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Congenital malaria in one identical twin

Congenital malaria is rare in Britain. We report uniovular twins, only one of whom developed congenital *Plasmodium vivax* infection.

A healthy primigravid woman delivered full term twins four months after her arrival in England from India. The delivery was normal, and the placenta was undamaged and consistent with a monozygotic pregnancy. Haemoglobin estimations at birth suggested a twin-to-twin transfusion (18.0 g/dl and 26.5 g/dl for twins I and II, respectively). Twin II therefore had one third of her blood volume exchanged with plasma protein fraction; thereafter her progress was uneventful.

When reviewed one month later, the mother and both twins had no fever and physical examination showed no abnormal physical signs. Repeat estimates of haemoglobin concentration were 7.5 g/dl (twin I) and 13.0 g/dl (twin II). Trophozoites and gametocytes of *Plasmodium vivax* were observed on the blood film of twin I (parasitaemia 0.3%) but not in repeated thick and thin blood films from Twin II. Scanty infestation with *Plasmodium vivax* was also present in the mother (thick film only). (These findings were later confirmed by the Malaria Reference Laboratory at the Hospital for Tropical Medicine and Hygiene.) IgM antimalarial antibodies were detected in serum from twin I but not from twin II (table), consistent with congenital infection in the former; IgG antibodies, presumably of transplacental origin, were present in both. Chloroquine was administered to the mother and both twins (10 mg base/kg initially, repeated after six hours, and then daily for five days), and all three were well when reviewed three months later.

Since 1980, less than 20 cases of congenitally acquired malaria have been reported in Britain. A case of congenital malaria has previously been described in the second-born of non-identical twins¹; premature placental separation was implicated. We believe ours to be the first reported case of congenital malaria in one of a pair of identical twins. As both twins were probably exposed to *Plasmodium vivax* during birth, the exchange transfusion of the second twin may have removed infected erythrocytes and thus protected against the development of clinically important parasitaemia. It seemed reasonable to suppose that both twins could be infected,

however, and so both were treated. As congenitally acquired malaria does not involve passage of sporozoites, an exoerythrocytic cycle does not occur. Chloroquine alone was therefore the treatment of choice.^{1,2}

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Survival of *Helicobacter pylori* in water and saline

Helicobacter (*Campylobacter*) *pylori* is a ubiquitous human parasite and the most common and important cause of gastritis.¹ The natural reservoir for this organism is probably the human stomach, but the mode of transmission from person to person remains unknown. Although *H. pylori* has never been isolated from an environmental source, recent studies² have shown that, like *Campylobacter jejuni*,³ it may survive in fresh water microcosms in a viable state for more than 10 days and as viable, non-culturable coccoid bodies for up to one year.

We studied the survival of *H. pylori* (NCTC 11916) in sterile distilled water, physiological saline, and artificial seawater.⁴ Viable counts were determined using a standard microbiological dilution method, with inoculation on to a selective isolation medium for campylobacters (modified New York City medium). Plates were incubated under microaerophilic conditions at 37°C for three to four days. Colonies were counted and expressed as colony forming units per millilitre (cfu/ml) and also tested for rapid

urease, oxidase, catalase, and Gram reactions to confirm the identity of surviving organisms. Counts were repeated at daily intervals from suspensions stored at room temperature and at 7°C in the dark. Experiments were performed in duplicate.

At 7°C, *H. pylori* (NCTC 11916) remained viable for culture when suspended in distilled water for a period of between 11-14 days, saline for 16 days, and artificial seawater for between three and seven days (figure). Suspensions stored at room temperature, however, became non-culturable within one day of inoculation in distilled water and seawater, and within three days in physiological saline. Similar results were found with *H. pylori* (NCTC 11639) and a recently isolated strain.

The non-culturable bacterial suspensions contained coccoid forms of the organism, which have been shown to be viable.² Coccoid cells of *C. jejuni* may be transformed into culturable, spiral forms by animal passage.³ Water borne outbreaks of campylobacteriosis have been described,⁵ and urease positive campylobacters have been isolated from the roots of aquatic plants, from freshwater and seawater.⁵

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Survival of *H. pylori* (NCTC 11916) in distilled water, physiological saline, and artificial seawater at 7°C.

Malarial immunofluorescent antibody test reactions in two identical twins

	Twin I	Twin II
IgG	++++	+++
IgM	+++	—

Reactions were graded visually from absent (—) to very strong (++++). The malarial antigen used was from *Plasmodium feldi*.¹