REMARKS ON DILATATION OF THE STOMACH AND ITS TREATMENT.*

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In the year 1869, my attention was arrested, when reading the *Archiv für Klinische Medicin*, by a paper of Professor Kussmaul's on dilatation of the stomach and its treatment. The method described by the author seemed so reasonable and appropriate, that I at once formed hopes of its success, which, if they have dwindled somewhat in the following ten years, are by no means extinguished.

But before I begin to speak of Professor Kussmaul's method of treating this malady, I must confess that the perusal of his paper instructed me much concerning the nature of dilatation of the stomach, and indeed concerning the existence of dilatation of the stomach as a primary state. I have reason to know that many, even eminent physicians, are not familiar with the fact, that dilatation of the stomach may appear as a simple disease, apart from the well known secondary forms of it, which result from pyloric and other mechanical obstructions.

My mind was prepared to receive this proposition for, in the year of the publication of the aforesaid essay, I had a case which seemed to correspond with Kussmaul's description, and this, on subsequent examination, turned out to be of that kind. Since that time, I have met with many cases; but the comparative failure of treatment, and still more the difficulty and discomfort of the method in private practice, cooled down my ardour in its application. Moreover, I found it very difficult to persuade family practitioners to undertake a treatment which is often disgusting, and always very troublesome. Some practitioners promised to carry it out and did not; others refused to do it, and afterwards did try imperfectly. In some other cases, the patients absolutely declined to submit to the method; and lastly, in some cases, both doctor and patient happily so far agreed in the work as to give it a fair trial, but with success not always brilliant. Still, I gradually gained experience—of a fragmentary kind, it is true, and oftentimes more negative than positive, which yet prevented my losing sight of the method of treatment—which year by year impressed upon me the modes and course of cases of dilatation of the stomach, and which made many obscure cases clear to me.

When Dr. Jacob was appointed house-physician to the Leeds Infirmary, I expressed a wish to have a case of simple dilatation of the stomach treated on Kussmaul's method, and to his perseverance I owe almost the only complete examples of this method to which I can refer. These cases Dr. Jacob publishes in connection with my present paper; and he would here join with me in thanking more than one resident assistant officer who gallantly aided him in his disagreeable task.

Although the existence of simple and primary dilatation of the stomach as a substantial malady was a new discovery to me in 1869, and although, as I have said, it still comes as a novelty to many of my brethren, yet it has been recognised by not a few of our predecessors and contemporaries. Leube, in his section on this malady in Ziemssen's *Handbuch*, vol. vii, part 2, 1876, states that the malady was recognised among others by Spigelius in 1623, by Van Swieten in 1754, by Sauvages in 1768, by Morgagni in 1774, and in our own time by Oppolzer and Traube. Of modern writers on the subject, I am chiefly indebted to the treatise of Kussmaul, already indicated; to a treatise on the subject by Penzoldt, published at Erlangen in 1875; and to Leube's section in the *Handbuch*. To these sources I must refer my hearers for much of the detail; and I shall content myself now with describing the main features of the ailment and of its treatment, confining myself almost entirely to those facts of which I have personal experience.

I have had but two opportunities of seeing on the *post mortem* table specimens of dilated stomach, apart, that is, from causation by mechanical obstruction. In both cases, the stomach was enormously enlarged, and indeed, on section of the abdominal wall, was seen to occupy the whole of the anterior portion of the abdominal cavity. I have not

measured the cubic contents of such a stomach. The pylorus and duodenum in these two cases were also dilated. Neighbouring organs were thrust into the rear, and the bowels were nearly empty. The coats of the stomach when cut into were seen to be thickened, chiefly, it would seem, by development of the muscular coat. The mucous membrane was smooth and thin, but I have no notes of its structure. The enlargement of the cavity was uniform in both cases, the larger curvature reaching into the hypogastrium. Indeed, to my eye, these stomachs differed but little, if at all, from those in which dilatation had been caused by pyloric obstruction.

