

Case Report

Campylobacter upsaliensis bacteraemia in a paediatric patientHanan A.H. Babay¹, Mohammed N.H. Chowdhury¹, Fahad Al-Zamil², Abdel-Mageed Kambal¹ and Mona A. Bader¹¹Departments of Pathology/Microbiology and ²Paediatrics, College of Medicine, King Khalid University Hospital, Riyadh, Saudi Arabia**Keywords:** *Campylobacter upsaliensis*, bacteraemia, immunocompromised patients.**Abstract:** A case of *Campylobacter upsaliensis* isolated by blood culture from a child with fulminant hepatitis A virus infection is described. The organism was identified by negative results of catalase, hippurate hydrolysis and H₂S production, positive oxidase test, growth at 37°C and 42°C in a microaerophilic atmosphere, failure to grow at 25°C and susceptibility to cephalothin and nalidixic acid. Previously reported cases are reviewed.**Introduction:** Sandstedt *et al.* [1] isolated catalase-negative or weakly positive (CNW) strains of *Campylobacter* for the first time from dogs in 1983. DNA hybridisation studies indicated that these organisms belonged to a new species and the name *Campylobacter upsaliensis* was proposed in 1986 [1-5]. Although its importance to human health was in some doubt, the organism has been implicated in gastroenteritis, bacteraemia and opportunistic infections in immunocompromised patients. Both children and adults have been affected [2-4].We report here a case of bacteraemia due to *C. upsaliensis* in a child with fulminant hepatitis A virus infection.**Case report:** A 2½ year old girl was admitted to King Khalid University Hospital with a history of fever and jaundice for 7 days followed by abdominal distention and lower limb oedema. There was no history of contact with febrile jaundiced patients and no history of pallor or change in urine or stool colours.

On physical examination the patient was not febrile and had normal vital signs. She weighed 11.3 kg, was pale, deeply jaundiced and had pitting oedema. On the other hand no lymphadenopathy, clubbing or skin rash were detected. Examination of eyes and throat was normal. Abdominal examination revealed ascites with an everted umbilicus and hepatosplenomegaly; no masses were felt. Cardiovascular, chest, musculoskeletal and nervous systems were all normal.

Initial investigations showed hypochromic microcytic anaemia. Renal function test was normal. Urine and stool cultures were negative. Liver function test showed raised hepatic enzymes, prolonged prothrombin time and partial prothrombin time, high serum bilirubin (mainly direct component) and decreased serum proteins. Viral hepatitis screen was positive for anti-hepatitis A virus immunoglobulin gM. Other markers for viral hepatitis were negative. The patient was therefore diagnosed as a case of hepatitis A with fulminant presentation. Other investigations, including bone marrow, cardiological, and immunological studies were inconclusive. She was treated with vitamin K (Roche, Basel, Switzerland) and fresh frozen plasma (provided locally by

the blood bank, King Khalid University Hospital).

On the 6th day, while the child was improving, she became febrile (39°C) with no other associated symptoms. Physical examination revealed otherwise stable vital signs with no apparent focus of infection. Blood culture was taken and the child was closely observed. 48 h later blood culture using an automated system (Bactec 9240) was positive. Gram stain from a blood culture showed a Gram negative curved bacillus which was later identified as *C. upsaliensis*.

Blood culture was repeated twice before starting antibiotic therapy and was positive. The patient was treated with gentamicin (SPIMACO, Riyadh, Saudi Arabia) 30 mg every 8 h intravenously for 10 days due to her liver status. The patient was discharged home on a vitamin K supplement. She was reviewed 4 weeks later and found to be well. Her blood counts and liver enzymes were within normal limits.

The blood culture showed Gram negative curved bacilli after 48 h incubation. The organism was subcultured onto blood and chocolate agars and incubated at 25°C, 37°C, and 42°C in a microaerophilic atmosphere using a gas pack jar. After 48 h incubation, the organism grew well at 37°C, poorly at 42°C, but not at 25°C.

The organism was identified as *C. upsaliensis* by characteristic morphology, positive oxidase, negative results for catalase, hippurate hydrolysis and H₂S production, and sensitivity to both cephalothin and nalidixic acid. The organism was sensitive to erythromycin, ampicillin, tetracycline, gentamicin, cefuroxime, ceftriaxone and cefotaxime, as determined by disc diffusion using a rotating Stoke's technique [6]. Minimum inhibitory concentrations were also determined for the isolate by E-test (AB Biodisk, Solona, Sweden) against erythromycin and gentamicin, being 1 µg mL⁻¹ and 0.125 µg mL⁻¹, respectively.**Discussion:** This is the first report of *C. upsaliensis* from our institute and probably from the Gulf area. Several studies have been conducted in children and adults concerning *C. jejuni* enteritis in Saudi Arabia [7-10]. *C. upsaliensis* is found in the faeces of dogs and cats [3, 11]. DNA hybridisation studies showed it to be distinct from other catalase negative or weakly positive (CNW) *Campylobacter*s such as *C. sputorum*, subspp. *sputorum*, *C. bulbulus* and *C. mucosalis*. Few studies have been conducted on *C. upsaliensis* and its importance to human health [2-4].Table 1 summarises previously reported cases of *C. upsaliensis* in different countries between 1985 and 1990 [2-4, 11, 12]. The organism was isolated either from blood in cases of bacteraemia, or stool in cases of gastroenteritis, or both. The cases included both adults and children. Several patients were immunocompromised or had prolonged or chronic illnesses.The greater tendency of *C. upsaliensis* to cause bacteraemia is due to its resistance to the bactericidal activity of the normal human serum [13]. As with *C. fetus*, *C. upsaliensis* is covered with surface(S) protein that functions as a capsule([†]Deceased October 1995)