

Letter from . . . Chicago

Infectology comes of age

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In a society that rewards invasive procedures rather than clinical skills many subspecialists spend their days pushing tubes and catheters into the innermost precincts of the body, yet lead lives of unmitigated monotony. For boredom, not money, is the root of all evil and the greatest enemy of all. Who indeed can look at the right atrium day after day and not lose his equanimity? And who can deny that once you have seen one ileocaecal valve you have seen them all? But the specialist in infectious diseases leads a life of excitement and romance. His interests transcend the bounds of space and time. His children may go to less expensive schools. His wife may complain about the smallness of the house. But his work is meaningful and thrilling: for his enemies are the common enemies of mankind, who since time immemorial have changed the course of history, causing empires to crumble, populations to be destroyed, and decisive battles to be won or lost.

Now, as in the past, the specialist in infectious diseases may travel, in spirit if not in body, to the remotest parts of Asia, to the battlegrounds of the Crusaders, or to the Horn of Africa. He may recollect that from Ethiopia came the great plague that killed thousands of Athenians and their leader Pericles in the first years of the Peloponnesian War. He may likewise reminisce with Hans Zinsser how the "sacred fire"—perhaps smallpox—saved the fledgling Saracen civilisation by destroying an Abyssinian army of 60 000 in its march on Mecca during the so-called "Elephant War." And he may also note that it was in nearby Somalia that smallpox, once the captain of the ministers of death, was finally declared dead on 26 October 1977—though we stand warned by the much regretted Samuel Vaisrub, in one of his last editorials, that a person once declared legally dead may reappear unexpectedly. So that it may yet be premature to relegate smallpox to the obituary section for deceased diseases in the next edition of *Harrison*, along with the sweating disease and miliary fever, milk disease, and status thymolympathicus, and the much lamented syndromes of Fröhlich, Mikulicz, Banti, Ayerza, and Da Costa.

Nor need our specialist in infectious diseases always hark back to the past when Dr Herbert Abrams of Harvard Medical School has promised such interesting prospects for the period after the first 6559-megaton attack—equivalent to 524 720 Hiroshima bombs. As soon as the dust will have cleared, he expects pneumonia, influenza, tuberculosis, and streptococcal infections to destroy many of the weakened, malnourished, overcrowded, irradiated, and immunosuppressed 60m American survivors of an atomic holocaust. Flies breeding in the victims' bodies will spread malaria, dengue, and encephalitis. Rabies will again become rampant; flies will propagate typhus; the lack of sanitation will cause the return of cholera and typhoid fever; and rats will bring back the Black Death, so that almost one-tenth

of the population will die from plague. Most doctors, living as they do in the big cities, are not expected to survive a nuclear attack; but for rural specialists in infectious diseases the opportunities should be unlimited.

From dengue to the plague

Meanwhile, as language changes to adapt to new concepts, we find these specialists increasingly referring to themselves as infectologists. Proud of their heritage and conscious of their future, they are at present indispensable, for who else still remembers how to do a Gram stain, and who can keep up with the constant deluge of new aerobic and anaerobic pathogens? Only the infectologist can bridge the gap between generations of cephalosporins, as he presides over the beta-lactam hospital subcommittee, taking time to explain the difference between cefasulfmag and moxapruinjuice, thundering against shotgun treatment and presenting telling statistics of how the surgeons misuse antibiotics. And how can even doctors survive when they are in constant danger, especially when they eat raw fish served Japanese style? For stomach pains, flatulence, abdominal distension, and diarrhoea are the wages of such epicurian licence—Dr William Barclay reminds us—and who would not rather put up with an infectologist than grow a two-metre long *Diphyllobothrium latum* in his intestines?

