AN OUTBREAK OF FOOD POISONING at Cove, Near Aldershot

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Introduction

DURING the period 12th May to 15th May, 1964 a typical outbreak of food poisoning occurred in a Training Regiment at Cove, near Aldershot. This outbreak was by no means a large one, but being investigated in detail it brought some interesting facts to light and is again a reminder of both unnecessary manpower loss and wastage of medical facilities caused by preventable disease.

Cause of Outbreak

The first two cases reported on 12th May with nausea, intense headache followed by diarrhoea and vomiting. Twenty-six cases with similar symptoms reported sick on the 13th and 14th and further cases continued to the end of the month. Details of occurrence of cases is given in Table I and Figure I below. There were 47 cases in all, including two civilian food handlers. Although all were relatively mild, 30 were admitted to hospital.

Table I

Date	Nos. Case	Date	Nos. Case
9th May	1	20th May	—
10th May	—	21st May	5
11th May	—	22nd May	—
12th May (Tue)	2	23rd May	—
13th May	16	24th May	1
14th May	10	25th May	2
15th May	—	26th May	—
16th May	3	27th May	1
17th May	2	28th May	1
18th May	—	29th May	1
19th May	1	30th May	1
Total (38 with Positive Stools)		47 Total	

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Fig. 1

Background to the Outbreak

On Tuesday 12th May, seven parties of recruits from the Training Regiment went on separate outings to London, Reading, Portsmouth, Andover, Longmoor and the Aldershot Area. The largest party of 78 went to London and the sizes of the other parties were between 7 to 34. The first 26 cases occurred amongst the recruits of only three of these parties:-

London Party	20 cases
One Andover Party	2 cases
Longmoor Party	4 cases

Subsequent cases were scattered amongst the recruits and some permanent staff. This Tuesday was the first hot day of the summer, when a temperature of 65°F (18°C) was recorded at Mytchett, a high one for the time of year.

Cooking Arrangements within the Unit

There are two large semi-permanent type cookhouses (A and B), each catering for 600 men. In addition to the usual cooked meals, haversack rations are prepared, up to a total of 1,000 a week. Supplies for haversack rations come from a haversack ration larder, common to both cookhouses, but quite separate from the main ration store. This haversack ration larder and its preparation rooms had been improvised with consequent problems of food hygiene. All of these cases, with the exception of one, had been issued with haversack rations from cookhouse (A) or had fed in that cookhouse, the duty one over the weekend, when most of the infection is presumed to have occurred.

Investigations

By the time bacteriological samples were taken, very little food was available. One haversack ration was recovered, but nothing else of significance. A heavy growth of *Salmonella brandenburg*, was soon cultured from the luncheon meat in this haversack ration. It was also discovered that haversack rations had been made in the warm cookhouse the afternoon and evening before the morning of issue, and were not stored under cooled (refrigerated) conditions. Subsequent bacteriological examination of stools of cases and food handlers demonstrated 38 positive carriers of this same *Salmonella* organism. The findings strongly suggested that haversack rations, particularly the constituent luncheon meat, were the cause and origin of this outbreak. Close investigation and questioning of patients and food handlers raised doubts, as the short accounts given below indicate:

Case Reports

First Two Cases

These reported sick on Tuesday, 12th May and, on careful questioning, stated that they had in fact felt ill that morning before going on the outing and had eaten no breakfast. One of them also said he did not eat the haversack rations provided.

Other Interesting Cases

Case 1. This man, a Sikh, was a cleaner in the haversack ration larder. He had reported sick to his civilian doctor on Wednesday, 13th May for an upset stomach. On routine stool checking of food handlers he was found to be harbouring the *Salmonella* organism typical of this outbreak.

Case 2. On the 21st May, a notification was received from the civilian Isolation Hospital that a soldier from Cove, admitted on 9th May from the Military Hospital with a rash, query infectious, had *Salmonella* food poisoning. Investigations by the pathologist have shown the same typical organism, *Salmonella brandenburg*. The date, the 9th May should be significant, but did not in fact give any clues to the outbreak.

Case 3. This was a woman employed as a cleaner in cookhouse (A). She was detected as a carrier of the *Salmonella* organism, and only then did she volunteer that she had been ill on 14th May with stomach trouble. She was one of the people who has helped to prepare haversack rations.

Of the other late cases two are of further interest:

Case 4. This soldier (A.C.C.) works in the haversack ration larder. It proved difficult to get a stool from him and he was the last of the food handlers to produce one. The same *Salmonella* organism was isolated. He gave no history of any illness, and was the only symptomless carrier detected.