The more careful necropsies of other writers speak of a general thinning of all the coats of the organ (Penzoldt) in a minority of cases, which are to be contrasted with those other published cases in which the walls of the stomach have seemed, by great hypertrophy, to have resisted dilatation, in which, indeed, an enormous hypertrophy of the muscular coat has actually diminished the cavity of the organ. Commonly it is found that, although the stomach be greatly enlarged, yet the muscular coat is not atrophied, but decidedly hypertrophied; and, moreover, that the intimate structure of the muscular coat is not degraded. The parallels which may be drawn between such a state of the stomach and like states of the bladder and of the heart, will not escape notice; though in these latter cases the dilatation is mostly due to obstruction and growth, and not to simple distension by excess of ingestion, or like agency. The only other detail now to be noticed in these necropsies is the position of the colon, which, in well marked cases, occupies the lower hypogastrium, or may be overlaid by the stomach.

Such, in rough outline, is the dilated stomach. The chief cause of a dilated stomach is, no doubt, obstruction forwards—a thickening of the pylorus by cancer, cicatrix, or otherwise; and, as in the cases of the heart and bladder, the relation of hypertrophy to distension depends on the health of the individual, and on the gradual advance of the obstruction. In simple dilatation of the stomach, the cause is not found in pyloric obstruction, the pylorus being often itself dilated. The causes lie in the stomach itself. In those cases in which the muscular coat is atrophied, the sac gives way, perhaps from its own inability to resist ordinary strain. Such cases are certainly a small minority of those recorded in the *post mortem* room, but I believe the condition to be a common one in patients debilitated by prolonged disease, and especially by febrile disease. These patients often recover; or if they die, their death is due to more direct causes, and these are the causes which occupy the attention of the dissector. At the same time, dilatation of the stomach is certainly a serious drawback in the recovery of weakly persons from prolonged, and especially febrile, disease. I repeat "from febrile disease," because it is an especial property of febrile disease to deteriorate muscular fibre. Such a dilatation is at present, and for many months has been, the chief obstacle to the convalescence of a gentleman whom I often saw in rheumatic fever twelve months ago, with Dr. Wilson Fox and Dr. Deighton of Clapham. The state of his heart was the graver evil, but the simple dilatation of the stomach was more immediately troublesome. In peritonitis, dilatation of the stomach is often an annoyance and a difficulty, and in tubercular peritonitis with extensive adhesions, I have often found the stomach to occupy the whole of the middle of the abdomen. The adhesions themselves are probably the chief cause of this unfortunate complication, for it is stated by other writers (*vide* Leube, *loc. cit.*, etc.) that single bands and like chance adhesions are potent causes of simple dilatation. It is intelligible that this should be so, but I have no experience of the process except in these general adhesions. Leube hints that there may be direct nervous palsies of the stomach; this, again, is intelligible, but beyond my own knowledge.

Among the most patent causes of gastric dilatation are large and indigestible meals; as for instance in the stomachs of those races of men who live upon coarse vegetation, or even upon a kind of earth. In one of my earliest and best marked cases, a lady patient of Mr. Nowell of Halifax, the dilatation was caused by the long-continued use of large quantities of aerated waters and of effervescent salines. In another class of cases, the stomach gives way under ordinary weights of ingesta, perhaps on account of weakness in the walls of the organ, but more probably, as I think, because, by defect of peptic power in some way, ordinary weights of food fail to be rapidly melted down, and fermenting, set up meteorism, and thus the stomach becomes enlarged. Leube and Penzoldt say that dilatation is found as a consequence of chlorosis, and I presume partly in the above way. If the dilatation be due to simple yielding of the walls of the sac, I imagine that the muscular coat would be atrophied. In some cases, no doubt, this is the course of events; but, as I have said, the muscular coat is often hypertrophied, as we see in the bladder and the chambers of the heart.

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So far as my experience goes, the disease occurs in both sexes. If it be the consequence of debilitating disease or of tubercular peritonitis, it is found in young life; but as a primary event, it belongs to middle or advancing years.*

Among the changes which, in my experience, do not as a rule produce dilatation of the stomach, are, hysterical vomiting, ulcer of the stomach, and even catarrh of the stomach. I believe that the intolerance of ingesta in these states prevents dilatation, vomiting being readily induced, repeated at short intervals and for small quantities. Chronic catarrh of the stomach without much vomiting, but with defect of peptic power, may well end in dilatation.

The symptoms and signs of dilatation of the stomach are not easily made out in the early stages of the malady. The aspect of the face and abdomen, and the physical examination, do not give very strong grounds for inference. It will be an easier task to speak now of the well marked stages of the malady.

