is present from the fourth day onwards. These deficiencies may be present singly or together. If together, the oestrogens must be given first. Until the oestrogen deficiency is cured it is often difficult to tell whether there is an iodine deficiency. Giving Lugol's solution to a case with an oestrogen deficiency untreated only aggravates the condition and does not increase the milk output. The sign of an oestrogen deficiency is lumpy breasts with a thick yellow secretion that is difficult to express. The sign of an iodine deficiency is soft empty breasts with a scanty secretion of milk. Both oestrogens and Lugol's solution are safe and easy to give. The duration of the treatment is short. The treatment does not upset either the mother or the infant.

The number of patients with older infants who have so far been treated with Lugol's solution for failure of lactation are too few for any conclusions to be drawn. However, the outlook is hopeful, as in three cases out of five in which the mothers took the Lugol's solution for three weeks the infants became fully breast-fed. The sign that the infant has become fully breast-fed is a sudden large increase in the weekly weight gain and an increase in the number of stools. The stools return to normal when the bottle-feeds are stopped.

Summary

Twenty cases of failure to establish lactation in the puerperium were treated with Lugol's solution. The mean output per day increased by 300%. One-third of a small number of failures of lactation in mothers with older infants have responded to Lugol's solution.

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ACUTE DILATATION OF THE STOMACH

BY

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Most recorded cases of acute dilatation of the stomach have appeared as post-operative or post-anaesthetic complications. Only a few authors have described acute dilatation caused by overloading of the stomach with food. Four such cases were admitted to my surgical department within a short period.

Case 1

A Russian prisoner-of-war aged 20 was admitted to hospital in February, 1942, with frostbite of the lower limbs. His general condition was very poor and he was emaciated and pale. The lungs, heart, and alimentary system showed no abnormality. There was wasting of the upper and lower limbs with bilateral partial paralysis of the radial nerve. Both feet showed moist gangrene. He had been treated by removal of the necrotic parts of both feet and by general anti-infection therapy. On Nov. 5, 1942, after having eaten a larger dinner than usual (about 1 litre of soup and ten potatoes), he complained of abdominal pain.

Condition on Examination.—Pulse rate 60; temperature 98.6° F. (37° C.). Both feet amputated but amputation stumps unhealed and considerable purulent discharge. Left thigh oedematous. Heart and lungs normal. Abdomen distended, particularly the epigastrium, but not rigid; slight epigastric tenderness; liver and spleen not enlarged; on percussion areas of dullness, and on auscultation peristaltic sounds were heard. There had been no passage of flatus since the onset of symptoms three hours before. The patient vomited frequently but only small amounts. He was sleepy, apathetic, and complaining of slight abdominal pain. A diagnosis of acute dilatation of the stomach was made.

Treatment.—A stomach tube was passed, and an injection of "prostigmin," intravenous hypertonic saline, and an enema were ordered. After three hours repeated attempts to evacuate the stomach had failed. The abdominal distension was increasing and the pain was more severe. Fluid injected down the tube to dilute the stomach contents did not return. After six hours of the same treatment there was still no evacuation of stomach contents. The patient's general condition was worse, with increasing pain and much retching. The pulse rate was now 90. Some flatus had been passed, but with no reduction in the abdominal distension.

The stomach tube was then passed once more, but with the patient lying on his side with the knees bent. There was an immediate good result and emptying of the stomach proceeded rapidly. The total amount evacuated was 8 litres, which was mainly fluid but mixed with a certain amount of digested and undigested food, mostly potatoes. After this the patient felt considerable relief and went to sleep. A few hours later he awoke feeling much better; flatus was passed normally. He remained in hospital for a further twelve months for treatment of his legs, but during this period he had no further stomach trouble.

Case 2

An Italian prisoner-of-war aged 30 was admitted to hospital on March 17, 1944, with a diagnosis of acute appendicitis. In 1941 he had had malaria and he also gave a history of several attacks of bronchitis. For the last three and a half months he had worked very hard in a factory. As a result of this he became so exhausted that he was admitted to the sick bay for a special diet and nursing. On March 17 his diet was as follows:

7 a.m.—Half litre "ersatz" tea and 100 g. of biscuits.
10 a.m.—One piece (100–150 g.) of bread and two potatoes.
12 a.m.—One and a quarter litres of turnip soup.
2 p.m.—Half litre of skimmed milk and two biscuits.
4 p.m.—About one litre of potato purée.

