The patient is made aware of this by the usual mechanism, and voids the urine without difficulty. In the second class of cases there is also an irritation of the nerve supply of the sphincter vesicae, and this results in a tonic contraction of the muscle. The result is that the patient has a difficulty in relaxing the sphincter and the opposition offered to the contracting bladder is so great that the patient may suffer grievously from the violent efforts of the bladder to overcome the resistance of the sphincter.

Appendicular Colic and other Symptoms.

A patient suffering from chronic appendicitis may suffer at times from sudden attacks of pain of extreme violence. The pain is not always easy to locate, but is felt vaguely and indefinitely over a considerable area of the abdominal surface usually somewhere near the umbilicus and on the right side. I am not quite clear as to the cause of these attacks. In two cases where this symptom was well marked there was found stenosis of the appendix near its attachment to the caecum. In one case the portion beyond the stenosis was distended with fluid, so that on cutting it open its contents squirted out with considerable force. It is a matter of observation that when non-striped muscle is stimulated to strong contraction violent pain results as in biliary and renal colic, when the bile ducts and ureter contain calculi, or when the bowel contracts behind an obstruction. Sherrington has demonstrated this experimentally by injecting fluid into the bile ducts. The contents of the appendix may stimulate its muscular coat to contract, and if the contents be not voided in consequence of the stenosis, violent spasm of the muscular wall ensues and severe pain may arise, that is, the stimulation passes by the sympathetic to the cord and then stimulates the cells of certain sensory nerves, with the result that the pain is felt over the peripheral distribution in the abdominal wall. In addition to the three centres represented in the shaded area of the cord in Fig. 1, there are doubtless other centres stimulated. The symptoms arising are as yet too obscure for me to elucidate. In one case of chronic appendicitis the patient had recurrent attacks of diarrhoea, and it is possible that this diarrhoea was a result of reflex stimulation of the intestinal glands.

Differential Diagnosis.

When only a few of the symptoms are present, appendicitis may simulate numerous other complaints. I have mistaken a commencing attack of appendicitis for lumbago because the pain and muscular tenderness were at first entirely limited to the lumbar region. I have seen another case where the medical man mistook the symptoms for a rheumatic affection of the hip-joint, because at first the symptoms were limited to a pain in the groin, with stiffness and pain on movement at the hip-joint.

It is also difficult to distinguish appendicitis from other visceral affections when the symptoms are imperfectly developed. The portion of the spinal cord affected by the sympathetic nerve supply of the appendix receives nerves also from other portions of the bowel and peritoneum, from the kidney, ureter, ovary, bladder, etc., and, in consequence, when only a few symptoms are present, appendicitis may simulate affections of these organs. I had treated one of my patients for some years for renal colic, and it was only on the supervention of other symptoms that I suspected appendicitis. On operation, only a stenosed appendix with a few old peritoneal adhesions could be found. Treves has recently written on the mimicry of gastric troubles by spinal disease. The resemblance in the symptoms of such diverse diseases is due to the fact that stimulation of the spinal cord gives rise to identical symptoms, from whatever source the stimulation proceeds, whether from visceral disease or local irritation. I have seen one case where an eminent neurologist diagnosed caries of the spine, and encased the patient in a plaster-of-paris jacket, because of the tender vertebrae and extensive hyperaesthesia and muscle tenderness, and in the necropsy there was found cancer of the stomach. It may happen, therefore, that a local affection of the cord may give rise to some symptoms resembling this complaint.

THE WAR AGAINST MOSQUITOS IN AMERICA.—The Brookline Board of Health has renewed the war of extermination against mosquitos successfully carried on during the preceding two summers. A systematic attempt is to be made this year to treat catch basins and stagnant pools with crude oil. The grant required for this purpose is estimated at about £200.

ON THE OCCURRENCE OF VOMITING DURING RECTAL ALIMENTATION.