The patient at first sight appears wan, both in colour and flesh, and, if in mature life, the face takes a parchment hue, and gathers itself in more and deeper wrinkles. The emaciation of the frame falls upon fat and muscle alike, and the patient drags himself wearily, and bears upon his countenance the expression of chronic distress. He complains, however, rather of an ill-defined misery than of precise pain, and suffers rather from the wretched gnawing depression of abdominal disease than from the acuter forms of agony. It is often hard to distinguish the aspect of one thus afflicted from that of cancerous disease. Nor can it be said that cancerous disease is to be distinguished from simple dilatation by this—that the appetite in dilatation is often preserved, nay, is often bulimic; for in some cases of dilatation the appetite fails, though usually it does not, while, conversely, the appetite is not defective in all cases nor in all stages of pyloric cancer.

There is some help, however, in this consideration, that the appetite is mostly good, or even large, where the dilatation is of local causation, and is defective rather in cases where the dilatation is a marked local result of a general cause, such as a continued fever or anæmic debility. Defect of appetite may in many cases be simulated, the patient's desire for food being subordinate to his fear of the discomfort which food creates. He has an appetite, but he dare not satisfy it. Heartburn, sour eructations, and meteorism follow his meals, and peace is only obtained by a copious vomiting of the foetid accumulations which sicken and torment him. The quantity and character of the ejecta are generally characteristic of dilatation, whatever its cause. The vomiting is often deferred until the accumulation of its contents is more even than the amplified organ can tolerate. Forced by the energy of the hypertrophied muscular coat with exceptional violence from the gullet, a mixture of fermented matters, sour liquid and half-changed food may fill a wash-hand basin, and may, to eye and nose, nearly or quite resemble the offensive mess known to the housewife as swill. Sarcinæ are commonly present. Although this vomiting may be so deferred as to become almost periodical, yet failure to vomit may well be a bad sign.

Constipation is usually well marked. The urine is diminished, as in all cases of vomiting; and Quincke, as quoted by Leube, says that the rejection of so much acid by the gullet leaves the urine alkaline. Muscular debility is of course great, or even extreme. Kussmaul says that the patients are liable to severe cramps of the flexors of the limbs, trunk, face, neck, and even pupils. These were noted in Case II. Kussmaul attributes the cramps to the drying of the nerves and muscles. I never saw dilatation produce dyspnoea by mechanical pressure.

The aspect of the abdomen is often very characteristic. It is rarely tense, but the skin, withered and gathered into folds, sinks with the fossæ which surround the visible bag of the stomach. This tumid viscus may occupy the chief part of the abdomen, and be easily distinguished by the eye alone. Not uncommonly, its peristalsis may also be seen. If the outlines of such a stomach be indistinct, they may be brought out by the administration of an effervescent draught. The outlines and volume of the viscus are still more perceptible on palpation, and on lighter or firmer grasp peristalsis may often be excited. By percussion, the dimensions of the resonant sac may be more carefully defined, the colon being often depressed into the hypogastrium. The limits of dulness may vary with the position of the patient if the contents of the stomach be sufficient, and by such means the stomach may be distinguished from the colon. Most characteristic, however, are the splashing in the stomach, audible even to bystanders when the trunk of the patient is sharply moved, or when the stomach itself is purposely shaken by the hands of the observer. A dilated stomach no longer closes upon its contents, but its contents lie in a resonant air-chamber,

and splash in this on any commotion, as water will splash in a decanter. This splashing, so artificially produced, cannot be mistaken for the capricious rumblings common in the intestines of the gastralgie. Finally, the sound may be used, and the degree of dilatation made out in part, by marking off the length of the instrument passed beyond the barrier of the teeth, partly perhaps by manipulation of its point through the walls of the abdomen. This latter method, freely referred to by the German writers, does not seem to Dr. Jacob or myself to be always practicable or easy. If the point of the sound should be felt below the umbilicus there will be a strong presumption in favour of dilatation of the stomach, though the possible stretching of the viscus by a rude experiment is not to be forgotten. I have myself, however, seen the point of the sound but little above the pubes, in a case in which every care was used. The absence of any evidence of pyloric tumour to the touch of the physician cannot be taken as evidence of simple dilatation, and a precise diagnosis herein is sometimes impossible, though the history of the case is often of great assistance to us. Fortunately, the distinction, however important for prognosis, is not very important in respect of treatment.