There are also other dangers. In immunosuppressed patients *Strongyloides stercoralis* is having a field day, in one instance infesting both recipients of kidneys from a common cadaver donor. At Chicago's fashionable North-western Memorial Hospital a transplant recipient with a pruritic rash was found to have the otherwise unacceptable scabies. In Berlin, New Hampshire—far away from Leningrad—water from two equally contaminated filtration plants caused one-third of the town's 15 000 inhabitants to contract *Giardia lamblia* infections. In Colorado desperate diseases requiring drastic remedies have engendered dangerous complications, as 13 cases of amoebiasis were traced to a contaminated machine used by a chiropractor to irrigate the colon, with ten patients developing perforations of the colon and three dying from it. And from a similarly avant-garde mode of treatment, a total nutritional regimen of raw liver and vegetables supplemented by coffee enemas, ten patients with advanced malignant or collagen diseases thus treated at a clinic in Tijuana, Mexico, contracted *Campylobacter fetus* septicaemia and presented to hospitals in the San Diego area in a moribund state.

Also making a comeback is *Rickettsia prowazekii*, if only to confirm Hans Zinsser's prediction that typhus is not dead but merely asleep and ready to break out into the open if given a chance. Lately found to thrive in a hitherto unrecognised extra-human reservoir, the flying squirrel, and hence spreading to man by unknown means, the Rickettsiae have been causing some 10 new cases of exanthematic typhus a year in the southern and eastern parts of the United States. Further to the west, in California, *Pasteurella pestis* has been causing an epizootic of

bubonic plague in wood rats and field mice, leading to President Reagan being warned not to pick up dead animals and to stuff his jeans in his boots while vacationing at his mountain ranch. In Illinois there have been warnings against rabies as the population of skunks, foxes, and racoons has increased to record numbers—so that farmers were told to vaccinate their cats and dogs and look out for aggressive or unusual behaviour in wild animals. From Florida come reports of Haitian migrants bringing in typhoid, leprosy, malaria, dengue fever, and also much tuberculosis; and even in Chicago tuberculosis remains a major health problem, the incidence being twice the national rate and many new cases being observed, especially among the newcomers and the poor.

Further testing the infectologist's skill are deadly legionellas lurking in cooling systems and migrating down chimneys into convention halls, or causing nosocomial infections through contaminated shower-heads. In California a married couple developed toxic shock, but as no staphylococci were recovered from the husband it was surmised that he had absorbed a heavy dose of toxin through prolonged contact with his wife. Then there is *Citrobacter freundii*, causing meningitis and brain abscesses in children, and possibly responding to the third-generation cephalosporins. In Florida an outbreak of sulfonamide-resistant meningococcal meningitis caused much alarm, especially as it led to a few cases of fulminating Waterhouse-Friderichsen syndrome. In Ohio an epidemic of viral meningitis in a school affected mainly the members of the football team, suggesting a relation to physical exercise; while *Listeria monocytogenes*, a Gram-positive rod easily mistaken for diphtheroids, haemophilus, or pneumococcus, has been preying on people with disturbed T-lymphocyte, macrophage, or beta-lysin function, causing meningitis, sepsis, granulomas, or disseminated abscesses. Then there are reports of disseminated candidiasis occurring in 30% of patients dying from leukaemia; of *Streptococcus bovis* bacteraemia in patients with gastrointestinal cancer; of *Clostridium difficile* infections responsive to vancomycin in patients with inflammatory bowel disease; and of outbreaks of coccidiomycosis around Indian burial sites suggesting some dreadful curse or retribution for past injuries. Dog lovers have been warned against *Toxocara canis*, and also against the heart-worm *Dirofilaria immitis* lodging in the pulmonary artery and causing infarcts of the lung. And if a child has fever, red eyes, enlarged nodes, a strawberry tongue, and a red desquamating rash, the doctor may be well advised to steal away to his library, open his book at the new arrivals section, and read about Kawasaki disease.