BY

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In a number of patients with gastric ulcer treated by rectal enemata, we have been struck by the fact that several of them have vomited up material from the stomach other than blood, in spite of the fact that they were having absolutely nothing by the mouth at the time. With the object of determining the frequency of this event, and, if possible, of finding some explanation for its occurrence, we have collected and analysed 171 consecutive cases of gastric ulcer treated in St. George's Hospital during the past two and a half years, 154 of them occurring in women and 17 in men. Of these cases, 75 were fed from the first either by the mouth alone or by the mouth and rectum together, and may be dismissed from further consideration after mentioning the fact that vomiting occurred in 41, or 54.6 per cent. The remaining 96 cases were fed per rectum alone for periods varying from two to fourteen days, usually for rather less than a week, and 26, among whom there were 4 males, or 27 per cent. of these cases, vomited on one or more occasions, although they had received no food at all by the mouth for a period of thirty-six hours or more before the vomiting occurred. Of these 26 cases, however, 8 were given medicine—bismuth, an opiate, or hydrocyanic acid—by the mouth, with or without a mouth-wash, and 7 were having a mouth-wash alone; the remaining 11 received nothing of any kind by the mouth. It is clear that in the 8 patients who took medicine by the mouth, the subsequent vomiting may have been due to peristaltic contraction of the stomach set up by the introduction of fluid into that organ. It is possible that the 7 patients whose mouths were washed out with a solution of listerine may have swallowed some of that antiseptic lotion, and that vomiting was thus accounted for. The remaining 11 cases can have swallowed nothing but their own buccal secretions; oral sepsis may have been an important factor in causing some of the vomiting here, for in 6 of the 11 the teeth were "bad" or "very bad," and the patients doubtless swallowed with their saliva a quantity of offensive purulent material derived from the carious teeth and stumps. The fact that in 2 cases under our own care persistent vomiting only stopped after extraction of decayed teeth, points to oral sepsis as a definite causal factor in some cases. But the teeth were noted as "good" or "very fair" in the other 5 cases, so that in these some other reason for the vomiting must be sought. Two of the 11 cases were menstruating while vomiting continued, but both of these fall into the category of "bad teeth." As showing that the nervous perturbation associated with menstruation is not a cause of vomiting, it may be added that 4 out of 70 patients who did not vomit, while being fed by the rectum alone, were menstruating.

We have been unable to trace any connexion between the nature of the food given by the rectum and the occurrence of vomiting. In the 26 cases that did vomit, the nutrient enemata were variously composed of water alone or of mixtures of water, beef tea, peptonized milk, eggs, coffee, and nutrient suppositories with, in a few cases, small quantities of common salt, which has been shown experimentally to set up anti-peristalsis; but identically constituted enemata were given in the 70 other cases that did not vomit while on rectal feeding. Still, there does seem to be a certain connexion between the administration of enemata and the occurrence of nausea or vomiting; no exact figures can be given, but retching is provoked by enemata in quite a fair proportion of rectally fed patients, and in a few of them goes on to actual vomiting.

Little information can be gathered by the examination of the vomited material; as a rule it is greenish or "bilious," mucous, and acid to litmus paper, and in some cases it contains free hydrochloric acid. The presence of bile shows that reversed peristalsis has occurred, and proves that relaxation of the pyloric sphincter can take place in spite of the gastric irritation which must result from the ulceration of the stomach wall. The explanation of this relaxation of the pyloric sphincter and of anti-peristalsis is not clear; but it is not unreasonable to suppose that when an irritable stomach

is invaded by bile-containing matter from the duodenum, it hastens to relieve itself of such abnormal contents through the oesophagus. The fact that free hydrochloric acid may, as would be expected, be present in the stomach contents, makes it highly improbable that the vomiting is due to excessive microbial accumulation and activity in the stomach, such as might result from stagnation of mucus, etc., in a quiescent viscus.

To recapitulate:

1. A certain proportion (27 per cent.) of patients with gastric ulcer vomit while on exclusively rectal feeding.
2. In some instances this may be due to oral infection, while in others it may possibly be the reflex result of rectal injections.

A CASE OF HERNIA OF THE BLADDER ASSOCIATED WITH AN INGUINAL HERNIA,

WITH REFERENCE TO THREE OTHER RECENT CASES.

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THE non-recognition of the complication which forms the subject of the following paper has not infrequently led to the most disastrous results. The danger is largely due to the possibility of such an association not being constantly borne in mind during the performance of a radical cure, whether of inguinal or femoral hernia. For this reason I am induced to publish these notes and illustrations.

During the period 1898-1900, a single case of hernia of the bladder associated with an oblique inguinal hernia, as usual on the right side, occurred at University College Hospital, London. It was successfully operated on by Mr. Bilton Pollard, whom I wish at once to thank for so readily permitting me to publish not only the notes I made as Surgical Registrar, but also the diagrams (Figs. 2-5) suggested by him to illustrate the mode of occurrence of many of these associated herniae. Fig. 1, which has been very cleverly drawn, from a rough sketch I made at the operation, by Mr. Shiells, of the firm of Messrs. Bale, Sons, and Danielsson, will serve to show the appearance presented when the hernial sac was opened, the protrusion of the bladder forming a prominence, spherical in shape, bulging into the back of the sac. The notes of the case are as follows:

Clinical History.—The patient was a fat, healthy-looking boy, aged 2½ years, admitted on January 10th, 1899, into University College Hospital, under Mr. Bilton Pollard's care, for radical cure of a good-sized inguinal hernia on the right side, said to descend to the bottom of the scrotum. After admission the hernia was, on one occasion only, noticed to have entered the scrotum. On the day of the operation (January 16th) there was no hernial protrusion evident. The right external abdominal ring was large enough to admit the tip of the little finger; nothing unusual was detected in the inguinal canal. The left external ring was not enlarged.