After eating these meals he felt slight abdominal pain and noticed some distension of the abdomen. In spite of this he had a further meal at 6.30 p.m. consisting of one litre of potato purée and about 500 g. of bread. Almost immediately he developed severe abdominal pain and distension, with dyspnoea and difficulty in passing flatus.

Condition on Examination.—At 9 p.m. on March 17 his pulse rate was 109. He was well-built but emaciated. Rapid shallow respirations. No vomiting, and only a small amount of flatus passed. Lips and tongue were rather dry. Lungs normal; apex beat displaced upwards. Limbs slightly oedematous.

There was marked distension, particularly in the upper abdomen, but no rigidity; some tenderness in the epigastrium. One seemed to feel the outlines of the distended stomach, but this was not definite. On percussion the abdomen was tympanitic; the liver and spleen were not obviously enlarged. Normal peristaltic sounds were heard on auscultation. A diagnosis of acute dilatation of the stomach was made.

Treatment.—The patient was placed in the lateral position with the knees bent and a stomach tube was passed. He was also given an enema, an intravenous hypertonic saline, and a subcutaneous saline. The first and second attempts at lavage failed, but after pouring in a quantity of water to dilute the stomach contents about 4½ litres (with potatoes, vegetables, and bread) were removed. During each of the next five washouts 1–1½ litres of fluid gastric contents were evacuated together with much gas. After two enemas, within three hours of admission to hospital, the patient had a good movement of the bowel.

By midnight he felt well. There was frequent passage of flatus, the abdominal distension had disappeared, and the belly wall was soft. Some epigastric tenderness persisted and the pulse rate was now 86. Thereafter his recovery was uneventful. A radiological examination on April 2 showed "gastro-entero-hypotonia and -ptosis." He was discharged from hospital on April 8.

Case 3

An Italian prisoner-of-war aged 19 had had synovitis in 1925 and frequent "indigestion" during recent years. After a long period of starvation he had eaten several meals in the course of one day. This was on Dec. 16, 1943, when his meals were as follows:

6.30 a.m.—Three-quarters of a litre of "ersatz" coffee.
10 a.m.—Half a litre of coffee, 200 g. of bread, 15 pieces of carrot.
12 a.m.—Vegetable soup and meat—2½ litres.
4 p.m.—One litre of milk soup and 15 pieces of carrot.

He then had abdominal pain, but in spite of this at 6.30 p.m. he ate 450 g. of bread, 30 g. of margarine, and 150 g. of biscuits. This exceptionally good food was given, incidentally, to encourage the patient to enlist in an Italian Brigade for the German Army. A few hours after the last meal there was further abdominal pain and he vomited. There was no passage of flatus and no bowel movement after the onset of pain. The next morning, Dec. 17, 1943, he was transferred to hospital with a diagnosis of appendicitis.

Condition on Examination.—He was a pale, emaciated, asthenic type; pulse 90 and irregular. Lungs normal and heart displaced upwards. There was marked abdominal distension and slight rigidity; on percussion the abdomen was tympanitic. The liver and spleen were not enlarged. No peristaltic sounds were heard on auscultation. His urine was normal, and he had a leucocyte count of 16,000 per c.mm. During the examination he lay on his back with his knees drawn up, complaining of abdominal pain, dyspnoea, and failure to pass flatus. He was diagnosed as a case of ileus following acute dilatation of the stomach.

Treatment.—The patient was placed in the lateral position with the knees bent and a stomach tube was passed. He was also given an enema, intravenous hypertonic saline, subcutaneous saline, and an injection of prostigmin. After three hours of this treatment repeated attempts to empty the stomach had failed. His pain increased and signs of toxaemia developed with a rapid irregular pulse; his general condition became worse. Immediate operation was then undertaken.

Operation.—Under spinal anaesthesia a midline incision was made. On opening the abdomen the small bowel was found to be distended, particularly in its proximal part. The distal part of the small bowel and the large intestine were normal in appearance. The stomach was distended and immobile, extending downwards and pressing on the duodenum. There was no other obvious obstruction either inside or outside the stomach and intestines. There was no sharp line of demarcation between the normal and the distended bowel. There was much free fluid in the abdomen.

After lifting the stomach the bowels were successfully evacuated and the distension almost disappeared. The appearance of the stomach, however, remained unchanged. It was decided to close the abdomen and to resume conservative treatment. During the suture of the wound the patient had a good action of the bowels. Energetic conservative treatment was then resumed. His general condition improved on the following day but deteriorated on Dec. 19. No flatus was passed and the patient vomited, bringing up faecal fluid. There was marked abdominal distension and severe pain.

