were negative for hepatitis B surface antigen. Three showed signs of meningeal irritation, and leptospira was present in the urine of four. On serological testing all patients yielded a positive result of a microscopic agglutination test at a titre of 1/100; none of the healthy subjects showed a titre greater than 1/10. All patients recovered after treatment with penicillin.

Animal studies—Ten rats were caught from the paddy fields and from the house of the index patient. Leptospira was isolated from the urine culture of eight rats caught from the field but not from that of any of those caught in the house.

Discussion

Weil's disease is transmitted by a wide range of domestic animals such as rats, cattle, swine, goats, foxes, raccoons, cats, deer, opossums, and dogs, even immunised ones.¹ Of these animals, rats have been recognised as the most important hosts for leptospira.² Infection in man may occur either through direct contact with the urine or tissues of infected animals or through contaminated water, food, soil, or vegetation. The sites of entry in man are through abraded skin, particularly on the feet, and exposed conjunctival, nasal, and oral mucous membranes.³ Infection through the intestinal mucosae can occur when food contaminated with leptospira is ingested in quantity.⁴

Outbreaks of leptospirosis have been reported after outdoor recreational exposure, after contact with pets, especially dogs,¹ and after occupational exposure in miners, veterinarians, shepherds, and farmers.⁵ The outbreak reported here seems to be unique in that the disease occurred after eating the infected animal itself. The commune had just migrated to that area and had had a very good catch of rats. The feast on rat meat was followed 10-18 days later by the cases of Weil's disease.

Wandering communes such as these are extremely poor and rely mainly on rat meat as a source of non-vegetarian food. They do not have proper cooking facilities, usually building a makeshift bonfire in the fields. In addition, the habit of eating rat meat is socially condemned by the villagers, resulting in very hasty cooking. Some leptospires present in deeper layers of the infected rat meat probably therefore survived this inadequate and short lived cooking. This view is supported by the observations of Pardisi *et al*, who recorded the temperature at the centre of Florentine steaks (3-4 cm thick) cooked on an electric hot plate. They found that a cooking time of seven to eight minutes produced a temperature of only 32-35°C at the centre of the steak.⁶ Even though leptospira is very susceptible to heat, a temperature of 50°C maintained for 10 minutes or 60°C for 10 seconds is required to kill it completely.⁷ In this outbreak no rat meat was cooked for longer than five to six minutes.

Several points suggest that the food was the source of the outbreak. Firstly, all the cases occurred within the normal incubation period for leptospirosis (two to 26 days)³ after the day of the feast. Before this none of the members of the commune had suffered from jaundice, and during a follow up period of six months no new cases occurred. Secondly, children aged less than 4, who were not fed the rat meat, did not suffer, though they used to play and walk barefoot in the rat infested fields. Thirdly, the index patient, who did not belong to the commune, suffered from Weil's disease 10 days after eating the rat meat. She did not participate at all in catching, handling, or cooking the rats. Her only point of contact with the commune was the feast. Fourthly, the disease did not occur in any other member of the family of the index patient or in the villagers. Finally, leptospira was cultured only from urine of the rats caught from the field and not from urine of rats trapped in the house.

Though the association between rats and leptospira has been known since 1915,⁸ this unique mode of spread among food faddists has until now not been recognised.

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(Accepted 5 September 1986)

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From exhaustion, exposure, and hunger to extreme voraciousness: bulimia

As the clinical condition known as bulimia has become a fashionable diagnosis over the past five years we thought it would be of interest to describe the origins of this word and trace the evolution of its meanings from ancient Greek times to the present.

Bulimia is derived from the Greek words βούλις (ox) and λιμός (hunger),¹ indicating a great hunger or, literally, so hungry that one could eat either an ox or as much as an ox. In Xenophon's *Anabasis*, written about 370 BC,

Samuel Johnson. (National Portrait Gallery, London.)

bulimia was used to describe a state of profound hunger, exhaustion, and exposure suffered by a small army of Greek soldiers while they were traversing snow covered mountains in what is now eastern Turkey:

The whole of the next day's march from here was through the snow, and a number of soldiers suffered from bulimia. Xenophon, who, as he commanded the rearguard, came upon men who had collapsed, did not know what the disease was. However someone who had had experience of it told him that it was a clear case of bulimia, and that if they had something to eat, they would be able to stand up. So he went through the baggage train and distributed to the sufferers any edibles that he could find there, and also sent round those who were able to run with more supplies to them. As soon as they had something to eat they stood up and went on marching.²

This passage implies that once these soldiers were fed they improved and were fit to carry on. There is no suggestion of any mental disorder: it seems to have been a naturally occurring hunger. There is also a connotation of cold exposure. In fact, the translator's note defines the term as follows: "Bulimia—the Greek word for what is apparently a state of exhaustion caused by cold and lack of food."³

The word's first documented use in English was as a medical term to signify a morbid hunger, a so called "canine hunger" occurring chiefly in idiots and maniacs as documented in a tract from Trevisa in 1398: "Bolismus is immoderate and vnmesurable as it were an houndes appetyte."⁴ By 1751 the association with mental disorders was well established, as described by Brooke: "A Bulimus is a Disease wherein the patient is affected with an insatiable and perpetual Desire of Eating."⁵

Thereafter the term was used more loosely to describe an unusual voraciousness, as in the following two quotations.

