Comment.—The magnitude of this operation was increased by the resection of the ascending and the transverse colon—a procedure which seems not to have been called for hitherto, as no record of such a step has been found in the literature.

I gladly acknowledge my indebtedness to Drs. Sterndale Bennett, Bentley, and John Spencer (of the King George Hospital, Ilford) for their help with this patient.

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Medical Memoranda

Hernia through Foramen of Winslow

The following case was complicated by the fact that the herniated loop had re-entered the general peritoneal cavity through the lesser omentum.

CASE REPORT

A woman aged 41 was admitted to hospital complaining of severe abdominal pain which had come on some 20 hours previously. The onset had been sudden, and the pain had increased in severity, especially in the upper abdomen. Some seven hours after the onset she had vomited, and this had recurred about six times since. The bowels had not moved, nor had she passed flatus since the pain started. She had no other symptoms and the last menstrual period had been two weeks before. On specific interrogation she admitted to a vague type of indigestion which "came on before supper if I had a fatty dinner." The previous history was otherwise entirely negative.

Examination showed her to be a well-nourished woman, and in obvious pain. Her temperature was normal. There was a fine whitish fur on the tongue, and the breath was slightly fetid. The abdomen did not move on respiration, and tenderness and guarding were present all over, but more pronounced in the epigastrium. There was loss of liver dullness in front but not in the axillary line. Rectal examination revealed a rather bulky uterus but no other abnormality. No abnormal signs were found in the other systems except rather frequent extrasystoles. The pulse rate was 92 and the blood pressure 135/85. As she did not vomit after admission the character of the vomitus was not ascertained.

A tentative diagnosis of perforated peptic ulcer was made and a laparotomy performed. In all fairness to those who saw the patient I must record that this diagnosis was made with some trepidation. There were many features which did not fit in—e.g., the ingravescence nature of the pain and the absence of frank rigidity. It was also difficult to reconcile a perforation of 20 hours' duration with her extremely good general condition.

Operation.—Under general anaesthesia a high right paramedian incision was made. On opening the peritoneum the first

significant finding was the absence of free fluid; next, the caecum presented in the upper part of the wound, grossly dilated and overlying the liver. This must have been the cause of the loss of liver dullness noted clinically. The findings at laparotomy are shown in Fig. 1. At first this was thought to be a case of volvulus of an abnormally mobile right colon, but on tracing the loop to its base under cover of the liver a fold of peritoneum was found under which the loop had passed. It then seemed that we were dealing with an obstruction by a peritoneal band, and the obvious treatment would be to divide it and thus free the imprisoned gut (Fig. 2).

FIG. 2.—Diagram of findings after the liver had been turned up. The band of peritoneum shown crossing the base of the loop was the right "free edge" of the lesser omentum.

The true diagnosis was not evident until palpation of the fold revealed forcible pulsation and investigation proved that it contained the hepatic artery, common bile duct, and portal vein, and that it was in fact the right "free edge" of the lesser omentum. The loop of gut had entered the lesser sac through the foramen of Winslow and traversed the gastro-hepatic omentum to reappear in the general peritoneal cavity between the liver and the lesser curve of the stomach.

It was impossible to reduce the hernia by traction, as the loop was so distended and the hiatus so small. Enterotomy was also in vain, and it was decided to resect the offending loop. This was considered feasible in view of the excellent condition of the patient under the anaesthetic; also, the length of mesentery was such as to render the procedure relatively simple. Resection of the loop was accordingly effected and an ileo-transverse colostomy performed. It was then considered that the patient had had as much manipulation as was desirable and no attempt was made to define the precise peritoneal anomalies or to close the gap between the liver and the stomach.

Apart from some infection of the base of the right lung convalescence was uninterrupted and the patient was discharged well three weeks later.

I am grateful to Mr. J. F. Heslop for permission to publish details of the case. Thanks are also due to Dr. S. Kay for the drawings, and to Mr. C. I. Raeburn for his invaluable assistance in the preparation of the report.

JOSEPH N. LEWIS, M.B., B.Ch.,
Late House-surgeon, Park Hospital, Davyhulme.

Treatment of Megaloblastic Anaemia with Vitamin B₁₂

In view of the interest aroused by the recent isolation of vitamin B₁₂ simultaneously by Lester Smith (1948, 1949) in Britain and Rickes *et al.* (1948) in the U.S.A., and its action in megaloblastic anaemias (Ungley, 1949), we feel that it would be of interest to record our experience of this substance in the treatment of two cases of pernicious anaemia which were recently under our observation. The amount of substance available to us did not permit treatment to be completed and continued, but a satisfactory and unequivocal initial response was obtained in both cases.

FIG. 1.—Diagram of findings at laparotomy. Terminal ileum, caecum, ascending colon, and part of transverse colon were lying superficially, forming a loop the base of which disappeared under the liver margin.

