

that these factors—pelvic infection and use of intrauterine contraceptive devices—have a role, but this remains to be proved; demographic factors probably account for the consecutive rise in incidence in the five year age groups. If factors related to age have a decisive effect on the rise in ectopic pregnancy, the numerical increase in cases will level off within a few years in Finland.

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- 1 Weckstein LN. Current perspective on ectopic pregnancy. *Obstet Gynecol Surv* 1985;40:259-72.
- 2 DeCherney AH, Jones EE. Ectopic pregnancy. *Clin Obstet Gynecol* 1985;28:365-74.
- 3 Chavkin W. The rise in ectopic pregnancy—exploration of possible reasons. *Int J Gynaecol Obstet* 1982;20:341-50.
- 4 Barnes AB, Wennberg CN, Barnes BA. Ectopic pregnancy: incidence and review of determinant factors. *Obstet Gynecol Surv* 1983;38:345-56.
- 5 Weström L, Bengtsson LPH, Mårdh P-A. Incidence, trends, and risks of ectopic pregnancy in a population of women. *Br Med J* 1981;282:15-8.

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## Treatment of palindromic rheumatism with chloroquine

Palindromic rheumatism consists of recurrent self limiting attacks of monoarthritis or oligoarthritis, often precipitated by exercise, lasting from a few hours to a few days. There is complete remission between episodes, but the disease may be disabling and may progress to classical rheumatoid arthritis. We report three cases that responded dramatically to treatment with chloroquine.

### Case reports

**Case 1**—A 33 year old man presented with a five year history of intermittent pain and swelling of shoulders, elbows, wrists, metacarpophalangeal joints, and knees typical of palindromic rheumatism. A wide variety of anti-inflammatory drugs had been ineffective. Erythrocyte sedimentation rate was 6 mm in the first hour, serum urate concentration normal, and antinuclear factor and the results of a latex slide test negative. x Ray films were normal. Despite treatment with naproxen and penicillamine he remained severely disabled by up to five attacks a week. Encouraged by a report on the efficacy of chloroquine in palindromic rheumatism,<sup>1</sup> we started treatment with 250 mg daily. The morning after his first dose he felt "as if a switch had been turned off." He had no further attacks and regained full activity, which was maintained with treatment on alternate days. This was stopped after two years because of electroretinal abnormalities. He then had two mild attacks in three months but was subsequently free of symptoms for seven years without any treatment.

**Case 2**—A 19 year old woman presented with an eight year history of recurrent episodes of pain and swelling in fingers, knees, and ankles. Attacks occurred up to three times a week, lasted for 24 hours, and were exacerbated by exercise and cold weather. Her mother had rheumatoid arthritis and a paternal uncle ankylosing spondylitis. Several non-steroidal anti-inflammatory drugs given over the next year were ineffective, but 250 mg chloroquine daily stopped further attacks. Chloroquine was then given on alternate days and later stopped; her attacks recurred within a few days. The drug was reintroduced, and she remained symptom free for three years.

**Case 3**—A 53 year old woman was admitted with excruciating left hip pain that had begun a few hours before. During the previous six weeks she had suffered pain in both shoulders, the left wrist, and the right knee. She had previously undergone parathyroidectomy for hyperparathyroidism. Her mother and paternal grandmother had rheumatoid arthritis. The erythrocyte sedimentation rate was 4 mm in the first hour; a sheep cell agglutination test gave a titre of 1/16; and a test for antinuclear factor gave a negative result. x Ray films of her joints were normal. Despite indomethacin treatment she continued to have fitting joint pains and swelling and was readmitted with severe right hip pain: a sheep cell agglutination test gave a titre of 1/128. Her joint symptoms resolved with treatment with chloroquine, and she remained well for 18 months.

### Comment

Palindromic rheumatism is a clinical diagnosis and does not represent a single entity. In some patients it is an unusual presentation of what will ultimately become rheumatoid arthritis: one of our patients (case 3) was

followed up for two years after her joint symptoms first developed, had a raised titre once on sheep cell agglutination testing, and may well have been such a patient. Her response to chloroquine was nevertheless much more rapid than that expected in more typical rheumatoid arthritis. Our other patients had severe joint symptoms for years without joint damage or progression to rheumatoid arthritis. Both received many antiarthritic drugs with little effect but responded to chloroquine promptly and completely.

As far as we know the efficacy of chloroquine in palindromic rheumatism has been reported only once previously.<sup>1</sup> We believe that the possibility of such a remarkable response to chloroquine should render it a first line drug in palindromic rheumatism. By comparison with gold and penicillamine, which have also been recommended,<sup>2,3</sup> chloroquine is safe provided that the eyes are monitored routinely.<sup>4</sup>

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- 1 Golding DN. D-Penicillamine in palindromic rheumatism. *Br Med J* 1976;iii:1382-3.
- 2 Matingly S. Palindromic rheumatism. *Ann Rheum Dis* 1966;25:307-17.
- 3 Huskisson EC. Treatment of palindromic rheumatism with D-penicillamine. *Br Med J* 1976;ii:979.
- 4 Marks JS, Power BJ. Is chloroquine obsolete in treatment of rheumatic disease? *Lancet* 1979;ii:371-3.