Diagnosis being thus attained, we have to consider the treatment. The condition to be relieved is the accumulation of decomposing food in the dilated and more or less flaccid stomach. It is this accumulation of foul contents which pains and poisons the patient, and which prevents due absorption of nutriment. We have here a condition not unlike that of the bladder in retention—a small remnant of decomposing matter is left behind after each attempt at evacuation, and thus a constant process of fermentation is secured and the distension and catarrhal irritation of the viscus perpetuated. Catheterism in the one case as in the other is the essential remedy, and but little certainty of relief can be promised on any other plan. The use of disinfectants may of course give us some help, and the careful regulation of diet may aid us still more. By the use of hyposulphites, of alkalis, of carbolic acid, of iodine, and the like, the contents of the stomach may be kept sweeter, and the prescription of small quantities of easily digested food will prevent the gathering together of volumes of unabsorbed ingesta. Such measures, with the use of nitrate of silver and bismuth in cases of catarrh, will perhaps promote relief and even a tardy cure. Still, if the organ be day by day imperfectly emptied, the daily remnant will with difficulty be kept sweet, and progress will be difficult, slow or invisible. To secure more prompt and decisive results, the stomach must be cleansed daily by mechanical means. Thus absorption of purer aliment is favoured, while the presence of disinfectant medicines does not favour either solution or absorption. By daily washing out of the stomach only can we hope to do good at once, and this may be done in three ways: 1. By the free daily use of such saline purgatives as the Carlsbad salts, which sweep the digestive tube clean and favour the passage of its contents from above downwards. This I use in all cases except those in which I believe the pylorus to be much constricted; but I prefer not to administer such salines in effervescence, as this aggravates the distension; 2. By the use of the stomach-pump; or 3. By the use of the stomach-syphon.

Both Dr. Jacob and myself are agreed that the stomach-pump is unnecessary, and we always use a syphon of the kind which Dr. Jacob will hereafter describe. Herein we are in opposition to Leube and other writers, who contend that the stomach can only be emptied of liquids by the syphon, solid matters remaining.* But we believe by free irrigation of the stomach such semi-solid matters as the dietary may admit may be as well removed by the syphon as by the pump, and the syphon is an easier and a safer instrument to use. By its means, the stomach is washed out and freely irrigated with simple warm water or with water slightly acidulated with nitric acid, and the mucous membrane is thus kept clean and wholesome. For the first few days, the treatment may be unwelcome to the patient, but the unpleasant sensations of the tube and its passage are soon overcome, and the relief given is soon found to be so great that patients cry out for its repetition. If there be any defect in peptic power, it is well to add lactopeptine to the ingesta, but as a rule the syphon alone is sufficient. The class of cases under consideration are often of long standing; and recovery of the viscus must at best be a tedious affair.

Dr. Jacob will now read the records of the cases we have recently treated on this method.

CASE I. Simple Dilated Stomach.—R. G., aged 50, teacher of languages, was admitted to the Leeds Infirmary, under Dr. Allbutt, June 17th, 1878. He lived nine years in Mauritius, where he suffered for three years from dysentery, followed by "liver-complaint". He used to drink, while there, much brandy and soda-water, but never to excess. In 1850, he was in Belgium, and suffered there from ague, of which he had an attack in

* In the postscript will be found reasons to modify this statement.

* This statement I also modify in the postscript.

Leeds two years previously. He had had gonorrhœa and orchitis, but not syphilis. During the last few years, he had been involved in several Chancery suits, had lost much money in business, and had great worry and anxiety. About four years ago, soon after his business troubles commenced, he began to suffer from sleeplessness and loss of appetite; this improved slightly when he went into the country, but had remained severe since. Three years ago, he began to suffer from pain and vomiting soon after meals. This continued till a year ago, when the pain immediately after meals ceased, and he began to vomit at intervals large quantities of "bile and mucus", as much as six quarts at a time.