The preparation employed was made by Glaxo Laboratories from the mould *Streptomyces* and was a clear brown liquid, each 1 ml. containing 10 μ g. of vitamin B₁₂.

CASE 1

A housewife aged 65 was admitted on September 2, 1949, complaining of increasing lassitude, pallor, and dyspnoea on exertion. Sternal pain radiating down both arms brought on by exercise had also been experienced during the preceding few months. On examination she was found to be rather obese and very pale. There were no detectable abnormalities in the chest, abdomen, or heart, the blood pressure was 150/80, the tongue normal, and oedema was absent; apart from bilateral absence of vibration sense in both legs the central nervous system was normal. An electrocardiogram soon after admission revealed negative T waves in Leads I and II which were ascribed to coronary artery disease. The faecal occult blood was negative.

A blood count the day before admission showed: haemoglobin, 40%; red cells, 1,490,000 per c.mm.; colour index, 1.3; white cells, 5,700 per c.mm. Anisocytosis and poikilocytosis were prominent on examination of the film, and macrocytes were in evidence. The mean corpuscular volume was 143 c. μ , and the concentration method suggested recently by K. S. Rodan showed a few megaloblasts in the peripheral blood.

On September 4, 20 μ g. of vitamin B₁₂ was injected intramuscularly and no other therapy was permitted. The next day examination of the peripheral blood revealed 2% reticulocytes, and these continued to rise rapidly, reaching a peak of 17% on September 8 (Fig. 1).

FIG. 1.—Chart of Case 1.

that the patient complained of being "drowsy and tired" for a few hours; this effect was thought to be psychogenic. Owing to exhaustion of the supply of vitamin B₁₂ an orthodox liver preparation was started on October 8. The total amount of vitamin B₁₂ administered was 100 μ g.

CASE 2

A woman aged 77 was admitted on August 5, 1949, complaining of increasing weakness, pallor, dyspnoea on exertion, and persistent anorexia. These symptoms had gradually developed over a period of two years, but had become very much worse lately. For a few weeks before admission she had been much troubled by vomiting, and loss of weight had been severe.

On examination the patient was found to be very pale and looked ill. The tongue was smooth and she appeared to have lost a considerable amount of weight. There were no detectable abnormalities in the heart or abdomen, but rales were heard at both lung bases. The blood pressure was 150/90, and the central nervous system showed no evidence of subacute combined degeneration. At that time she was thought to have a carcinoma of the stomach, but a barium meal x-ray

examination on August 12 showed no stomach-filling defect, although a hiatus hernia was revealed.

A histamine test meal revealed no free acid, and a blood count on August 9 showed: haemoglobin, 40%; red cells, 1,400,000 per c.mm.; white cells, 2,000 per c.mm., colour index 1.4. Marked anisocytosis and poikilocytosis were present in the blood film and macrocytes predominated. On August 22 a sternal puncture revealed a megaloblastic marrow, thus clinching the diagnosis of Addisonian anaemia. The faeces were negative for occult blood.

Vitamin B₁₂, 20 μ g., was administered intramuscularly on August 23 (no other therapy being permitted) and daily reticulocyte counts were made. These were 1% until August 26, when 2% were detected in the peripheral blood. On the 27th the figure had risen to 5% and a peak of 19% was reached on the 30th (Fig. 2).

The haemoglobin was still 40% on August 31, but this now started to rise, although slower than we expected; on September 12 it was found to be only 45%, and in view of what was considered to be an unsatisfactory haemoglobin response a further injection of 20 μ g. of vitamin B₁₂ was given that day and a similar amount on September 15, 20, 23, 27, and 30—i.e., 20 μ g. twice weekly. The total amount of vitamin B₁₂ administered in this case was 140 μ g.

By September 30 the haemoglobin had risen to 64%, and was 70% on October 11, but in view of the lack of a further supply of vitamin B₁₂ an orthodox liver preparation was substituted, the first dose being given on October 11.

In this case, although the rise in haemoglobin was slow, the rapid general improvement was striking. Within two days of the first injection of 20 μ g. of vitamin B₁₂ vomiting, which had been troublesome, completely ceased, appetite returned, and the patient showed an active interest in her surroundings; this had previously been lacking.

Conclusion.—It seems that vitamin B₁₂ prepared from *Streptomyces* is a potent therapeutic agent in megaloblastic anaemia.

We wish to thank Dr. E. Noble Chamberlain for his encouragement and advice, and Messrs. Glaxo Laboratories Ltd. for the supply of vitamin B₁₂.

C. M. MILLER, M.D., M.R.C.P.,
Visiting Physician.

E. H. MOORHOUSE, M.R.C.S., L.R.C.P.,
Assistant Pathologist, Smithdown Road
Hospital, Liverpool.

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