as they consider the condition to be common enough to be regarded as a clinical entity in the virgin. This is of course understandable. In married women there is a greater difficulty in assessing the normality of the tubes, particularly after pregnancy, and this was borne out in my case, in which the woman's last pregnancy occurred only seven months before. She had never menstruated since then and had been feeding the baby, which of course is no bar to pregnancy or pelvic infection.

Shute (1932) wrote an extensive paper on this condition, dealing with all theories of causation and its distribution in the various age groups and types of cases encountered. He found that 80% of cases occurred during the genital activity of women and the remaining 20% during puberty: 68% of the former were on the right side and in 62% the torsion was clockwise. It has been extremely difficult to separate the cases associated with tubal disease from those in the normal tube, as only 8% of specimens had had histological examinations, although one must presume that the 20% arising before puberty occurred in a normal tube. In those not associated with disease there would seem to be some connexion with the initiation of menstruation, and Davies (1925) and McEachern (1934) each cited a case similar to mine. It must be assumed that the bleeding occurring in my case was that of a commencing period.

Blum and Sayre (1937) mentioned the prevalent theories: (1) Haemodynamic (Payr), the idea being that the pulsations of the blood vessels in the mesentery of the tube can in some way initiate the torsion; (2) Sellheim's suggestion that the movements of the body and abdominal wall could be transmitted and this would initiate the torsion. This second theory is understandable when applied to a large ovarian cyst which is in contact with the abdominal wall, for any sudden violent, irregular movement of the abdominal muscles might then start a movement of the cyst to right or left, but it would hardly seem applicable to the tube, which is lying deep in the pelvis.

Anatomical malformations and physiological peristalsis are much more likely to initiate a twist. It has been suggested that drugs such as apiol may also initiate such excessive peristalsis as to start torsion. Once a twist has occurred it is easy to understand the consequent interference with circulation and the indrawing of the fimbriae which occur in acute salpingitis and ectopic pregnancy. This results in the extravasation of blood into the tube, with the formation of a small pedunculated mass which may undergo further torsion.

Such a sequence of events will give rise to all the clinical symptoms seen in the case reported, and suggests the erroneous diagnosis of ectopic pregnancy or salpingitis.

Unless this occurs in the pubescent girl it is, to my mind, impossible to recognize a definite syndrome which will identify torsion of the normal Fallopian tube, particularly as it must be assumed that the latter cases are vaginal and difficult to examine. The urgency for operation in these cases is not great; cases have been described in which the distal portion of the tube has actually been amputated by the torsion and a free tubal mass has been removed some considerable time—even years—after what must have been the original crisis.

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AN OUTBREAK OF FOOD-POISONING IN BROMYARD DISTRICT

BY

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On Friday, Nov. 5, 1948, a number of people left Bromyard by coach to attend the evening performance of a play in Birmingham. They arrived early, and 14 persons, so far as is known, entered a near-by restaurant and had a meal consisting of cold beef sandwiches and coffee or alcoholic refreshment. The beef in the sandwiches was described by different patients as being "undercooked," "overcooked," "dark-looking, stringy, and tough."

Of these 14 persons, 11 were taken ill on Nov. 6 and one on the 7th, the incubation period varying from 16 to 36 hours. The presenting symptoms were malaise, lassitude, severe frontal headache, aching in the limbs and back, fever, shivering, abdominal pains, diarrhoea, and in some cases nausea and vomiting. One patient collapsed while attending a memorial service on Nov. 6. Photophobia and tenderness of the eyeballs were complained of by four patients, and one patient stated that he had had puffiness round the eyes.

The severity of the attack varied considerably: from headache and abdominal discomfort, with mild pyrexia only, to complete incapacitation with pyrexia of 102–104° F. (38.9–40° C.) at the onset, associated with extreme diarrhoea and blood in the stools. The duration of the attack extended over a period of two to three days in the mildest case; whereas in the most severe cases, although the acute phase of the illness had passed off within seven days, residual lassitude, anorexia, and minor recurrences of the headache and abdominal symptoms persisted for two to three weeks.

Two of the persons who ate the beef sandwiches suffered only from slight headache and malaise on the following day. A specimen of faeces from one of these persons gave a negative result on culture; no specimen could be obtained from the other person. It is of interest to note that, of those persons who took alcoholic refreshment, these were the only people who had two glasses of either gin or sherry with their sandwiches.

Investigations in Bromyard.—Specimens of faeces obtained from the 12 persons who were taken ill yielded salmonellae on culture, which were later identified as *Salmonella bovis morbificans*.

Investigation at the Restaurant, Birmingham.—(a) Bacteriological examination of specimens of faeces from the eight members of the staff at the restaurant showed that four persons were excreting *Salm. bovis morbificans*. Two of these four had not been ill, while the other two had had symptoms of enteritis after Nov. 5. (b) Bacteriological examination of rat droppings in the restaurant revealed the presence of *Salm. bovis morbificans*. (c) Bacteriological examination of the rat-poison which was being used in the restaurant showed the presence of *Salm. enteritidis* (Gaertner).

Discussion

These findings indicate that in all probability there was an epidemic of gastro-enteritis due to *Salm. bovis morbificans* affecting the rodent population in the vicinity of the restaurant at Birmingham, and that unprotected food had been contaminated by the infected rodents. The beef had

been cooked and served hot for lunch, then left on an open dish in the basement kitchen for eight hours before being served as sandwiches to the Bromyard party. It is presumed that the contamination occurred during this interval. Although the rat-poison used in the restaurant was not the vehicle for the spread of the infection, the risks incurred by using such a poison are obvious; and, in view of the fact that methods of food production and storage in hotels, restaurants, and cafés are seldom satisfactory, the continued use of such poisons in these places is a danger to the public health and should be prohibited.

