Suitable antihistaminic drugs help many of the mild cases of seasonal hay-fever. These drugs do not increase the incidence of asthma, nor do they help the symptom of asthma when it occurs.

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PYLEPHLEBITIS AND SEPTICAEMIA TREATED WITH AUREOMYCIN

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with a Note on the Surgical Findings by

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Recovery from systemic infection with organisms of the *Bacteroides* group is worth recording in view of the high mortality. In well-established infections the case mortality is over 50% (Topley and Wilson, 1946). Brown *et al.* (1941) reported the recovery of one of fifteen patients with septicaemia due to bacteroides. Comparably poor results were recorded by Thompson and Beaver (1932), Reid *et al.* (1945), Ruys (1947), and McVay *et al.* (1949). The last-named, in their report of six cases, had four deaths despite chemotherapy. The last two cases recovered after large dosage of aureomycin and supportive treatment.

A case of pylephlebitis with septicaemia, from which both *Bacteroides fragilis* and *Streptococcus haemolyticus* were isolated, was recently admitted to this hospital. The patient was originally treated with penicillin, chloramphenicol, and streptomycin with no apparent benefit. The regimen of McVay *et al.* was adopted, with final recovery of the patient.

Topley and Wilson include the bacteroides in the genus *Fusiformis*. They define the latter as follows: "Obligate parasites. Anaerobic or microaerophilic. Cells frequently elongated and fusiform, staining somewhat unevenly. Filaments sometimes formed; non-branching; sometimes highly pleomorphic. Non-motile. No spores. Reaction to Gram variable, but mainly Gram-negative. Growth in laboratory media feeble." They term infections with the genus *Fusiformis* as necrobacillosis.

Bergey (1948) separated the bacteroides from the fusiform bacilli and defined them as motile or non-motile Gram-negative bacilli which are obligate anaerobes.

Beigelman and Rantz (1949) emphasize the ubiquitous character of the group. They state that these organisms have been isolated from gangrenous lesions of practically all the organs of the human body as well as from

normal mucous membranes. They are commonly present in the mouth, tonsils, large bowel, and female genital tract. The general opinion is that they are of low virulence in man and act as secondary invaders. Blood-stream infection is probably not uncommon, but spontaneously terminates as soon as the primary focus is treated. Rarely, a septicaemia arises which ends fatally. It is stated by Reid *et al.* that pylephlebitis of the regional veins draining the primary focus is a common occurrence; arthritis, jaundice, and pulmonary emboli are frequent accompaniments.

Case Report

A man aged 32 was admitted with an illness of one month's duration. Whilst at work he was seized with severe upper abdominal pain, which later radiated to the right iliac fossa. This continued for four days and was accompanied by some diarrhoea. On the fifth day the pain began to abate, but he suffered a rigor. For the three weeks before admission he had two or three rigors a day.

On examination he appeared extremely ill, and was pale, thin, and sallow. His pulse was 120; temperature 102.8° F. (39.3° C.). No abnormality of the cardio-respiratory system was detected apart from a haemic murmur. The upper abdomen was tender; no mass was palpable. The liver and spleen were not palpable. A rectal examination was negative.

The blood count showed: haemoglobin, 54%; red cells, 3,060,000 per c.mm.; white cells, 19,800 per c.mm., 82% being polymorphonuclears. There were many target red cells in the stained films. The other laboratory examinations were negative, apart from a serum alkaline phosphatase of 35 units, and the Van den Bergh was immediate positive. On admission blood cultures in various media, including Robertson's meat, were taken. These were repeated with each rigor for the first 24 hours. From all cultures two organisms were isolated—a β -haemolytic streptococcus belonging to Lancefield's Group A, and *Bacteroides fragilis*. The latter was agglutinated by the patient's serum to a titre of 1 in 250. The streptococcus was fully sensitive to penicillin.

Bact. fragilis, by the ditch-plate method, was insensitive to penicillin but fully sensitive to chloramphenicol and streptomycin. As a result the penicillin treatment which he had had since admission was stopped and chloramphenicol and streptomycin were given. Chloramphenicol was administered as follows: 4 g. the first day and 2 g. daily subsequently. In addition 2 g. of streptomycin in divided doses was given subcutaneously each day. His temperature continued to swing, at times reaching 105° F. (40.6° C.). A laparotomy was performed on the sixth day after admission and an appendicular abscess was found and drained; the necrotic remnant of the appendix was removed. Examination of the pus revealed, in addition to various organisms, a β -haemolytic streptococcus and *Bact. fragilis*. There was no appreciable change in his condition.

Six days after the first operation another laparotomy was performed in order to ligate the ileo-colic vein. The patient's condition was critical and no further procedure was attempted. On this day he was given aureomycin, 1 g. four-hourly by mouth, and all other antibiotic therapy was stopped. In three days, after 18 g. of aureomycin, his temperature fell to normal and remained so. He received a total of 80.5 g. in approximately 14 days. During this period he had 4 pints (2.3 litres) of blood and a high-protein diet with additional vitamins. His only complaints were a slight soreness of the mouth and some difficulty in swallowing.

After all treatment was stopped he became less cadaverous and began to put on weight. For a few days a pseudo-chylous fluid drained from his operation wound, but this rapidly cleared up. He was discharged to a convalescent home.