A month ago, he began to attend as an out-patient: he was then ordered Carlsbad salts every morning, and slightly improved, but vomited now about three times a week. He had lived almost entirely on eggs, stewed cowheels, cocoa, and a little bread. Milk made him sick. Some hours after meals, he was troubled with flatulence and pain, only relieved by vomiting. After vomiting, he felt very well and could eat heartily. A week before admission, while he was attending as an out-patient, his stomach was washed out. This gave him great relief, and he did not vomit for four days afterwards. He had lost, in the last five years, about six stones in weight, but had gained a little flesh the last month.

On admission, he was thin and sallow. The tongue was large and flabby, and slightly coated, but moist. The abdominal walls were flaccid, but slightly distended at the lower part. The stomach-resonance extended from the fifth intercostal space to the level of the umbilicus in the left nipple-line (six inches). There was a succussion-splash on palpation. No tumour or thickening was perceptible. Nothing abnormal was detected in the liver, heart, lungs, or spleen. He was ordered some bismuth and strychnia three times a day, and two drachms of Carlsbad salt every morning. His diet was ordered to consist of cocoa, chop, three eggs, and a little bread. His stomach was emptied by a syphon-tube, about four pints of yeasty fluid being removed.

June 24th (one week after admission). His stomach had been emptied every day up to the 23rd, when it was proposed to omit a day; but he vomited in the evening, and was in such pain in the night that he begged to have the tube used. This was done with perfect relief to the pain. The washing out was continued every night.

August 2nd. He felt well, and had gained seven pounds and a quarter. He continued to improve under the same treatment, but suffered occasionally from sleeplessness, for which draughts of chloral and potassium-bromide were prescribed.

On August 20th, he was made an out-patient. He was then fairly well-looking; he suffered from no pain, provided his stomach was kept regularly empty. He had learned to empty his own stomach with the tube, which he took away with him. Since that time, he has been occasionally seen as an out-patient, and lately (June 25th, 1879), the following note was taken. "He looks well in the face; weighs ten stone (one stone more than on leaving the hospital ten months ago). He feels pretty strong, but cannot bear much work. His usual occupation, that of teaching languages, worries his mind and 'affects his stomach'. (He has been breeding rabbits lately). He still adheres to the prescribed diet (chops, eggs, cocoa, and bread). Three months after leaving the hospital, he was so well as to require to use the tube but four times a week; but lately he has been writing a book on *The Treatment of Stomachs in the Leeds Infirmary*, which has kept him up at night; and he has been much worse. The last few days, he has emptied his stomach twice a day. He is most enthusiastic in his praise of the treatment, and wishes all dyspeptic sufferers to provide themselves with stomach-tubes and do likewise."

CASE II. *Simple Dilatation*.—W. N., a blacksmith, aged 64, was admitted under Dr. Allbutt on October 5th, 1878. He had been a large eater, and had drunk much beer and porter, but little spirits. He had had good health (except for a severe blow on the head in 1848) up to ten years ago, when he began to vomit his food. This occurred about once a day, at varying periods after food. The vomited matter was sometimes "coffee-coloured", sometimes "yellowish", always thin and large in quantity, with a "fermenting smell". The longer the vomiting was delayed, the larger was the amount expelled. He had at the same time severe epigastric pain, worse just before vomiting, and relieved by that act. Ten years ago, he weighed fifteen stone; he now weighed eight stone four pounds. He had not varied much in the last few years, and had managed to do some work.

On admission, he was poorly nourished and anæmic. The tongue was slightly coated; the bowels regular. His appetite was good; but there was pain after food, and much flatulence. He suffered frequently from cramp in the legs, especially in the winter. The stomach-resonance extended to midway between the sternum and umbilicus. There

was a succussion-splash on palpation. He had very little abdominal tenderness. He had never vomited any blood. He vomited, at 2 A.M. this morning, three pints of dark fluid with a sour smell, and had had no pain since. He was ordered a bismuth mixture and Carlsbad salt in the morning.

October 15th (ten days after admission). The stomach-resonance was slightly increased. There was no perceptible thickening or tumour. He had now very little pain after food.

October 25th. He vomited a large quantity last night.

October 26th. The stomach-tube was passed, and two pints of thick yeasty matter removed. About the same amount of warm water was injected and removed. This gave considerable relief.

October 31st. He vomited a small amount. The stomach was ordered to be washed out every night.