Operation.—Under chloroform, Mr. Pollard made the usual skin incision along the line of the inguinal canal, and after slitting up the aponeurosis of the external oblique muscle, a thin-walled hernial sac was fully exposed. The small vas deferens having been isolated the hernial sac was opened and found empty, but bulging into the back of it, over its lower half or two-thirds, was seen to be a globular swelling, about seven-eighths of an inch in diameter. The sac was carefully turned off this rounded prominence, and found to be cyst-like, of a faintly pink tint, and finely striated on its surface, the appearance of muscular fibres at once suggesting a protrusion of the bladder, devoid of peritoneal covering now that it had been freed from the hernial sac. Further examination showed it to be coming through the enlarged internal abdominal ring. The protrusion was found to lie internal to and partly behind the neck of the hernial sac, and then, escaping from the internal ring, to have invaginated itself as a finger-like process into the back of the sac, thus accounting for the spherical prominence bulging into the posterior wall when the sac was slit open.

Further confirmation of Mr. Pollard's diagnosis was obtained on passing a sound per urethram into the bladder, and so on readily into the protrusion. On removing the sound, this protrusion could be partly drawn out of the wound. As a point of some interest, perhaps, it may be noted that a fine white fibrous band (? part of the spermatic fascia) was seen to pass across the front of the sac, ending below in the tissue covering the testicle, but not into the testicle itself. Above, this band appeared to pass into the abdomen.

Completing the account of the operation, the sac was divided below the level of the bulging apex of the bladder protrusion. This is the stage depicted in Fig. 1, the muscular fibres only being visible, of course, when the sac was reflected off the protrusion. The edges of the sac were sutured. Then, holding aside the spermatic cord and carefully depressing the bladder, so as to avoid entanglement in the stitches, Bassini's

operation was performed in the usual way, five silk stitches being used to unite the back of Poupart's ligament to the conjoined tendon of the internal oblique and transversalis muscles. The spermatic cord was laid upon the new bed thus formed, which also served to safely cover in the bladder.

The divided external oblique aponeurosis was sutured with silk, and the skin incision with horsehair. The cyanide gauze dressing used was changed, two days later, for gauze and collodion, the child having soiled the original dressing with urine. The patient was discharged, with the wound soundly healed, on the twenty-second day after the operation.

Fig. 1.—Semi-diagrammatic, prepared from a sketch at Mr. Pollard's operation for radical cure of a right inguinal hernia, into the back of the sac of which a protrusion of the bladder was found bulging. [H. J. Curtis.] For the sake of clearness, the spermatic cord and other unnecessary details have been omitted. Beneath the skin incision and fat are seen, successively, the slit up and reflected edges of the aponeurosis of the external oblique muscle, the internal oblique muscle, escaping from beneath which, through the enlarged internal abdominal ring, is the hernial sac here shown opened out after its lower extremity has been cut off. Bulging through the posterior wall of the sac is seen a rounded swelling. On reflecting the sac off this, it was found to be finely striated and evidently muscular on its surface, and to be a protrusion of bladder herniated through the internal ring, internal to and slightly beneath the true hernial sac, invaginating the posterior wall so as to produce the appearance here figured. The course of events is rendered still clearer by a reference to the series of diagrams (Figs. 2-5).

REMARKS.

Points of interest in connexion with this case are:

- I. The mode of origin and the frequency of occurrence of such combined herniae.
- II. The possibility of diagnosis of such an association prior to, or during, the operation for radical cure.
- III. The right treatment of this condition.
- IV. The result of treatment in four other cases, hitherto unrecorded.

I.—The Mode of Origin.

The explanation in some of these cases of associated herniae is illustrated by the diagrams (Fig. 2-5) suggested by Mr. Pollard, who has kindly allowed me to have them reproduced. In Fig. 2 the normal condition is seen, the peritoneum (*x y z*) passing off from the fundus and side of the bladder (*B*) on to the side of the pelvis, to cross the oval gap marked *R*, through which the future inguinal hernia will escape. In the case of an oblique inguinal hernia this gap (*R*) corresponds with the internal abdominal ring.

In Fig. 3 the escape of the hernial protrusion (*x y z*) through the internal ring is seen to have commenced.