Note on Surgical Findings, by Mr. Welsh

The patient presented as a case of septicaemia, with probably a focus of pus in the abdomen which could not be located by clinical or x-ray examination. Laparotomy, by a transverse upper abdominal incision, led to the discovery of a small appendix abscess containing thick greenish-yellow pus in the right iliac fossa. There was a small amount of blood-stained free fluid in the general peritoneal cavity, and the spleen was found to be enlarged.

Appendicectomy, aspiration, and drainage of the abscess were performed. No definite search was made for thrombosed portal-vein tributaries. On the sixth post-operative day it was decided to reopen the abdomen and search for and ligate the ileo-colic vein. The tissues at the root of the mesentery were all matted and oedematous, but a portion of what was believed to be thrombosed vein was removed between ligatures. Subsequent histological examination did not confirm the presence of vein wall in this tissue.

Notes on the Laboratory Findings

The organism, *Bact. fragilis*, was first isolated from Robertson's meat medium. It was subsequently cultured on blood agar under micro-aerophilic conditions. It closely resembled the characters of the organism described by Schwabacher and Mitchison (1947).

The sensitivity results were as follows:— Penicillin: sensitive to 20 units per ml., insensitive to 10 units per ml. Sulphadimidine: sensitive to 5 and 50 mg. per 100 ml. (plate method). Chloramphenicol: sensitive to 5 units per ml., insensitive to 4 units per ml. Streptomycin: sensitive to 25 units per ml. (plate method). Aureomycin: sensitive to 0.1 unit per ml. Terramycin: sensitive to 0.4 unit per ml.

Comment

A case of pylephlebitis and septicaemia is described with recovery on large dosage of aureomycin. It was of great interest for the following reasons: (1) The failure to respond to penicillin, streptomycin, and chloramphenicol. (2) A Gram-negative bacillus of the *Bacteroides* group and *Str. haemolyticus* were isolated from the blood and the appendix abscess. (3) The relative absence of toxic effects despite the large dosage of aureomycin used. (4) The development, on recovery, of ascites, which was possibly related to pylephlebitis. (5) The long duration of the illness, with complete recovery.

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ADDENDUM.—Since this case was seen rules have been formulated for the combined use of antibiotics. A leading article in the *Lancet* (July 26, 1952, p. 173) divides these agents into two groups. Group 1: Bactericidal—for example, penicillin, streptomycin, and bacitracin. Group 2: Bacteriostatic—for example, aureomycin, chloramphenicol, terramycin, and possibly sulphonamides. Where the organism is sensitive to a drug of Group 1 the addition of a bacteriostatic agent may result in antagonism (this may have occurred in the above case when streptomycin and chloramphenicol were given in combination). If the organism is only partially sensitive to the bactericidal agent the combination with a bacteriostatic may result in synergism.

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CONGENITAL OBSTRUCTION OF THE SMALL INTESTINE IN TWO PREMATURE INFANTS

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The neonatal mortality rate has fallen by more than a half over the last 40 years. The rate in England and Wales in 1949 was 19.31 per 1,000 live births. Over half the deaths (10.2 per 1,000 live births) were due either to prematurity or to congenital malformations (Ministry of Health, 1949). This paper describes the successful treatment of two infants presenting both of these two main causes of neonatal death. One was a premature infant with an ileal atresia, the other a premature infant with exomphalos and congenital obstruction of the small intestine.

Wangensteen (1942) estimated the incidence of congenital atresia of the small intestine as 1 in 20,000 births. This estimate is based on necropsies and hospital births, and, although the condition must be considered rare, it is probable that the true incidence is higher. O'Neill *et al.* (1948), in a comprehensive review of the literature, could find only 36 cases of atresia of the small intestine which had been successfully treated by operation. A further case has been described by Stevens (1951). The 37 cases include three premature infants with birth weights of 4 lb. 11 oz. (2.12 kg.) (Stetten, 1940), 4 lb. 11 oz. (2.12 kg.) (Ward and Cooper, 1943), and 4 lb. 8 oz. (2.04 kg.) (Duncan *et al.*, 1943). The 52 babies operated upon by Ladd and Gross (1941) showed a mortality rate of 80% for duodenal, 50% for jejunal, and 91% for ileal atresia.

Exomphalos is commoner. Jarcho (1937) estimated its incidence as 1 in 5,000 deliveries; again this estimate is based solely on hospital births, and the true incidence is probably higher. The chances of survival depend largely on the size of the sac. Gross (1948), in a series of 60 cases, found that with a sac less than 7 cm. in diameter there was about a 75% chance of survival following surgery. When the sac was 7–9 cm. in diameter survivals were cut to about 30%. When the sac was larger than 9 cm. the survivals were reduced to about 15%.

Case 1

The baby, a boy, was born a month prematurely. The birth weight was 4 lb. 6 oz. (1.98 kg.). The mother's pregnancy had been uneventful. She had had one previous pregnancy in 1949, and a three-months miscarriage in 1945. Her blood was Rh-positive; the Kahn test was negative. Delivery was rapid, the mother suffering mild obstetrical shock. The baby was left undisturbed for 24 hours, when a small amount of glucose-water was given and retained. The following day $\frac{1}{2}$ -oz. (14-ml.) feeds of breast milk were given two-hourly, and taken readily. Early on the third day vomiting started, and soon became bile-stained. At about this time a normal meconium stool was passed, no food residue being noted.