Operation.—The abdomen was opened at McBurney's point under local anaesthesia. The distended caecum presented in the wound and caecostomy was performed. There was free drainage of the bowel contents and for three days improvement in the general and local condition continued. The patient felt well and did not vomit.

On Dec. 22 there was again a sudden deterioration in his general condition with symptoms of small bowel obstruction. Attempts at evacuation through the caecostomy failed.

Operation.—Under local anaesthesia at a third operation an incision was made in the left side of the abdomen. Enterostomy was performed by inserting a "T" drainage tube in the small bowel. A considerable amount of liquid and gas was expelled. The patient's condition after operation was satisfactory. There was good drainage through both tubes and the bowels opened normally as well. During the next two months there was a remarkable improvement. The patient's appetite increased and he put on weight. Both enterostomy openings were then closed and he was discharged cured.

Case 4

This prisoner-of-war was admitted to hospital with a diagnosis of peritonitis. He had a history of malaria and he had suffered burns of the feet twenty days before admission. After a period of starvation he had eaten in the course of one day 2 litres of soup, 300 g. of bread, 1 litre of coffee, and some potatoes. This was on Feb. 27, 1944, and the next morning he noticed some distension of the abdomen. In the afternoon he developed epigastric pain and difficulty in passing flatus; he also vomited. He was then examined by the camp medical officer and transferred to hospital.

Condition on Examination.—He had a pulse rate of 68 and was well built but emaciated. There were enlarged lymphatic glands in the groin. His tongue was moist and he had many carious teeth. The lungs were normal and the heart was displaced upwards. There was marked abdominal distension, particularly in the epigastrium. The distended stomach appeared to be outlined through the abdominal wall, but this was not definite. There was no rigidity, and on percussion the epigastrium was tympanitic. The liver and spleen were not enlarged. There was slight tenderness in the epigastrium and no clinical evidence of peritonitis.

On the dorsum of the left foot there was the scar of a recent burn and the leg was slightly swollen. The patient complained of pain in the abdomen, and particularly in the epigastrium. He was drowsy and apathetic, and was retching and vomiting. He was diagnosed as a case of acute dilatation of the stomach.

Treatment.—A stomach tube was passed with the patient in the lateral position, and an enema and intravenous hypertonic saline were given. Repeated attempts at evacuation of the stomach failed and water which was intended to dilute the stomach contents was not returned. The patient became drowsy and tired and after six hours of unsuccessful treatment it was decided to operate.

Operation.—Laparotomy was performed through a midline incision under spinal anaesthesia. There was free fluid in the abdomen with distension of the upper part of the small intestine. There was no sharp demarcation between the distended and the normal bowel. The stomach was grossly distended and immobile and was pressing on the duodenum. Apart from this there was no evidence of obstruction of the bowel, and the other abdominal organs appeared to be normal. An attempt was made to empty the stomach by aspiration, but only a little gas was removed. An attempt to "milk" the contents of the bowel was also unsuccessful. A jejunostomy was therefore performed and the abdomen closed. A large amount of fluid and gas was removed through the jejunostomy tube.

Post-operative Treatment.—Further gastric lavage was undertaken and a hypertonic saline and an injection of prostigmin were given. There was obvious improvement within a few hours of operation. Flatus and faeces were passed normally as well as through the tube and the distension subsided. On the next day there was a good bowel movement normally. Three days later an attempt to close the jejunostomy gave rise to symptoms of ileus. After eight days the operation wound was completely healed and the patient felt well. After two months' treatment (including operative closure of the jejunostomy) he was discharged.

Aetiology and Diagnosis

In these four cases acute dilatation of the stomach appeared after eating an increased amount of food. In Cases 2 and 3 the amount of food eaten was large, but the same amount eaten by many normal people would not cause any complication. In Cases 1 and 4 the amount was not larger than the average meal taken in normal circumstances. There must, therefore, have been some predisposing cause.

All our patients were emaciated and were admitted to hospital after a period of starvation. This starvation I consider to be a predisposing cause, but the part it plays is not clear. It is possible that the acute dilatation follows a chronic dilatation of the stomach. In other words, a sudden intake of food causes paralysis of the already weakened walls of the stomach. Chronic dilatation of the stomach, due to the prolonged intake of large amounts of food of poor calorie value, was so common that we used to call it "the occupational disease of prisoners-of-war."