The patients affected in the outbreak were treated symptomatically for the first week of the infection. Thereafter they were all given a course of sulphaguanidine, the dosage varying from 3 to 4 g. by mouth four-hourly by day for four days. Of the 12 patients thus treated, four complained of symptoms of intolerance, and the dosage was accordingly reduced, and in one case the course was terminated. Specimens of stools were taken from each of the affected persons until three consecutive negative specimens had been obtained, the patient then being considered free from infection. These specimens were taken twice a week for the first four weeks and thereafter once a week.

On account of the irregular intervals between the collection of specimens of stools and the small numbers involved, no relation of statistical significance can be shown between the duration of the infective period and the sex of the person affected. It is of interest, however, to note that the average period of duration of infection (i.e., the time from the onset of clinical symptoms to the date when the first of the three consecutive negative stools was obtained) was 24.4 days for the seven men affected and 47.6 days for the five women. The figures are as follows:

Period of Duration of Infection

Males	Females
23 days	39 days
20 "	44 "
30 "	67 "
23 "	30 "
20 "	58 "
32 "	
23 "	
Mean, 24.4 days	Mean, 47.6 days

If from these figures are subtracted those relating to the persons who did not receive a full course of sulphaguanidine, then the mean periods of duration of infection are: males, 26.2 days; females, 54.7 days. Thus it seems unlikely that the period of infection was influenced by the sulphaguanidine.

The five female patients and one of the male patients prepared food for consumption in their households. These persons were given instruction in personal hygiene and care in the handling of food. It is satisfactory to note that no secondary cases resulted from this outbreak.

Summary

A brief description is given of an outbreak of food-poisoning in Bromyard district due to infection with *Salm. bovis morbificans*.

Investigations revealed that the infection originated from the consumption of beef sandwiches in a Birmingham restaurant, and that the sandwiches were probably contaminated by infected rodents.

The danger of using rat-poisons incorporating salmonella organisms, especially in food premises, is noted.

The duration of infection in the female patients was approximately twice that in the males.

The evidence from this outbreak suggests that infection with *Salm. bovis morbificans* does not respond to sulphaguanidine therapy.

I would like to express my appreciation of the co-operation and help given by the staff of the Public Health Department and the City Laboratory at Birmingham, and the staff of the Public Health Laboratory at Hereford.

Medical Memoranda

A Case of Undulant Fever Treated by Chloramphenicol

The treatment of undulant fever has until recently been unreliable and unsatisfactory. Methods advocated have included the joint use of sulphonamides and blood transfusion (Holmes and Hughes, 1948; further recommended by Romer, 1949), and the use of "aureomycin" (Galpine, 1949); whilst the American Department of Clinical Investigation of Messrs. Parke, Davis, and Co. claim that six patients with active brucella infection responded rapidly within an average of 2-4 days to oral administration of chloramphenicol ("chloromycetin"; Parke, Davis, and Co., Technical Reference No. 1183, p. 2). This claim was so striking that one of us (T.V.C.) decided to attempt treatment of the next case of acute undulant fever met with in this area, where the infection is not uncommon. Compared with the larger towns and cities, the volume of milk consumed in this district not heat-treated is considerable, and contagious abortion in cattle is widespread.

The case of undulant fever described below responded immediately to oral administration of chloramphenicol. The results seem so good that the method deserves a wider trial. No serious complication was encountered.

CASE REPORT

The patient, a man aged 50, was first seen on June 2, 1949; he gave a history of having felt vaguely unwell for the past three to four weeks. Two days previously his afternoon temperature was 103° F. (39.4° C.). The main symptoms were lassitude, sweating, anorexia, constipation, insomnia, pains in bones of back and limbs, and retro-ocular headache. The symptoms were worse in the afternoons. No special physical signs were elicited. (The patient had lived in India for many years, but had been at home and healthy since 1947.) During the next seven days his temperature varied between 100° and 104° F. (37.8° and 40° C.), being usually highest in the afternoon. No localizing symptoms or signs developed.

On June 8 blood was taken for the Widal test, and gave a positive reaction up to 1 in 5,000 against *Brucella abortus* and *Br. melitensis* 1 in 1,250, trace 1 in 2,500. There were also reactions to *Salmonella typhi* H 1 in 125, *S. paratyphi* AH 1 in 50, trace 1 in 125, *S. paratyphi* BH 1 in 125, and N/S Composite Salm. 1 in 125, explained by multiple T.A.B. inoculations in the past. The Vi test was negative. A blood count taken at the same time revealed: haemoglobin, 80% (11.84 g.); red cells, 4,300,000; colour index, 0.93; leucocytes, 5,600 (neutrophil polymorphs 68%, monocytes 7.5%, lymphocytes 24.5%); reticulocytes, 1%.

Blood cultures taken on June 11 failed to yield any positive results, although development of brucella was encouraged by employing liver-infusion media and incubation in a jar containing 5-10% carbon dioxide. Blood-film tests excluded malarial infection.

At this point it was decided that the evidence warranted a trial of chloramphenicol. Treatment was therefore started on June 11. The initial dose was 5 g. (approximately 60 mg. per kg. of body weight), followed up by 0.25 g. every three hours for seven days after the temperature had settled (see Chart)—