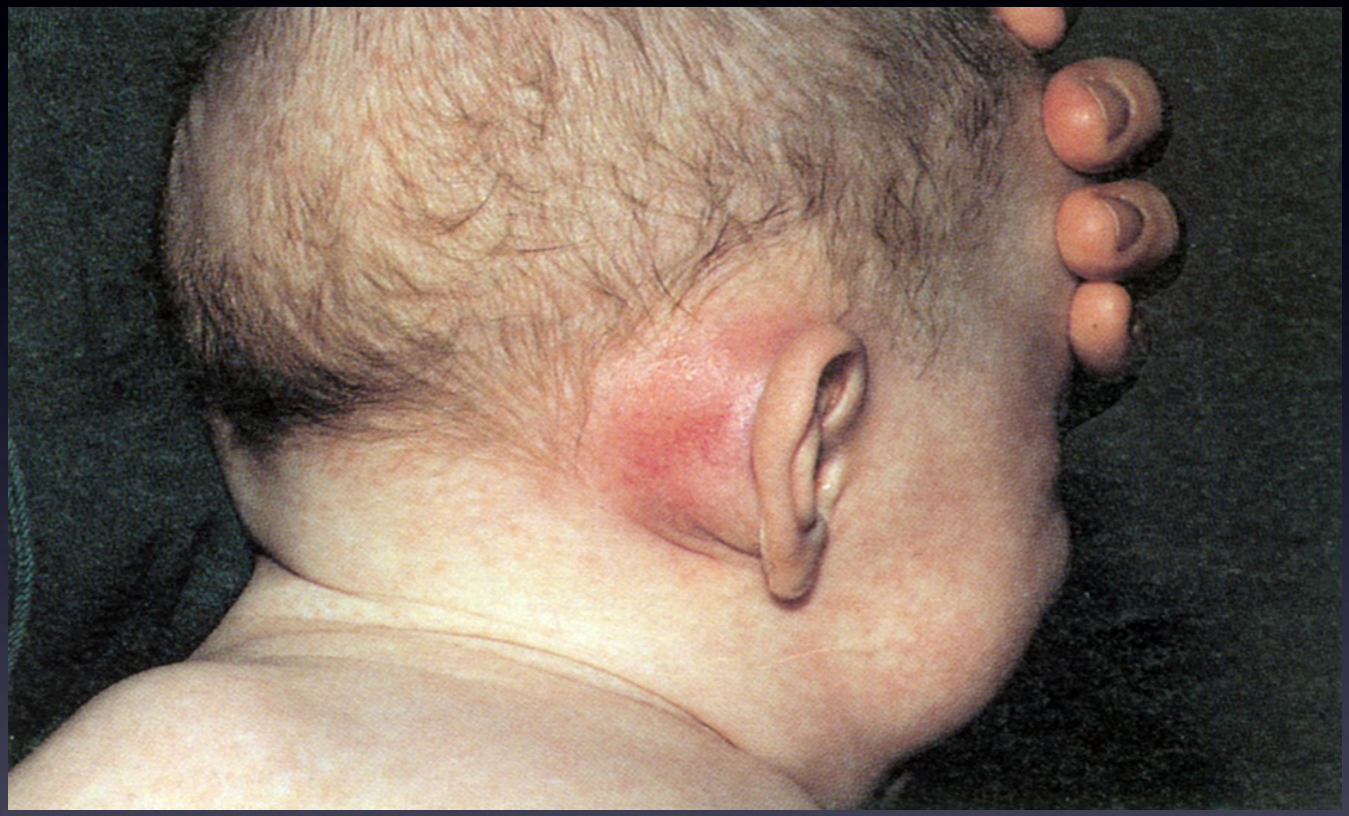
CLINICAL SITUATION	DRUG	DOSAGE
Initial observation	Amoxycillin	80-90 mg/kg/day
Severe AOM	Augmentin	90mg/kg/day
Non type I allergy penicillin	Cefuroxime	
Type I allergy	IV Ceftriaxone	50 mg/kg/day

Likelihood surgery

Deferring antibiotics

- Keep in touch
- Clinical improvement in 80% by 2-7 days
- Waiting 24-48 hours seems reasonable
- Critical role of support staff
- Adequate pain relief

