Acute Pancreatitis and Haemolytic Anaemia Associated with Mumps-virus Infection

Because of its various manifestations mumps is now considered to be a generalized infection characterized principally by involvement of the parotid and submaxillary glands. Among the complications of mumps-virus infection are meningencephalitis, gastro-enteritis, orchitis, mastitis, pancreatitis, and subacute thyroiditis. Sometimes one of these disorders constitutes the only manifestation of infection. Inapparent infection with mumps virus may be more common than is supposed (Henle et al., 1948; Monthly Bulletin of the Ministry of Health and the Public Health Laboratory Service, 1964), though second attacks of parotitis are uncommon (Wilson and Miles, 1964).

The following case of acute pancreatitis complicated by haemolytic anaemia is presented, and it is suggested from the results of serological tests that these disorders were caused by infection with mumps virus.

CASE REPORT

The patient, a West Indian man aged 27, had been living in England for four years and had had no previous serious illness, though he had suffered from mumps during childhood.

Six days before admission he developed frontal headache, aching pains in the limbs, lethargy, shivering, and vague central epigastric discomfort, with marked anorexia and nausea. Four days later he passed uniformly "blood-stained" urine, and dysuria developed. The patient had received penicillin and a sulphonamide at home for a few days before admission but without apparent relief. There was no intercurrent illness in the patient's family. On admission on 21 May 1964 he complained of upper abdominal pain, worse on breathing and on palpation. His temperature was 104° F. (40° C.), there was slight icterus, and a few enlarged glands in the left posterior cervical and in both axillary groups were present. There was considerable tenderness on palpation in the right upper quadrant of the abdomen, and on rectal examination there was marked tenderness over the prostate gland. There were no other abnormal physical signs.

His urine was dark brown and contained haemoglobin and methaemoglobin but no porphobilinogen, uroporphyrin, or bilirubin. Microscopic examination of the centrifuged deposit showed only an occasional leucocyte and red blood cell, and there was no growth on culture.

The blood picture was as follows: haemoglobin, 12.8 g./100 ml.; W.B.C., 9,500/c.mm. (neutrophils 75%, lymphocytes 19%, monocytes 2%). The red cells showed slight anisocytosis and three nucleated red cells/100 W.B.C.s.

Spectroscopic examination of the serum showed oxyhaemoglobin and some methaemoglobin. The direct antiglobulin (Coombs) test on the patient's red cells was negative and an indirect antiglobulin test on the patient's serum with and without sulphafurazole added was also negative. Ham's test and the Donath-Landsteiner test were negative. Similarly, a screening test for glucose-6-phosphate dehydrogenase was normal. The median corpuscular fragility was 0.39% (normal range, 0.40–0.445%). No haemoglobin was found on conventional paper electrophoresis. Serum haptoglobin estimated shortly after admission on a sample free from haemolysis (method of Owen, Better, and Hoban, 1960) was 6 mg./100 ml. (normal range, 30–200 mg./100 ml.).

Serological tests for syphilis were negative. Serum amylase was found to be increased to 1,000 Somogyi units/100 ml., serum bilirubin was 1.2 mg./100 ml., and serum calcium 9.8 mg./100 ml.

Over the next five days the haemoglobin fell to 8.7 g./100 ml., and a few atypical mononuclear cells were found in the blood film.

Mumps complement-fixing antibody levels measured on acute and convalescent samples of serum showed a significant rise consistent with a recent attack of mumps infection (see Table).

Without any treatment other than a course of sulphafurazole for a coliform urinary infection, the fever rapidly subsided, the icterus disappeared, his anaemia improved, and all abdominal pain and tenderness subsided in a matter of 10 to 14 days. He was discharged home in good health four weeks after admission. At no time were there any symptoms or signs indicating involvement of the salivary glands.

COMMENT

Though second attacks of mumps parotitis are uncommon it appears reasonable to assume that in the present case the development of acute pancreatitis resulted from reinfection with the virus.

The presence of circulating methaemalbumin is almost certainly due to intravascular haemolysis. This is because, in addition to methaemalbumin, oxyhaemoglobin was found and serum haptoglobin was reduced. Methaemalbumin has of course been found in the serum of patients with severe acute haemorrhagic pancreatitis (Mazuumar, 1961). In these circumstances it is not thought to be due to intravascular haemolysis, but to be derived from the conjugation with serum albumin of resorbed haematin from haemorrhagic peritoneal fluid. Northam et al. (1962) also suggest that pancreatic enzymes are necessary for its production. In the present case the mechanism of the haemolytic process is obscure.

Haemolysis occurred during the acute phase of the illness and cleared up spontaneously. No serological evidence of an autoimmune process was found. Recently Colley (1964) has described the onset of paroxysmal cold haemoglobinuria with a positive Donath-Landsteiner test five weeks after clinical mumps, but no evidence of this type of antibody was found in this case. The in-vitro haemolytic effect of the mumps virus is well established (Morgan et al., 1948; Moberly et al., 1958), and, in vivo, erythrocytes modified by Newcastle-disease virus, another member of the myxovirus group, have been shown to have a reduced survival time (Wright and Gardner, 1960). It is possible that in the present case the haemolysis resulted in some way from a direct effect of the virus on red cells.

We should like to express our thanks to Dr. J. S. Parkinson for permission to publish this case, and to Dr. J. O'H. Tobin, of the Public Health Laboratory, Paddington Hospital, Paddington Hospital, Manchester, for estimation of mumps antibody titres. Our thanks are also due to Dr. L. Poller and Dr. D. M. Jones for advice and assistance.

P. K. O'Brien,* M.B., B.CH., B.A.O.,
Registrar in Pathology.
D. S. Smith, M.B., B.S., D.PATH.
Senior Registrar in Pathology.
O. P. Galpin, M.B., B.S., M.R.C.P.
Senior Registrar in Medicine.
Withington Hospital, Manchester.

* Present address: Department of Pathology, Paddington General Hospital, London.

REFERENCES