I would not venture to discuss more fully the part played by starvation as a predisposing cause, but I would stress the fact that in an emaciated and starving individual acute dilatation of the stomach may be precipitated by the intake of a comparatively small amount of food, an amount which in a normal individual would cause no disturbance. This observation, I think, is important from the point of view of aetiology.

Clinically there were three signs of practical importance: (1) drowsiness; (2) objection to the passing of a stomach tube, and particularly to the pouring in of water to dilute the stomach contents; and (3) failure of fluids to return from the stomach. These small points may be useful in the differential diagnosis from other causes of ileus.

Methods of Treatment

In each of these cases, immediately after the diagnosis had been made, treatment was begun. In the first two cases gastric lavage through a stomach tube was successful. It is important, however, to adjust the position of the patient, or failure will result. The patient should be in the left lateral position with bent knees.

In the two other cases conservative measures failed. Intubation through the nose also failed, probably because the stomach contents were not sufficiently fluid. In both cases the pain increased and toxaemia developed. This led to operation, an additional indication being the possibility of an error in diagnosis. It was known, too, from the literature that sudden death might occur during a prolonged period of dilatation of the stomach, and postponement of the operation might be dangerous.

Laparotomy in both cases showed only distension of the stomach and no obstruction either inside or outside the stomach and intestines. It was interesting to find no clear demarcation between the distended and the normal jejunum. I did not perform gastrotomy, because I considered that incision of the stomach walls might have an adverse effect. Evacuation of the stomach is important in conservative treatment but it is not the essential aim at operation; indeed, complete evacuation is impossible, because of the hypersecretion which accompanies dilatation. Puncture with a wide-bore needle showed that the atonic stomach contained much fluid and only a small amount of gas. An attempt to evacuate the intestine by "milking" it was followed by bowel movements just after operation, or even during the operation.

In Case 3, after temporary improvement, the general condition deteriorated, and it was necessary to operate again. I performed enterostomy, which caused evacuation of the stomach and intestines, and doubtless helped to restore the tone of the stomach walls. In Case 4 the patient had good bowel movements normally half an hour after operation. It is possible that further delay would have rendered operation unnecessary, but lack of experience and the presence of signs of toxaemia compelled us to operate.

Danger of Gastrotomy

While compiling this report I found the bed ticket of a German soldier treated in a German hospital. The most important points in his case history are summarized.

Aged 43. Sudden onset of abdominal pain at 6 p.m. on Dec. 11, 1942. Admitted to hospital at 10.45 p.m. Stated that he had never had abdominal pain previously and that he did not eat too much. Clinical examination showed ileus.

At operation the intestines were found to be distended and the stomach grossly distended. Puncture of stomach and removal of gas. Gastrotomy and removal of contents (three kidney dishes of stinking fluid mixed with potatoes, meat, and carrots). Suture of stomach. Suture of abdominal wall. Condition after operation grave. Died at 4 p.m. on Dec. 13.

Necropsy revealed acute dilatation of the stomach and intestines, which had caused circulatory failure. Cause of dilatation—overloading of stomach.

In this case gastrotomy did not prevent the patient's death. Other cases in the literature emphasize the danger of gastrotomy. I suggest that the danger of gastrotomy can be avoided and satisfactory results obtained by enterostomy and energetic conservative measures. Conservative treatment alone may be insufficient and dangerous in some cases; enterostomy may then be helpful.

Summary

Four cases of acute dilatation of the stomach in prisoners-of-war are described.

In emaciated and starving individuals acute dilatation of the stomach may be precipitated by the intake of a comparatively small amount of food.

Clinical signs to which attention is drawn include drowsiness, objection to gastric lavage, and the failure of fluids to return from the stomach.

Lavage with the patient in the lateral position with knees bent was successful in two cases. In the other two cases enterostomy was performed. Gastrotomy is dangerous.

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A circular from the Ministry of Education to local education authorities on the selection of medical officers for the examination of educationally subnormal children states that after Dec. 31 of this year the medical officer must have been selected by the authority on the advice of their school medical officer as a suitable person, have been given an opportunity for observing examinations by an approved medical officer, have attended, after such observation, an approved course of practical and theoretical instruction, and after a further period of observation be recommended to the Minister by the local authority on the advice of their school medical officer for approval. In exceptional circumstances the Minister may waive these conditions. The approved courses of training are conducted by the London University Extension and Tutorial Classes Council in conjunction with the National Association for Mental Health. Three courses have been arranged for 1947, and it is likely that a similar number will be held in 1948. Candidates have been selected for the first two courses this year; applications have been invited for the September course.