Case 5. This was an N.C.O. (A.C.C.) who worked in cookhouse (B). He reported sick on 29th May with headache only. On bacteriological examination he was demonstrated on 1st June, 1964 to be excreting the same *Salmonella* organism. Routine bacteriological examination of food handlers in the cookhouse gave only negative results. No one feeding from this cookhouse had reported sick with symptoms of food poisoning. He could in no way be linked with this outbreak.

Carrier State of Cases

In all cases treatment with antibiotics was necessary to stop excretion of the organism. A number of cases were difficult to clear taking up to five to six weeks and a few continued to harbour the organism, up to the date of writing this paper, 1st July, 1964 (six to seven weeks).

Loss of Working Time

Although none of the cases were severe, a great deal of recruit training time was lost due to hospital admissions in all a total loss of 561 soldier days. If to this is added all the disorganisation of recruit training, and the extra burden on the medical services, this outbreak in terms of cost was expensive.

Discussion

Attempts are always being made to increase the attractiveness and palatability of haversack rations but such elaboration adds to the work of preparation. In a unit where many haversack rations are used, and facilities for preparation are improvised, they are liable to be prepared, contrary to hygienic practice, a day in advance. This must invite trouble.

In this particular outbreak the evidence, in the main, points to haversack rations, although there are exceptions. These are the first two cases, and late case 5. It is also significant that the symptomless carrier (late case 4), and the two civilian cleaners who did not reveal a previous stomach upset until confronted with the positive stool tests, were all associated as food handlers, with the preparation of haversack rations. Case 2, notified late and treated in the civilian Isolation Hospital, points to the organism being present in the cookhouse as early as the 9th May.

On the evidence available it is suggested that one possible sequence of events may have caused these cases. On the assumption that there was first a sub-clinical case or a symptomless carrier food handler, occasionally handling prepared foods, it is possible that over a period he or she could have caused the spread to the isolated early and late cases. Further, on the 11th May he or she could well have infected an item of the haversack rations, which during the night 11th/12th May in warmth of the main kitchen and during the morning of the 12th May in the warm buses, would have been ideal media for the rapid growth of *Salmonella* organisms. Symptomless carrier (Case 4) could have caused the spread according to this pattern but this could not be proved. The intensive search and treatment of cases and carriers has, it is presumed, eliminated any further local source of infection.

Outbreaks of food poisoning due to *Salmonella brandenburg* have been more frequently reported recently in the country, particularly in association with outbreaks traceable to tinned, cooked meats. It has also been reported by the Medical Officer of Health, Farnborough, in 1963, who experienced the same difficulty in clearing carriers.

From the evidence collected and available it is improbable that the original source of this outbreak will be found. The preparation of haversack rations well in advance (18-24 hours) of their consumption, without storage in a cool place, has in the past been associated with similar outbreaks of food poisoning in Army units, and certainly in this outbreak contributed to the multiplication of and spread of the organism.

The susceptibility of recruits to this organism is a factor of importance, for it is possible that TAB vaccination produces some cross immunity to all *Salmonella* Group B organisms. This could account for the majority of cases being recruits with hardly any cases amongst the permanent staff of the unit.

Summary

An outbreak of food poisoning, 12th-15th May is described, which although associated with preparation of haversack rations, had some unusual features with the spread of isolated cases over a period of three weeks. The outbreak emphasised how lapses in food hygiene, when preparing and storing such an easily contaminated item of food, can and will lead to illness.

Although the organism, *Salmonella brandenburg* concerned was isolated from some luncheon meat, circumstances of the outbreak suggest an intermittent contamination of food by a person excreting the organism.

Outbreaks of food poisoning are not uncommon in the Services. This outbreak, taking only hospital admission into account, caused the loss of 561 recruit soldier days.

SHORTS FROM THE REPORTS

"An expert advisor of W.H.O. made a thorough investigation of hydatidosis for Cyprus in 1960 and made valuable recommendations about its control. The most drastic and economical method is the total destruction of stray dogs and the treatment of owned homekept dogs"—Cyprus October 1963.

"A number of ancylostoma and/or stronglylroides infections have been admitted to B.M.H. Singapore chiefly from Sarawak. A typical history is that this man has been billeted in a Chinese school with an outside tap for washing. The man wears "flip-flops", the ground becomes muddy and his feet become covered with mud"—F.A.R.E.L.F. Third Quarter 1963.