the condition seems almost resolved. Then from one corner of the scab pus appears; the scab loosens and is eventually shed, and the base of the ulcer is once again a suppurating sore.

(d) Eventually in a shorter or longer time, which may vary from one week to six months, the sore heals and leaves a permanent purplish-blue scar.

Any of the sores may pass through one or more of these stages, but may remain for an indefinite period in stage *b*.

Treatment

The treatment from the point of view of prophylaxis is naturally the provision of a diet which is comprehensive in all essential material constituents, especially vitamin C. In the Army, ascorbic-acid tablets can be issued on medical recommendation at the scale of one 25-mg. tablet per man daily when the ration is considered to be deficient in vitamin C. This amount of ascorbic acid I prescribe in every case. All cuts and abrasions should be covered in the first instance to prevent access of flies and sand. Sanitation in the field must be of the highest possible order to reduce the fly menace to the minimum.

The general treatment consists in allowing the severe cases to rest from work entirely in the first instance. This may be impracticable, but an attempt should be made to release patients from all but the most essential duties. I find ascorbic acid in larger doses—1 tablet of ascorbic acid (25 mg.) t.d.s.—of considerable advantage. Where it has been possible to obtain tablets, containing all vitamins these have been far more effective. When after several weeks of intensive local and general treatment patients fail to respond, or even show signs of marked deterioration, they have to be evacuated to the base hospital as there is no chance of recovery in the field. Local treatment in my experience has resolved itself largely into the question of "trial and error." Its effectiveness varies from one individual to the next. An agent which effects a rapid cure in one patient may exacerbate the condition in another, and vice versa.

After experimenting with many pastes, ointments, and powders I have found the following agents to be most generally effective:

(i) Powdered sulphapyridine incorporated into paraffin. molle flav. (three 0.5 g. tablets of sulphapyridine to 2 oz. of paraffin. molle flav.). This is applied locally and the dressing renewed after three days. I have tried in a few cases scrubbing the sores with a nail-brush and applying elastoplast over the sore with sulphapyridine paste in direct contact with the sore; the process is painful and has, in my opinion, little advantage over that first mentioned.

(ii) Powdered sulphapyridine applied alone to the sore is sometimes effective, especially in stage *b*.

(iii) Lotio eusol is often helpful in those cases which only partially respond to (i). It often increases susceptibility to treatment with (i) if the patient has applications of eusol for a few days in between treatment with (i). Acriflavine 1 in 1,000 concentration is also in the same way sometimes effective.

(iv) Patients in stage *c* often respond well to pasta flava (pulv. hyd. oxid. flav. 3 parts, pasta zinci oxid. co. 97 parts).

I make it a practice never to persist in the application of any one agent longer than 2 weeks, as the sores seem to acquire a tolerance to it after a while. If a temporary change of agent is adopted for a few days I find that on resumption of the original agent its effectiveness is often increased. This tolerance to a particular agent is a very real one, and when the agent is persisted in I have frequently seen rapid deterioration. The advisability of "ringing the changes" must be carefully considered in cases not showing response to a particular treatment. In the treatment of all sores it is essential that they be completely covered to ensure freedom from contamination with extraneous matter. In the case of the fingers I find the application of splints a great aid to resolution and a distinct deterrent to chronicity.

Illustrative Cases

I have chosen 4 brief case histories which illustrate certain points I have previously mentioned:

Case 1.—A major aged 27, fair-skinned, seen first with five small sores on the fingers. Treatment was given as outlined

earlier in this paper, and while some sores resolved, others remained weeping with no tendency to resolution. At the same time numerous new sores were appearing. After 15 weeks' treatment we reached a large town where diet was both liberal and varied. All his sores disappeared in 5 days.

Case 2.—A captain aged 37, dark-skinned; slow response to treatment. He went on leave to base, where he acquired tab. multivite (B.D.H.), which he took in a dose of 1 tablet thrice daily. He returned one week later with all his sores healed, and he has had none since.

