American trypanosomiasis

Philip D Marsden

Let us go into a four bedded ward in our hospital in Brasilia to see some patients with Chagas' disease. In the bed on the left nearest the door is a man with obvious congestive heart failure with distinct peripheral oedema, yet he is not noticeably breathless because the myocarditis caused by *Trypanosoma cruzi* is biventricular. The right ventricular failure spares the lungs to some extent so that pulmonary oedema is not noticeable. Examination shows a clinically enlarged heart and signs of tricuspid incompetence—namely, a prominent V wave in the jugular venous pulse, a pulsatile tender hepatomegaly, and a regurgitant systolic tricuspid murmur that varies with respiration. This is a functional valvular lesion due to ventricular dilatation, for the parasite does not affect the valves but destroys the muscle fibres. The man is only 32 but has a right sided hemiplegia due to an intracardiac clot embolising to the internal capsule.

Next to him is a man, also under 40, who cannot go to the toilet without turning blue and falling down in a fit due to Adams-Stokes disease. His pulse is only 30 a minute. He has a complete heart block due to destruction of his cardiac conducting system by the parasite. He has been admitted for implantation of a pacemaker so that he can farm his land. His heart is normal in size so probably we can expect a good result.

Across the way is a 16 year old girl sitting on the bed. She is waiting to see you because naturally we don't mix sexes in the ward. Her history is classic: for every mouthful of rice she tries to swallow she has to take a sip of water. Her enlarged parotid glands give the lie in her face to her nutritional state for she is very thin owing to her eating difficulties. We look at the barium swallow x ray picture, which shows a grade 3 megaesophagus. She does not complain of constipation, but she is getting so little food down that it is difficult to assess the presence of megacolon. Her heart and her electrocardiogram are normal, and she has come for surgical correction of the megaesophagus by excision of the atonic segment. Our surgeons have at least one on their list every week.

Next to her is a boy of 12 with one eye closed owing to oedema of the eyelid. In our area this sign immediately suggests acute Chagas' disease. Examination of a drop of fresh blood under a coverslip in the side room shows active trypanosomes displacing the red cells, and the diagnosis is established. Yes, he has bugs in his house and he has found them in his bed, though he

Hut infested with *Panstrongylus megristus*

does not remember being bitten. The bite is fairly painless and would not wake him. The bug must have defecated near his eye after feeding on his face, and he probably rubbed infecting trypanosomes into his conjunctiva when he woke up. Now his orbit is the site of multiplication of the parasite and *T. cruzi* is already in his heart, though there are no signs of this. Further questioning elicits that when the ministry staff came round to spray his house to kill the bugs his family were visiting friends so the house was shut. Their nearest neighbour is 8 km away. He will receive specific drug treatment with benznidazole, which will kill the tissue parasites as well. The immediate prognosis is good but his future health questionable.

The age of these patients should be noted. Men in their prime are more often victims of cardiomyopathy. Acute infection is usually asymptomatic and occurs predominantly in the first decade of life. Many years pass before the signs of Chagas' disease appear. The eponym is apt for Carlos Chagas described all these presentations and found the causative organism in the vector bug initially. Certainly an achievement worthy of a Nobel prize, though his contributions were hardly recognised in his lifetime. The blood bank of the hospital has to accept seropositive donors as blood is scarce but adds gentian violet to the blood at least 24 hours before use to kill any possible trypanosomes. We have never had a case of acute Chagas' disease due to transfusion in our hospital. Specific treatment will help the boy with acute Chagas' disease, but for the others in whom damage to the myocardium and

Adult *Rhodnius prolixus* feeding

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parasympathetic ganglion occurred years ago it is of doubtful value. The first patient has a 70% chance of being dead in two years, and he will have repeated hospital admissions for myocardial failure. For the second and third patients we cannot formulate an accurate prognosis, but the operating costs alone are heavy. All these patients are treated under the national health insurance scheme and do not pay.

To understand the answer to this serious problem you have to come walking with me along a path in Mambai, Goiás State. We have been working here since 1974; about half the population in rural farms have *T. cruzi* infection. Less than a third will develop abnormal electrocardiograms and under a tenth gut problems. All the families are known to us, and we stop to chat to a man sitting on a bench outside his house constructed of walls of bamboo lath and mud with a palm roof. There had been bugs in this house. We had caught many in cracks in the walls of his bedroom. In the house the bugs were concentrated near the source of blood for they are voracious feeders. He invites us in, and we can see the streaks of bug faeces still on his bedroom wall, but no bugs are found after 30 minutes' search by two skilled operators. Also the paper calendar placed on the wall a year ago has no faecal streaks at the back of it. The risk of transmission of *T. cruzi* to his 10 children has ceased because staff of the executive arm of the Ministry of Health (SUCAM) have sprayed his house with residual insecticide, and regular checks, such as the one we are making, are done to see if respraying is necessary.

