



Julien Do Vale  
Ilham Mezhari  
Natalie Oker  
Damien Roux 

## Keep an ear to the ground, the answer's behind

Received: 5 August 2015  
Accepted: 7 August 2015  
Published online: 20 August 2015  
© Springer-Verlag Berlin Heidelberg and ESICM 2015

J. Do Vale · I. Mezhari · D. Roux (✉)  
AP-HP, Service de Réanimation Médico-Chirurgicale, Hôpital  
Louis Mourier, 178 Rue des Renouillers, 92700 Colombes, France  
e-mail: damien.roux@lmr.aphp.fr

N. Oker  
AP-HP, Service d'ORL Chirurgie Maxillo-faciale et Plastique,  
Hôpital Lariboisière, Université Paris Diderot, 75010 Paris, France

D. Roux  
INSERM, IAME, UMR 1137, 75018 Paris, France

D. Roux  
Université Paris Diderot, Sorbonne Paris Cité, 75018 Paris, France

A 67-year-old man was admitted for confusion, fever and hypotension. His medical history revealed alcohol abuse, arterial hypertension and neurosurgery for extradural haematoma 15 years earlier. His family

doctor reported a left acute otitis media 2 months earlier treated with amoxicillin then ofloxacin because of symptom persistence. Despite an unfavourable outcome with persistent ear pain, he did not visit his doctor until his admission.

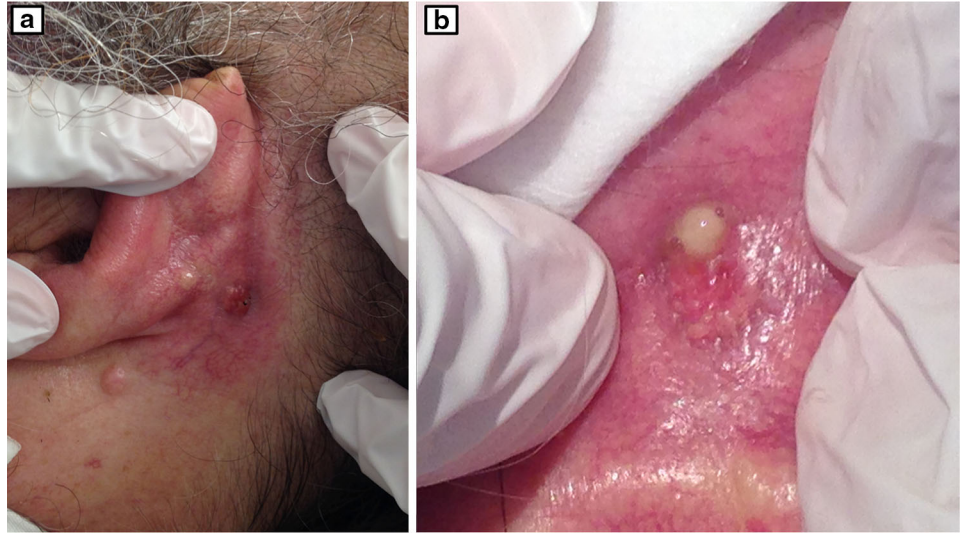
Neurological examination revealed confusion without focal sign, and a stiff neck. Behind his left ear, we noticed a mastoid fistula with pus externalization after pressure (Fig. 1). He developed respiratory distress and haemodynamic instability requiring endotracheal intubation and norepinephrine.

After administration of 4 g of cefotaxime, a cerebral CT scan revealed attenuation of mastoid cells with erosions of left mastoid and temporal squama (Fig. 2). Cerebrospinal fluid was purulent (Fig. 3) with more than  $10^4$  cells/mm<sup>3</sup> (85 % polymorphonuclear), proteins 32.7 g/L, glucose 2.9 mmol/L (vs. 16 mmol/L blood glucose) and Gram-positive cocci in chains. Culture revealed a susceptible *Streptococcus milleri*.

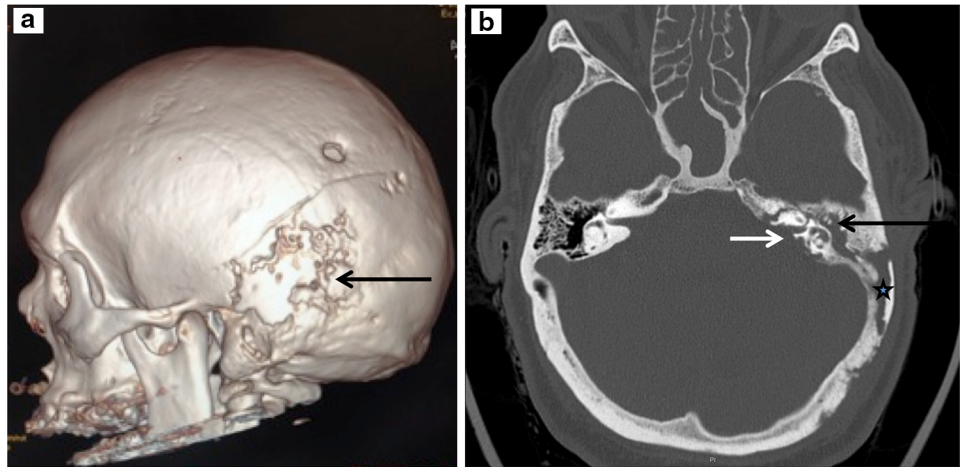
*S. milleri* purulent meningitis secondary to acute otitis media, mastoiditis, petrositis and temporal squama osteitis was diagnosed. Otorhinolaryngologist and neurosurgical teams performed left petrectomy with mastoidectomy, labyrinthectomy and removal of the osteolytic temporal bone (Fig. 4).