Case 3.—A lieutenant-colonel aged 43, medium complexion, had numerous desert sores which were very resistant to treatment until pasta flava was tried; these rapidly cleared up after three applications. In his case other agents tried caused exacerbation of the condition.

Case 4.—A quartermaster-sergeant aged 28, fair-skinned, seen first with numerous desert sores and widespread furunculosis. All treatment failed and his general condition made removal to hospital essential. He took 3 days to reach base hospital, and on arrival his lesions had entirely healed!

Conclusions

The condition of desert sores is one to which people normally domiciled in a temperate climate are very susceptible while living in the desert. Added to this is the difficulty of maintaining the diet on a basis comprehensive enough to ensure adequate amounts of essential foods and vitamins. Finally, the conditions attendant upon active service render adequate treatment difficult and the follow-up of patients is of a standard which compares unfavourably with what one might desire.

Medical Memoranda

An Obscure Cause of Haematemesis

A fatal case of haematemesis due to ingestion of foreign bodies seems worth recording, in virtue not of the nature of those bodies but of their location at necropsy.

CASE REPORT

An undersized and under-developed girl aged 16½ was admitted to the Worcester Royal Infirmary on July 29, 1941, having been ill for 5 days with pain in the lower part of her back severe enough to keep her in bed. It was noticed that she showed a morbid interest in her complaint. There was a history of pyelitis some years previously. On admission she was vomiting green fluid and there was tenderness in the left lumbar region of the abdomen; the urine was, however, without obvious abnormality. The temperature was 100.6° and the pulse rate 96. A tentative diagnosis of perinephric abscess was made and conservative treatment initiated. Thirty-six hours after admission the patient suddenly became restless and complained of thirst; she shortly afterwards started vomiting blood, some 20 oz. being lost over a period of several hours. In spite of restorative measures she deteriorated rapidly and died 5 hours later.

At the post-mortem examination, held 24 hours afterwards, the stomach was found to be distended with recent blood-clot, but there was no evidence of either gastritis or gastric ulcer. The spleen was normal in appearance. The pancreas was much enlarged, and on opening it a haematoma the size of an orange was seen to occupy most of the head and body of the organ. This haematoma showed organization at the periphery, but in one point there was a commencing abscess cavity. A sharp object was accidentally located in the haematoma; this proved to be a sewing-needle. On further exploration two other needles were found, half the eye of one of them being missing. The duodenum was then opened, and at the junction of the middle and distal thirds on the mesial wall an ulcer was found in, direct communication with the pancreatic haematoma; it was rounded and admitted the tip of the little finger; the edges were injected, but the walls were not indurated. On opening the splenic artery a small haematoma was seen in its wall. This artery had apparently been penetrated by one or other of the needles, thus giving rise to the fatal haemorrhage, for the artery had presumably bled into the intrapancreatic haematoma already present, and the haematemesis was due to the passage of blood through the perforation of the duodenum into the stomach. On opening the intestines a fourth needle was encountered at the hepatic end of the transverse colon; it was embedded in the substance of the transverse mesocolon close to the bowel wall. This needle had presumably perforated

the duodenum, travelling to its destination in the substance of the transverse mesocolon, the alternative and less probable route being through the small intestine and ascending colon with perforation of the large gut at the site where it was found.

COMMENTARY

References in the literature to the site of foreign bodies in the respiratory and intestinal tracts at various intervals after ingestion gave only one example of a foreign body having perforated a hollow viscus to enter another organ. Prof. Ameline (1937) instances a woman aged 68 who accidentally swallowed a glass-headed pin. She was admitted to hospital 7 days later. There were no physical signs in the abdomen and no symptoms except a subjective sensation of the pin having become lodged in the stomach. Repeated radiographs confirmed that the pin had perforated the posterior gastric wall. Fifteen days after the accident gastrostomy was performed. The pin was found embedded in the posterior wall of the stomach, the point being fixed in the pancreas. It was removed and the patient recovered.

