

remembered that he had been bitten on the hand by a mouse which he had rescued from his pet cat.

A provisional diagnosis of leptospirosis was made and the patient was treated with intravenous ampicillin 6 g daily in divided doses. He made a good clinical recovery and returned to West Germany after 10 days. His liver function tests returned to normal over the following two months. Initial serological examination performed in Italy and subsequent examinations performed during convalescence confirmed infection with *Leptospira interrogans* (*grippityphosa* variety).

Leptospirosis transmitted by rodent bites has been previously described, and is an unusual mode of transmission.^{1,2} The mechanism is unclear as leptospires have not been found in rodent saliva, but it is probable that contamination of the fresh wound by urine occurs. It has been suggested that this may result from urine being present in the animal's fur as a result of preening, or else may occur as a result of the animal spraying urine in fright.¹

L. interrogans (*grippityphosa* variety) is endemic in small rodents in central Europe, the major host being the common vole (*Microtus arvalis*).³ In Czechoslovakia up to 12% of abattoir workers and 11% of agricultural workers have been shown to be positive for leptospiral antibodies, *L. grippityphosa* being the second commonest serovar.⁴ Epizootics occur in rodents and these may be related to outbreaks of disease in humans. Principally affected are those in contact with small animals, particularly in wet and damp conditions.⁵ This is highlighted by the synonyms for the disease, such as swamp fever, mud fever, slime fever, field fever or the German *schlammfieber*.

Clinically the disease is usually a mild one typified by sudden onset of chills and rigors, resembling influenza. Myalgia is characteristic. Jaundice and renal failure are rare, with the illness normally lasting seven to 10 days. Mortality is less than 1%.⁴

L. interrogans (*grippityphosa* variety) is diagnosed infrequently in the British Isles.^{6,7} Although our patient was diagnosed and treated abroad, he had travelled a significant distance between exposure and subsequent illness, and could easily have presented in the United Kingdom. With increasing tourist traffic to endemic areas, particularly of campers and backpackers, this disease should be included in the differential diagnosis of the febrile traveller.

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Pneumatic otoscopy and tympanometry

Sir,

There remains some controversy about the relative use of pneumatic otoscopy and tympanometry in the diagnosis of otitis media with effusion. Although tympanometry is preferable,¹ it is not generally available in general practice and pneumatic otoscopy has been recommended.² There are, however, disadvantages with pneumatic otoscopy. In particular it is a subjective examination and there can be variation in what is termed impaired mobility of the tympanic membrane. Furthermore, pneumatic otoscopy is technically more difficult to perform in children. The ear should be free from wax as good illumination is essential and the patient should refrain from head movement.

A study carried out at the Victoria Infirmary, Glasgow, comparing the findings of pneumatic otoscopy with the compliance levels of tympanometry, revealed that a mobile tympanic membrane corresponded to a high tympanometric compliance and at the levels recorded there would be less than a 5% chance of fluid occurring in the middle ear. Alternatively the compliance levels for slightly mobile and immobile eardrums were intermediate, and the presence of middle ear fluid could not therefore be reliably predicted.

Pneumatic otoscopy has been found to have a high sensitivity (84–91%) and a relatively low specificity (74–78%),³ which means that even in experienced hands it is not an ideal screening test. If

pneumatic otoscopy is used alone (with the above specificity) false positives will occur at a rate of 22–26%, leading to an over-diagnosis of middle ear effusion. This error in numbers will be greater when the population being examined is mostly normal, for example in screening. Therefore, when pneumatic otoscopy is used alone, the results should be interpreted with care.

Hand-held tympanometers are now available and with the reduction in size there has been a corresponding reduction in price. A more recent alternative to tympanometry is acoustic reflectometry using a hand-held device which measures sound reflected from the eardrum without requiring an airtight seal. Reasonable results have been obtained when this is used in combination with pneumatic otoscopy, providing the correct cut-off point is taken between normal and abnormal.^{4,5}

In conclusion, when using these methods for the detection of otitis media with effusion, the best results will be obtained from a combination of pneumatic otoscopy and tympanometry: the finding of definite mobility of the eardrum on pneumatic otoscopy suggesting normality, together with flat tympanometric readings indicating the presence of fluid.

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Characteristics of long-term benzodiazepine users

Sir,

The results presented by Simpson and colleagues on the characteristics of long-term benzodiazepine users in general practice (*January Journal*, p.22) were similar to those I found in a small unpublished audit carried out at Montpellier health centre in Bristol where I was a trainee. The inner city practice of 11 100 patients had 100 patients on computerized repeat prescriptions for benzodiazepines — 68 were