The bulimious Doctor Johnson could not have transacted his feeding so porcinely and perspiringly.⁶

He [Dr Johnson] was totally absorbed in the business of the moment; his looks seemed rivetted to his plate; nor would he unless in very high company, say one word, or even pay the least attention to what was said by others, till he had satisfied his appetite, which was so fierce, and indulged with such intenseness, that while in the act of eating, the veins of his forehead swelled and generally a strong perspiration was visible.⁷

Thus, probably entirely due to Dr Johnson's prodigal gluttony for food, bulimia has come to mean extreme voraciousness.

In summary, the ancient Greek meaning of the word was to describe a state of exhaustion, exposure, and hunger, the hunger occurring naturally. In mediaeval English the word came to signify an illogical mental disorder characterised by an extreme, perpetual, animal type of hunger, which seems to approximate its current use by the psychiatric community. In a non-medical, general sense, however, it may be used to express extreme voraciousness.

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A "cracking" complication of hemiarthroplasty of the hip

Liston is the only person to have performed an operation with a 300% mortality. While amputating a leg he amputated his assistant's fingers and slashed through the coat tails of a distinguished surgeon who was watching. Both the patient and the assistant died of gangrene, and the spectator was so terrified that the knife had pierced his vitals that he dropped dead from fright.¹

It might be thought that since those days surgeons have come a long way with regard to personal morbidity and mortality, but might it be that we are too embarrassed to admit that such cases still occur? We report such a case.

Case report

An 80 year old woman was admitted with an intracapsular fracture of her right femur. During the operation to perform a Thompson's hemiarthroplasty things were going smoothly. The prosthesis was well positioned in the femur, and it was time to reduce it into the acetabulum. This proved to be difficult as the fracture was three weeks old and all structures were tight. The surgeon therefore pushed a bit harder on the head of the prosthesis. A sickening crack was heard. Because the surgeon thought that the femur had fractured the prosthesis was removed, but no fracture could be seen. A slightly smaller prosthesis was then used and cemented in place. As the operation progressed the surgeon began to complain of pain in the left hand. By the end of the procedure his hand had become swollen.

A postoperative radiograph of the patient's hip was fine, but a radiograph of the surgeon's hand showed a spiral fracture of the third metacarpal (figure). It also showed non-union of the scaphoid bone, much to his surprise. He now knew the cause not only of the pain in his hand but also of his two year history of an intermittently weak and aching left wrist. To exclude any serious underlying disorder routine biochemical tests and a Venereal Disease Research Laboratory test were performed. Fortunately, the results of these were normal.

Comment

Although this is the first reported case of a fracture of a metacarpal during a hemiarthroplasty, it is not the first time a surgeon has injured himself while operating. Hamilton Bailey pricked his left index finger while operating, and this left him with a stiff finger, which was later amputated.² Some surgeons were more unfortunate: Semmelweis and Pfannenstiel died from hand infections incurred during surgical work.³

Not surprisingly, hand injuries seem to be the commonest injuries sustained during operations. Brown in 1982 surveyed 183 surgeons who had

lost part of their hands. Although half of them had sustained their injuries after becoming surgeons, it is not stated whether any of these injuries were due to surgical mishaps. Interestingly, some of the surgeons found that having fingers missing enabled them to operate through small holes and therefore increased their skills.³

Radiograph showing spiral fracture of third metacarpal and non-union of scaphoid.

The most painful injury sustained by a surgeon while operating must be that sustained by a young neurosurgical assistant who had to sit down during an operation; unfortunately, the top of the swivel chair fell off and the shaft of the stool entered his anus. Although it did not penetrate his rectum, the damage was severe enough to warrant a defunctioning colostomy.⁴

Three conclusions may be drawn from this brief résumé of personal operative injuries:

- (1) Orthopaedic surgery requires not only brute force and ignorance but brute force, ignorance, and perception of pain.
- (2) If you have a finger missing become an obstetrician or a general surgeon as the smaller hand can reach parts other hands cannot reach.
- (3) Never, never sit down during an operation.

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