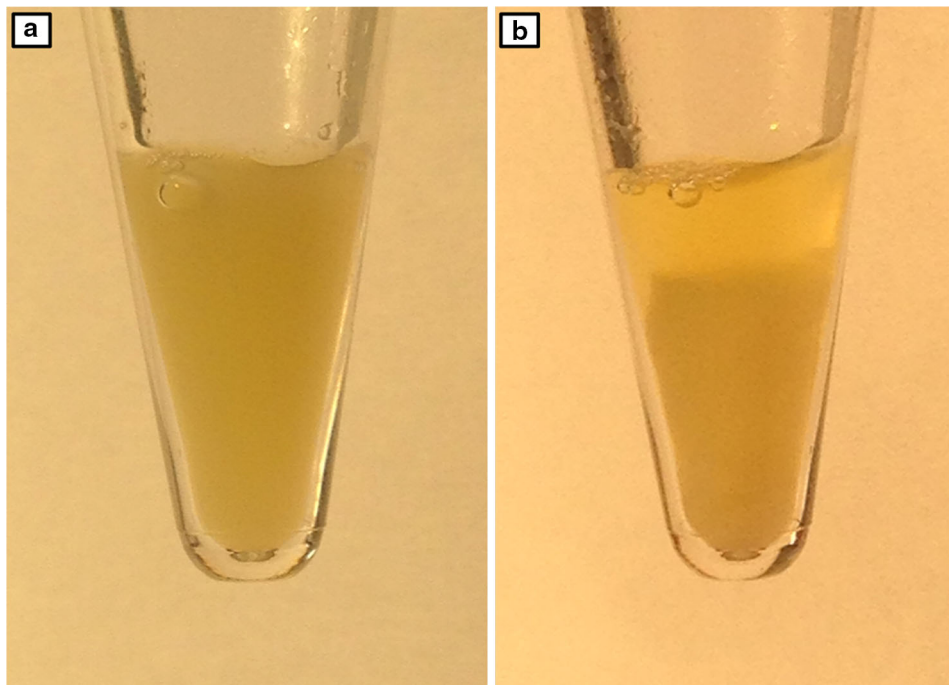
He remains in a coma requiring ventilator support 2 weeks after surgical intervention.

**Fig. 1** Clinical appearance of the mastoid fistula. **a** Cutaneous inflammation of the mastoid region with visible fistula. **b** Externalization of a purulent liquid after pressure. A continuous flow of liquid could be seen after cleaning the zone

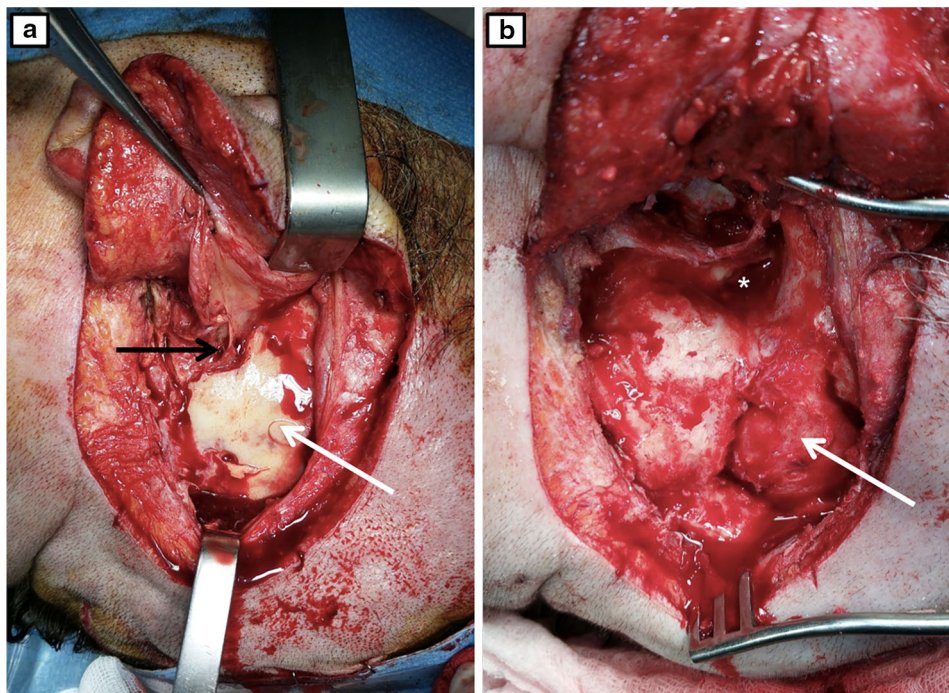


**Fig. 2** Cerebral CT scan. **a** Three-dimensional reconstruction of the cerebral CT scan: the pitted appearance of the bone is characteristic of left temporal and mastoid osteitis (*arrow*). **b** Axial CT in bone window showing the incudomalleolar joint (*black arrow*), the internal auditory meatus (*white arrow*) and the lateral semicircular canal: Complete opacity of the left middle ear and the mastoid cells (*star*) with bone lysis of the mastoid and the lateral semicircular canal with diffusion of osteitis to the left temporal squama





**Fig. 3** Cerebrospinal fluid. **a** Purulent appearance. **b** After 5 min of sedimentation, notable pellet of polymorphonuclears



**Fig. 4** Surgery treatment. **a** Mastoiditis and osteitis of temporal squama. External auditory canal (*black arrow*) and lytic temporal bone (*white arrow*). **b** View after petrectomy (*white star*) and

removal of the infected temporal squama. Left temporal lobe is visible (*white arrow*)

#### Compliance with ethical standards

**Conflicts of interest** On behalf of all authors, the corresponding author states that there is no conflict of interest.