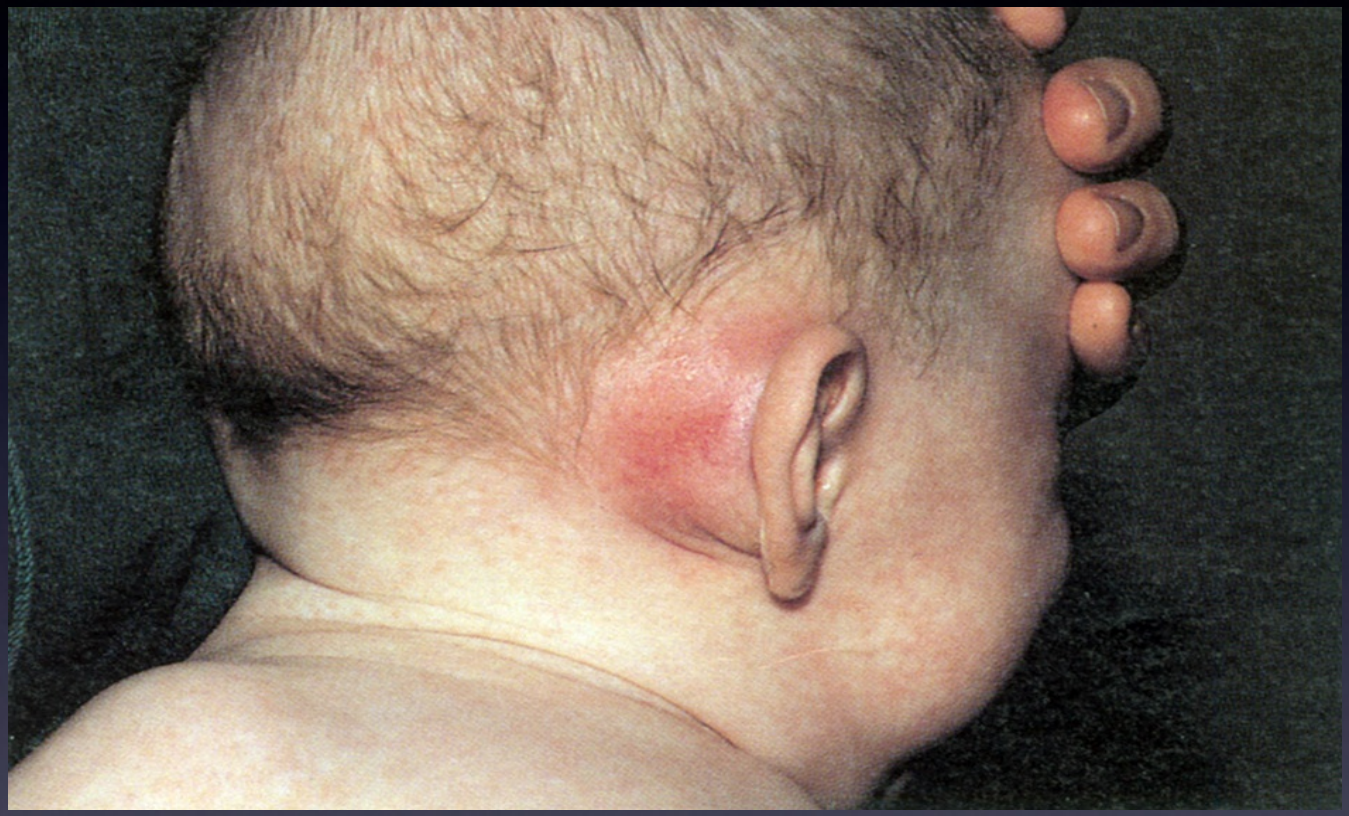
Acute Mastoiditis



~ 4/100,000

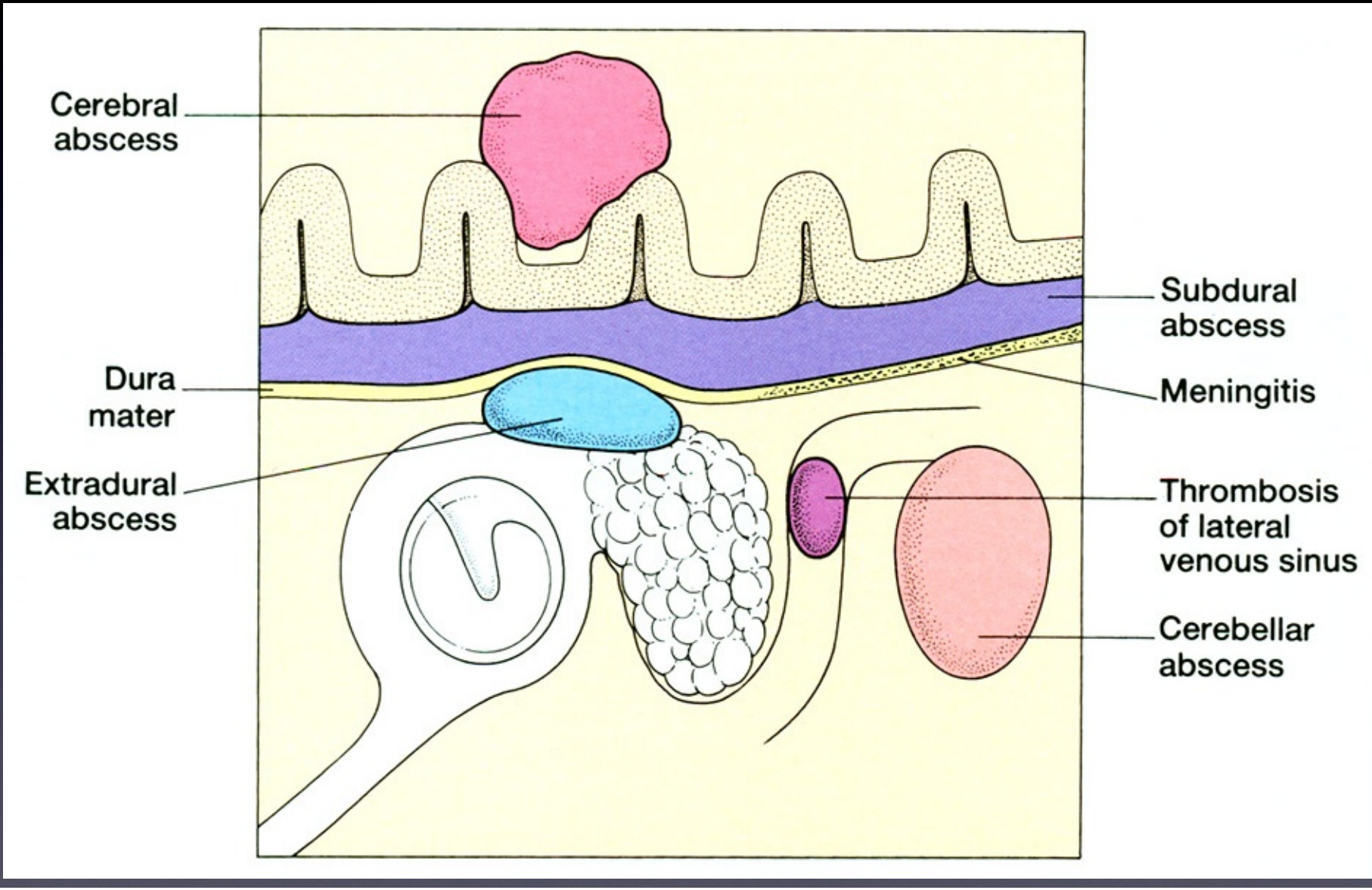
May be increased in countries with low use antibiotics for AOM

Acute Mastoiditis



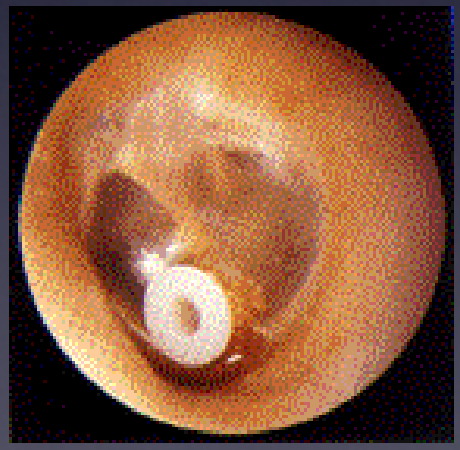
Fortunately, most cases respond to IV antibiotics + myringotomy/ VTs

Other complications



When to Refer

- Acute:
  - failure to resolve
  - severe toxicity
  - evidence complications
- Recurrrent acute: when the parents have had enough!
- Hearing loss
- Co-morbidities



A virtuous circle