

- patients with Q fever. *Scand J Infect Dis* 1995; **27**: 344–46.
- 141 Marmion BP, Ormsbee RA, Kyrkou M, et al. Vaccine prophylaxis of abattoir-associated Q fever: eight years' experience in Australian abattoirs. *Epidemiol Infect* 1990; **104**: 275–87.
- 142 Marrie TJ. *Coxiella burnetii* (Q fever). In: Mandell GL, Douglas RG Jr, Bennett JE, Dolin R, eds. Principles and practice of infectious diseases. Philadelphia, PA: Churchill Livingstone, 2000: 2043–50.
- 143 Marmion BP. Development of Q-fever vaccines, 1937 to 1967. *Med J Aust* 1967; **2**: 1074–78.
- 144 Williams JC, Hoover TA, Waag DM, Banerjee-Bhatnagar N, Bolt CR, Scott GH. Antigenic structure of *Coxiella burnetii*: a comparison of lipopolysaccharide and protein antigens as vaccines against Q fever. *Ann N Y Acad Sci* 1990; **590**: 370–80.
- 145 Wiener SL. Strategies for the prevention of a successful biological warfare aerosol attack. *Mil Med* 1996; **161**: 251–56.
- 146 Centers for Disease Control and Prevention. Environmental infection control guidelines. *MMWR Morb Mortal Wkly Rep* (in press).
- 147 Farley JE. Q fever (Query fever). http://www.hopkins-heic.org/forum/q_fever.html (accessed Sept 21, 2003).
- 148 New York City Department of Health. Medical treatment and response to suspected Q fever: information for health care providers during biologic emergencies. <http://www.nyc.gov/html/doh/html/cd/qfmd.html> (accessed Sept 21, 2003).
- 149 Division of Public Health Surveillance and Informatics. Nationally notifiable infectious diseases. <http://www.cdc.gov/epo/dphsi/phs/infdis2003.htm> (accessed Sept 21, 2003).

Clinical picture

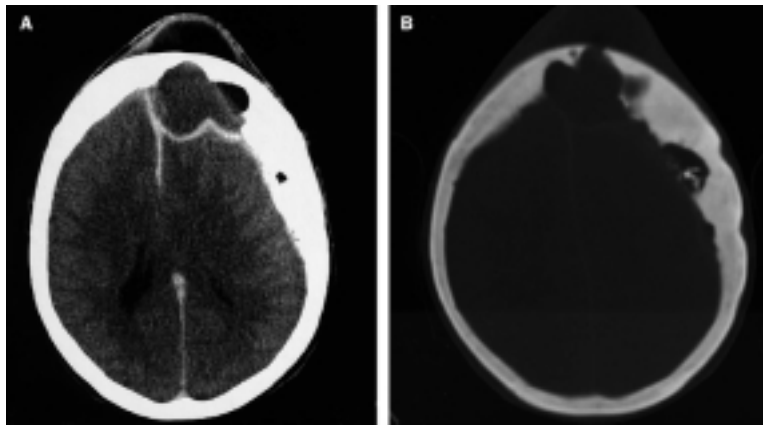
Pott's puffy tumour: a rare clinical entity

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A 67-year-old woman was admitted with a swelling to the forehead. There was no history of trauma, fever, cranial surgery, or sinus symptoms. Physical examination showed the fluctuant forehead was warm, tender, and with a red mass left of midline. No other cranial deformity or tenderness was detected.

Laboratory investigations and chest roentgenogram were normal. Computed tomography (CT) of the head showed a multiloculated mass with ring enhancement on the epidural area over the left frontal lobe. Bone projections disclosed the destruction of inner and outer tables of the frontal bone and a direct connection between epidural space and epicranium (figures 1A and 1B). Magnetic-resonance imaging (MRI) of the brain showed multiloculated hypointense epidural mass causing midline shift and dural thickening over the left frontal lobe. The hypointensity extended to the left parietal lobe.

During surgery 110 mL fetid, thick, and yellowish subgaleal and epidural pus was drained. The fibrous wall surrounding the collection was resected and the dura seemed grossly thickened. After profuse irrigation, a drain was placed in the epidural and subgaleal spaces and the skin



sutured primarily. The postoperative period of the patient was uneventful.

On culture, *Pseudomonas aureginosa* was recovered. CT scan on the 20th postoperative day showed nothing abnormal and the patient remains symptom-free. Such intracranial suppurative disorders are frequently seen in children as a complication to sinusitis, but are rare in adults. Adult patients in whom the presenting sign of epidural empyema is Pott's puffy tumour (collection of pus in both epidural and subgaleal spaces) is also scarce.

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