In our case a history was obtained of the girl having previously swallowed other foreign bodies, but we could not get any information about the needles which caused her death.

Of 17 cases recorded—1 by Ameline (1937), 1 by Kennedy (1935), and 15 by Jackson and Jackson (1936)—of ingestion of pins and needles, 9 were found in the bronchi, 2 in the pharynx, and 4 in the oesophagus, while the remaining 2 were in the stomach.

The interesting features of this case are: the absence of any history of having swallowed foreign bodies, with resulting difficulty in diagnosis; the penetration of the pancreas, with expansion of the pancreatic tissue around the haematoma; and the perforation of the splenic artery, with subsequent aneurysmal rupture and fatal haemorrhage.

I am indebted to Mr. T. Bates for permission to publish this case, and to Dr. W. H. McMenemey, who performed the post-mortem examination, for his very kind help and criticism.

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Diverticulum of the Jejunum

H. C. Edwards, in his *Diverticula and Diverticulitis of the Intestine* (Bristol, 1939), says that jejunal diverticula give rise to two main symptoms: (1) vague abdominal discomfort and sometimes pain, particularly after meals; (2) flatulence, sometimes very pronounced and associated with loud borborygmi. The condition is uncommon. Edwards found it only 9 times in 2,820

FIG. 1.—Showing barium filling the diverticulum of the jejunum 3 hours after injection of barium.

necropsies at King's College Hospital—an incidence of 0.31%. As this condition is unusual and presents difficulty in diagnosis, the description of a case in which dyspepsia with pain thought

to be due to a duodenal ulcer was eventually proved to be due to a large jejunal diverticulum should be instructive.

CASE REPORT

The patient, a married woman aged 56, had for more than 14 years complained of attacks of abdominal pain accompanied by much flatulence. In 1924 she had had a left nephrotomy for a large renal calculus; the history about this time is somewhat confused by the renal pain. From 1926 onwards the

FIG. 2.—The specimen. The diverticulum is on the mesenteric border.

attacks of upper abdominal pain accompanied by much flatulence, which was relieved by bringing up gas and also by taking food, were well defined. In 1926 a laparotomy was performed after a diagnosis of duodenal ulcer had been made; but no ulcer was found, and the gall-bladder was normal. As a result of these findings, from 1926 until 1939 the attacks were treated symptomatically on the assumption that they were largely due to nervous dyspepsia.

In Nov., 1939, after a particularly severe attack, a new radiological examination was made. Previous x-ray examinations of the stomach, duodenum, and gall-bladder had been negative. On this occasion Dr. R. O'Donoghue demonstrated a large jejunal diverticulum (Fig. 1) 18 inches from the gastro-jejunal flexure. There were also several small diverticula in the small intestine. These emptied with the intestine, but the large diverticulum retained the barium for more than 48 hours.

The patient was an obese subject with chronic bronchitis, and the operation had to be postponed owing to her developing bronchopneumonia. After suitable convalescence, laparotomy was performed under local anaesthesia on April 10, 1940. In spite of the many adhesions from the previous laparotomy, the diverticulum, which was on the mesenteric border of the intestine, extending into the mesentery, was easily located. The segment containing the diverticulum was excised and the continuity of the jejunum restored by end-to-end anastomosis, which was reinforced by a free omental graft. The patient made an uninterrupted recovery, and has remained quite free from her former symptoms. She is, in fact, better in health than at any time during the past twenty years.

Examination of the specimen (Fig. 2) showed that the diverticulum was about the size of a tangerine orange. When it was distended with water it held nearly half a pint.

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In an investigation of carbohydrate metabolism in animals reduced to a subacute state of thiamine deficiency, H. A. Harper (*J. biol. Chem.*, 1942, **142**, 239) found that, compared with normal animals, there was a decrease in the rate of absorption of glucose from the intestine. There was also a decrease in the extent of hepatic glycogenesis, as well as in the rate of breakdown of glycogen.