Inability to be alone

Turning now to the diseases arising from our inability to be alone, one may indeed reflect how for the entire generation of venereologists put out of business by penicillin in the early 1940s, the current news should make their mouths water in their graves. One million cases of gonorrhoea were reported last year, another million are believed to be unreported, and many strains of gonococcus are resistant to penicillin. With one million cases of pelvic inflammatory disease a year, the sexual revolution is making its mark, causing sterility at a rate of 200 000 a year, so that by 1900 one out of ten women aged 15 to 35 may expect to become sterile. Also assuming epidemic proportions are chlamydial infections, three times as common a cause of urethritis than gonorrhoea in man, yet affecting both sexes, and in fact having become the most frequent cause of venereal disease in the United States. Chlamydia generally responds to tetracycline, unlike ureaplasma urealyticum, another cause of non-gonococcal urethritis, which may require erythromycin. Each year also some half a million people are afflicted by genital warts, 1.5m by trichomonas, and another half a million by genital herpes. The latter, caused by herpes simplex type 2 virus, is a life-long disease that may have infected as many as 10m people, is known to flare up periodically, and being incurable

has recently prompted the Federal Government into warning people against a whole host of highly promoted false cures such as vaccines and stimulants. It may also be noted that all these venereal diseases are particularly frequent among homosexuals, as are syphilis, hepatitis A and B, and bowel infections due to shigellosis, amoebiasis, campylobacter, and giardiasis. Less frequent, but much more alarming, are recent reports of generally fatal pneumocystis pneumonia, Burkitt's lymphoma, and Kaposi's sarcoma, the latter having been found in room mates and sexual contacts; while an increased incidence of squamous cell carcinoma of the tongue and rectum is also becoming apparent in homosexuals.

For syphilis, with 27 000 cases and only 200 deaths reported in 1980, the infection rate is relatively small but has increased by some 33% in the past four years. Many cases occur in homosexuals, and it is perhaps because such individuals rarely apply for marriage licenses that periodically the suggestion comes up that premarital serologies, still required in 44 States, should be abandoned. It has also been pointed out that it costs \$176 000 to detect a single case of syphilis, and that the total yearly expenditure of \$80m should be viewed in the context of a yearly Congressional appropriation of only \$18m for overall venereal disease control. Furthermore, a recent study has shown that doctors often ignore positive serological test results in their hospital patients, particularly in the elderly—and some basis for this approach comes from a recent review suggesting that only 14% of patients with positive reagin and antitreponemal tests actually had syphilis.

The Red Death

In closing we note that as a result of vaccination this country may soon be free of measles. Compared with half a million cases in 1950 there were fewer than 14 000 in 1980, and, although the occasional case comes in from abroad, the disease is certainly on the wane. Vaccines may also eventually wipe out hepatitis B, rubella, mumps, and even dental caries, and an antistreptococcal vaccine developed at the University of Tennessee could eliminate rheumatic fever and would be particularly valuable in developing countries. Meanwhile, the Government is paying \$11 per person to vaccinate old people against the pneumococcus; while at the same time it continues to pay out large sums in damages to people harmed by the swine flu vaccine. At the Albert Einstein College in New York doctors have discovered a friendly bacterium, a strain of staphylococcus that speeds up wound healing in animals by 200 to 300 times, apparently by promoting more rapid collagen and blood vessel formation. From a New Jersey swamp comes a new antibiotic, azthreonam, even more powerful than the the third-generation cephalosporins. And as infectology comes of age, scientists may even discover the deadly virus of the hideous pestilence that caused bleeding at every pore and scarlet stains on the face and body, so fatal that it ran its entire course in half an hour, its victims dropping one by one and dying in the despairing posture of their fall, till Darkness and Decay and the Red Death held illimitable dominion over all—as reported by Edgar Allan Poe nearly 140 years ago.

A patient has developed staining of the skin on the sides of his nose from solder in the frames of the spectacles he wears. Is there any risk of his absorbing lead from the solder?

Solder will usually contain a high percentage of lead. This will not be absorbed through the skin. The only lead compounds that are readily absorbed through the skin are the organic solvent compounds of lead such as the alkyl leads used as petrol additives.¹—D MALCOLM, group medical adviser, Chloride Group, London.

¹ Moore RM, Meredith PA, Goldberg A. In: Singhal RL, Thomas JA, eds. *Lead toxicity*. Baltimore-Munich: Urban and Schwarzenberg, 1980:63.