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Episode resembling immune complex disease after cholera vaccination

THOMAS MALL AND KLAUS GYR
Dept. of Internal Medicine, University Hospital, CH-4031 Basel, Switzerland

Summary

The case of a 25-year-old patient is reported who suffered from a syndrome similar to immune complex disease following cholera revaccination. The clinical picture included fever, muscle, joint and abdominal pain, vomiting, serositis, hepatitis, suspected myocarditis, anaemia and thrombocytopenia. Clinical symptoms subsided spontaneously within two weeks. This case illustrates a hazard of cholera vaccination so far not reported in the literature.

Introduction

Cholera vaccination in its present form provides only limited protection for the individual and has proved ineffective in preventing the introduction of cholera into a country and spread of the disease (WHO, 1983). WHO has, therefore, eliminated it from International Health Regulations (WHO, 1973). However, a certificate of vaccination is still required by many countries for travellers arriving from infected areas, and it is compulsory for all travellers to Mozambique (WHO, 1983) in spite of recognized side effects. We present a case of adverse reaction to cholera vaccine with a syndrome resembling immune complex disease, which has so far not been reported in connection with cholera vaccination.

Case report

A 25-year-old Tibetan refugee, living for the last two years in Switzerland, requested cholera vaccination because she had to travel to India. 18 months and one year before she had been operated on for echinococcal cyst (*Echinococcus granulosus*) in the left lower lung and a recurrent cyst in the thoracic wall. Subsequently, she received chemotherapy with mebendazole for three months. Serum antibody titres diminished but remained slightly elevated. At the time of vaccination, she was in good general condition. A first dose of 1·0 ml of anti-cholera vaccine (Berna, 8000 mill. V. cholerae Inaba, Ogawa, El Tor) was given together with oral polio vaccine without side effects. Three weeks later she received a second dose of 1·0 ml of the same anti-cholera vaccine alone. Two hours later the patient developed fever (38·5°C), intensive frontal and occipital headache, photophobia, vomiting and pain in the lower abdomen. She was admitted to hospital one week later.

Clinical examination showed impaired well-being, normal consciousness, slight neck stiffness, diffuse muscle and joint pain, localized pain in the right upper abdomen, and a 2/6 cardiac ejection murmur. Temperature was 39·2°C, pulse rate 100/min, blood pressure 95/70 mmHg. Physical examination was otherwise normal.

Investigations showed: erythrocyte sedimentation rate 50/95 mm, haemoglobin 12.1 g/dl, white cell count $8{\cdot}6 \times 10^9$/l with 20% neutrophils, 69% bands, 0·5% eosinophils, 7·5% lymphocytes, 2·5% monocytes, 82,000 platelets; slight elevation of blood urea and creatinine, moderate elevation of transaminases; bilirubin and alkaline phosphatase within normal range; HBs antigen negative, HBs and HA antibodies positive. CSF: 53×10^6 cells (53% polymorphonuclear, 47% mononuclear), protein 510 mg/l. All bacteriological and viral tests were negative. The ECG showed signs of lateral and diaphragmatic ischaemia and incomplete RBBB. Chest X-ray was normal. Laparoscopy revealed a small amount of somewhat cloudy, yellowish ascites. CT scans of the abdomen and skull were normal, in particular without signs of cystic structures.

Headache, neck stiffness, pain, vomiting and fever disappeared without specific treatment within five days. Renal parameters and CSF became normal, transaminases returned partially to normal and ESR remained unchanged. Haemoglobin dropped to 10·5 g/l within three days and remained at this level. No haemolysis and no blood loss could be demonstrated. WBC became normal within one week and platelets rose gradually to 629,000. Repolarization in the ECG improved, but RBBB persisted. The patient was discharged on the 11th day in good condition.

Discussion

Mild side effects after cholera vaccination are frequent. Marked side effects involving the central nervous system have been reported (VIPARELLI *et al.*, 1974), although mainly as sporadic cases (SCOLERI *et al.*, 1974; GRANATA *et al.*, 1974; GENTILE & CARUSO, 1974; COLUCCI D'AMATO & FEIS, 1974; SCHRADER, 1975). Single case reports mention side effects involving the cardiovascular system (KOUTSAIMINIS & RÉE, 1978), the kidneys (EISINGER & SMITH, 1979) and the skin (COTTERILL & SHAPIRO, 1978). The clinical picture in the case reported here may represent immune complex disease. However, this hypothesis is based exclusively on the similarity of the clinical syndrome, but has not been proved by any specific tests.

Cholera vaccine is a potent stimulant of the immune system and it has been suggested by GENTILE & CARUSO (1974) that it acts like Freund's adjuvant. Possibly, the immune response in this patient was modified by the past history of echinococcosis.

The possibility of serious complications might be a reason for further restriction of the use of this vaccine.

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