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## Indigenous strongyloidiasis in Nottingham

Strongyloidiasis, a nematode infection of wet tropical regions, may be an unexpected hazard of walking barefoot in Nottingham parks. We believe that this is the first report of an autochthonous case in Britain.

### Case report

A 17 year old white schoolgirl presented with a six month history of diarrhoea, anorexia, and 4 kg weight loss. She had had several sloppy motions each day but no blood or mucus in the stools. She had undergone extensive investigation for evidence of chronic inflammatory bowel disease but had yielded negative results on upper gastrointestinal endoscopy and biopsy of the small intestine; sigmoidoscopy and rectal biopsy; and radiology of the stomach and the small and large intestines. The only apparent abnormality was a persistent eosinophilia of  $2.3 \times 10^9/l$  (33% of total white blood cells),  $3.67 \times 10^9/l$  (28%), and  $5.94 \times 10^9/l$  (44%) at intervals throughout her illness. Examination of her stools on several occasions showed large numbers of rhabditiform larvae of *Strongyloides stercoralis*. She was treated with thiabendazole 1.5 g twice daily for three days, which resulted in improvement of her symptoms, elimination of the larvae from the faeces, and reduction of the eosinophilia. Stools from the family and pet dog all yielded negative results.

She was questioned further about a possible origin for her infection. She had never travelled abroad, except for a day trip to Boulogne many years previously, and none of her family, friends, or visitors had visited the tropics. The family had lived in the same council house in Nottingham for 17 years. The only important point was that she always walked around at home and in local parks barefoot.

### Comment

*S. stercoralis* is a common intestinal parasite in the wet tropics, the southern states of the United States, and warmer parts of Europe. Though chronic infestation with the parasite has been shown in ex-prisoners of war more than 30 years after their return from South East Asia,<sup>1,2</sup> there have been no reports of patients contracting the disease while living in Britain.

The common mode of infection is from a larval reservoir in wet warm soil, where the rhabditiform larvae develop into the infective filariform stage. These filariform larvae penetrate the skin of the feet, entering blood vessels to reach the lungs. They then migrate through the trachea and pharynx to the small intestine, where they mature and multiply. Having buried themselves in the wall of the small intestine, fertilised females produce eggs that develop into the rhabditiform larvae. Rhabditiform larvae may become filariform before being shed in the stool, allowing autoinfection to occur through the gut mucosa or perianal skin without an intermediate soil phase. Under suitable environmental conditions a free living cycle may be established in the soil.

The mode of this patient's infection is uncertain. We think that in walking barefoot she may have trodden in contaminated faeces from an infected person or pet. For a local dog or cat to be chronically infected it would have to have been imported from an endemic area, but larvae might persist and develop in warm, moist soil even in an English summer. It is unlikely that larvae would exist in the soil on contaminated vegetables imported from warmer climes. Oro-genital transmission of strongyloidiasis has been suggested,<sup>3</sup> but this patient denied any sexual contact.

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- 1 Gill GV, Bell DR, Reid HA. Strongyloidiasis in ex-Far East prisoners of war. *Br Med J* 1977;i:1007.
- 2 Grove DI. Strongyloidiasis in allied ex-prisoners of war in South East Asia. *Br Med J* 1980;280:598-601.
- 3 Phillips SC, Mildvan D, William DC, Gelb AM, White MC. Sexual transmission of enteric protozoa and helminths in venereal disease clinic population. *N Engl J Med* 1981;305:603-6.

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## Infection by airborne *Chlamydia trachomatis* in a dentist cured with rifampicin after failures with tetracycline and doxycycline

Up to now the transmission of *Chlamydia trachomatis*, a noted pathogen of the urogenital and conjunctival tracts, has been thought to be by direct contact or exposure to infected mucosae or secretions, as may occur during sexual contact. Airborne transmission of *C trachomatis*, the usual mode of transmission of *Chlamydia psittaci* infections, has been documented in only two cases of laboratory infection by L1 and L2 strains, which cause lymphogranuloma venereum.<sup>1</sup>

We describe three cases of *C trachomatis* infection resistant to commonly used antibiotics; in one case airborne transmission was probable.

### Case reports

**Case 1**—In March 1984 a 29 year old doctor began to have ocular burning and pruritus with moderate conjunctival secretion, especially in the morning. Keratoconjunctivitis of a probable viral nature was diagnosed but tests for viruses and bacteria gave negative results. Symptoms persisted with alternating improvement and worsening until January 1985, when he noticed reddening of the glans penis and pruritus of the foreskin. *C trachomatis* was isolated from the pharynx, conjunctiva, and urethra. Tetracycline given by mouth (500 mg four times daily) and topically into the eyes for 10 days was of no avail, and doxycycline 200 mg by mouth daily for 15 days also gave poor results. Rifampicin (900 mg daily for 15 days)<sup>2</sup> proved effective.