I cannot detail all the complexities of controlling triatomine bugs here, but the Brazilian Ministry of

Health, through SUCAM, has achieved a national programme for controlling Chagas' disease, which has now passed into the vigilance phase. The programme is the most effective act by a Ministry of Health in a tropical country that I have seen in my 30 years in the tropics. Acute Chagas' disease is no longer seen in our hospital in Brasília, but because of the long genesis of the disease chronic infections will continue to be the commonest cause of clinical syndromes in the hospital in my lifetime. Note that the solution was not in the hospital but in the field. The house dwelling vector is vulnerable to insecticides, unlike the elusive African tsetse fly responsible for the other type of severe human trypanosomiasis. Insect vectors determine the geographical distribution of such infections, for the 22 species of tsetse fly are all African and 115 species of triatomine bug exist only in the New World. Chagas' disease has been created by people for *T. cruzi* infection is widespread in South American wild animals, possibly originating in the marsupials. Transmission of *T. cruzi* occurs from within 320 km of New York, by bugs in animal burrows, to the south of Argentina. Humans destroying the environment have reduced opportunities for blood meals and certain bug species have entered their houses and successfully colonised them.

Venezuela and Argentina have also mounted successful control programmes, but in many South American countries transmission to humans still continues unabated. Recently in a restaurant in the centre of the city of Santa Cruz, Bolivia, I dined with *Triatoma infestans*, the most effective vector of Chagas' disease, running across the wall in front of me.

MULTICULTURAL MEDICINE

What a scene

In transcultural encounters doctors should always keep an open mind and be aware when dealing with their patients that things might not be all they seem.

A Vietnamese woman aged 22, with a 1 year old son, went to an English doctor in his busy morning surgery. She looked terrified whereas the baby was smiling. "Doctor, please do my blood test, my blood is bad," she said in "boat people" English. The doctor became concerned and asked, "What's the problem?" She described how she had had lower abdominal pain with frequency of micturition the previous night and that the deputising doctor had prescribed Septrin (co-trimoxazole). She had shown the prescription to a nurse who lived next door. The nurse told her to see her general practitioner because she most probably had "septicaemia," and it is a serious condition. The doctor showed sympathy over her sleepless night and with a smile held her baby, asking her to lie on the couch for an abdominal examination, while waiting for the receptionist to act as a chaperone. After the examination with one hand he reassured the patient but asked who that nurse was. It transpired that the so called nurse was in fact a Vietnamese interpreter. Among ethnic minorities it is common to upgrade a person's status, and a palmist or a school teacher may be called a professor.

A 30 year old English woman went to a family planning clinic for a smear test. A south Indian doctor—a short lady with a long name—greeted her but looked away even when taking the history. She asked the patient to take her tights and pants off and pop up on the couch. The English are keen on screening examinations (unlike the ethnic minorities), and the patient expected a breast examination at the same time so she took her bra off as well and laid on the couch. The doctor came, stood on a step to compensate for her short stature, looked at the patient, and briskly covered her breasts with a large paper towel, saying, "I do not like to see a woman naked." The examination was over, but the patient was very hurt. She was so upset that she forgot to collect her supply of the pill and went straight to her Iranian general practitioner to complain about the incident. He consoled her by telling her that in Eastern cultures nakedness, even in medicine, is an absolute taboo whereas in the West it is part of lessons in sexuality (people are made to feel proud of their bodies) and swimming as well as sunbathing,

even topless, are respectable parts of European social life. When these cultures meet there is a need to understand each other's customs without changing one's own ways. Perhaps Westernised Eastern doctors can play a major part in bridging the culture gap.

"Linkperson" is a new cultural term in Britain and is attributed to an interpreter who, in addition, translates Western and Eastern cultures in a doctor-patient dialogue during a transcultural consultation. A woman linkperson came to assist an Anglicised Buddhist consultant on a domiciliary visit to an Asian psychiatric patient. Both had to wait for the family doctor and had a chat before going into the patient's house. The linkperson asked, "Doctor, do you believe in ghosts?" The psychiatrist gave a philosophical answer. "You know, if you believe in God or the devil and angels or ghosts they surely exist, but if you don't believe in them perhaps they don't exist. However, many people who are believers in ghosts and also those who are non-believers do exist." The linkperson told him that, "The patient who is to be seen is known to have mentioned in private that a ghost comes to her at night and cuts her skin with a knife, but the wounds on her arms heal up completely by the morning. She is afraid to go to her general practitioner but her husband wants her head seen to. However, I told her there may be many ghosts in India but there aren't any in Britain—just as there are no snakes or scorpions here—but the patient still believes in ghosts." The psychiatrist said with a grin, "Never mind. We are going to section her." The linkperson trembled with fear and looked at the psychiatrist as if he was a ghost. The general practitioner arrived on the scene and she told him that the consultant "is going to cut the patient up and he looks serious!" The English doctor laughed and said, "Some psychiatrists look as mad as their patients but he is no ghost. The word section is jargon in psychiatry and means that the patient has to be hospitalised against his or her wishes, and this requires the signature of two doctors. Never mind." The linkperson remained close to the general practitioner, scared stiff, interpreting little. Probably interpreters should be made familiar with medical jargon. In a cultural conflict the anxiety may not be only in a patient's mind.

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