**Case 2**—In January 1985 a 27 year old doctor (the wife of case 1) began to have conjunctival burning and reddening, soon followed by vaginal itching, dyspareunia, and leucorrhoea. Conjunctival, pharyngeal, urethral, and cervical specimens were positive for *C trachomatis* on McCoy cells and by direct immunofluorescence using monoclonal antibodies against the organism. As in case 1, tetracycline and doxycycline were ineffective, only rifampicin being successful.

**Case 3**—A 28 year old dentist began treating our first patient five days after he had started doxycycline. The dentist performed a filling over two visits, using surgical gloves and sterile instruments but inadvertently exposing his face to the patient's oral secretions, which became vaporised by diamond tipped cutters mounted on water cooled turbines. Three days later the dentist began to have ocular reddening and itching and, soon afterwards, bilateral purulent conjunctivitis. *C trachomatis* was isolated from conjunctival and pharyngeal specimens but not from urethral specimens. The dentist was given the same treatment as in cases 1 and 2, only rifampicin proving effective.

In all three cases we obtained definite clearance of clinical symptoms and negative laboratory data for *C trachomatis* in infected sites, which remained negative several months later.

### Comment

In case 3 transmission of *C trachomatis* presumably did not occur by direct mucosal contact but by airborne transmission in saliva which became dispersed as an aerosol with water sprayed by the high speed drill. We therefore suggest that dentists should use plastic screens to shield the face from possibly contaminated aerosol droplets created by routinely used dental instruments.

Contamination of the dentist occurred during treatment with doxycycline in case 1. Despite good patient compliance, in none of our cases did doxycycline essentially modify the clinical symptoms or eliminate *C trachomatis*; this is in contrast with other reports.<sup>3,4,5</sup>

Therapeutic failures with tetracycline and doxycycline and success with rifampicin in our three cases should be borne in mind when choosing treatment for *C trachomatis* infections resistant to commonly used antibiotics.

- 1 Bernstein DI, Hubbard T, Wenman WM, et al. Mediastinal and supraclavicular lymphadenitis and pneumonitis due to *Chlamydia trachomatis* serovars L1 and L2. *N Engl J Med* 1984;294:1543-7.
- 2 Schachter J. Rifampin in chlamydial infections. *Rev Infect Dis* 1983;5(suppl 3):S562-4.
- 3 Lassus A, Juvakoski T. Treatment of uncomplicated genital *Chlamydia trachomatis* infections in males. *Scand J Infect Dis* 1982;32(suppl):169-72.
- 4 Oriol JD. The carrier state: *Chlamydia trachomatis*. *J Antimicrob Chemother* 1986;18(suppl A):67-71.
- 5 Bowie WR. Epidemiology and therapy of *Chlamydia trachomatis* infections. *Drugs* 1984;27:459-68.

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## Perforation of nasal septum due to button battery lodging in nose

Increasing attention has been paid recently to tissue necrosis caused by button batteries in contact with mucosal surfaces. I report on a child whose nasal septum perforated when a button battery containing silver oxide lodged in his nose.

### Case report

A 4 year old boy presented to this hospital with a foreign body in his left nostril, which could be seen on examination. He did not have a nasal discharge or pain. As the foreign body could not be removed easily he was given a short general anaesthetic the next day during a routine operating list; a battery (392 Eveready, Sony, Japan) 7.9 mm in diameter and 3.6 mm thick was removed, and a blackened area was noted on both sides of the nasal septum where it had been in contact with the battery. On closer examination this area was found to have a small perforation. The battery had probably been in the nose for about 24 hours.

The manufacturer's data showed that the electrolyte in the battery was 25% potassium hydroxide; the anode contained zinc, 45% potassium hydroxide, mercury, and CMC (the manufacturer will not disclose what this is); and the cathode contained silver oxide, silver nickel dioxide, and Teflon.

### Comment

A smooth round foreign body lodged in the nose for only a short time would not normally be expected to cause septal perforation. The electrolyte content of this particular battery was 25% potassium hydroxide. Alkalis are corrosive and damage tissue because of their reaction with protein, saponifying effect on liquids, and necrotic effects on tissue cells. Thus the alkaline content of the battery probably caused the necrosis.

Ear, nose, and throat clinics will probably see increasing numbers of patients with button batteries as foreign bodies: the batteries are widely used not only in hearing aids, cameras, and calculators but also in electronic games, which are popular with children. Swallowing of such batteries is becoming more common,<sup>1,3</sup> and two deaths due to oesophageal perforation have been reported.<sup>4,5</sup> I recommend that button batteries lodged in a body cavity are removed as a matter of urgency.