November 30th. He had gained eleven pounds in weight. There was very little to draw off when the tube was used. He felt well. He was made an out-patient; and he continued to attend about twice a week to have his stomach emptied, which he did for about two months. He was then apparently well.

CASE III. *Gastric Weakness: ? Dilatation*.—W. S., aged 31, draper, was admitted under Dr. Eddison on April 1st, 1878. His father died of "constipation of bowels". He had had no previous illness except pneumonia twenty years ago. He had lived on ordinary food in ordinary quantities, with two or three glasses of beer a day. About a year ago, he began to suffer from costiveness and flatulence. He used to vomit about once a day, which gave him relief. This was generally about an hour after meals. He also suffered much from pain in the epigastrium and between the shoulders. Occasionally he had been three or four weeks free from vomiting. A fortnight ago, he vomited at night something like coffee-grounds, and after this fainted. He had occasionally vomited a large quantity of frothy material. He had lost much flesh. Liquids agreed with him better than solids. He was very thin. His face was pale, of waxy tint. There was no clubbing of the nails. The abdomen was slightly distended and tympanitic, especially in the gastric region, with a well-marked succussion-splash. No tumour could be felt. There was nothing abnormal in the heart or lungs. The bowels were confined.

April 4th. The bowels had not been open four days. He vomited two pints of bilious matter mixed with food last night.

April 6th. He vomited three pints of turbid yeasty fluid. Two and a half pints of turbid fluid were drawn off by a syphon-tube; and the stomach was washed out with slightly acidulated water, which gave great relief.

April 12th. He had vomited once only since last note. The tube had been used daily, and now brought away only a few ounces. He continued to improve, and on June 2nd the tube was used every alternate day. He was discharged practically well on June 18th. The medicinal treatment consisted of strychnia, creasote, and dilute hydrochloric acid.

CASE IV. *Simple Dilatation*.—J. McC., aged 19, forgesman, was admitted on May 3rd, 1878, under Dr. Heaton. For the last six years, he had had occasional pain in the epigastrium. A year ago, he began to have severe abdominal pain, with vomiting about once a week. Two months ago, he went to sea for a month. He was sea-sick the whole time. On leaving the ship, he became worse; and in walking from Grimsby to Leeds, he had some sort of a fit, lost his senses, and was laid up two weeks with sickness and pain as before.

On admission, he was pale and anæmic, emaciated, and feeble. He complained of epigastric pain and swelling, worse after food. For the last week, he had vomited daily, generally in the evening, bilious matter, not food. He had had to take aperients for the last five or six weeks. His tongue was slightly coated; his appetite bad. He slept badly. The abdomen was retracted, not tender; the stomach-resonance was increased, measuring five inches vertically. There was a succussion-wave on palpation. Nothing abnormal was detected in the heart or lungs. He vomited nearly three pints of watery yeasty fluid tinged with bile last night.

May 18th. He had vomited daily once or more since admission, in spite of bismuth and hydrocyanic acid, and a blister to the epigastrium. To-day, the stomach-resonance extended from the fifth rib to a point one inch below the ribs in the left nipple-line, six inches and a half in extent.

May 23rd. He was ordered two drachms of Carlsbad salt every morning.

June 7th (one month after admission). He was still generally sick at night. He began to have pain about 11 P.M., which lasted till morning, disturbing his sleep. At noon to-day, a tube was passed, and a pint of brownish fluid evacuated. He felt relieved, and had very little pain at night, sleeping better than he had done for some time.

July 3rd. He had very little pain, slept well, and had gained flesh. Washing out was continued.

July 9th. The stomach-tube had not been used for the last three days, but he complained of severe pain last night, and it was again applied, with relief.

July 10th. He was made an out-patient, but ceased to attend after a week, and did not reappear at the hospital.

CASE V. *Dilated Stomach with Pyloric Obstruction (Malignant).*—D. M., aged 43, was admitted October 30th, 1878, under the care of Dr. Allbutt. He was a retired soldier. He had ague in India, and left the service in 1875. Since then, he had been a labourer. He used to drink. He had good health till five weeks ago. He then began to feel a fullness of stomach, with loss of appetite and "heart-burn". Two weeks ago, he began to vomit, occasionally bringing it on himself to obtain ease. He never vomited any blood. He had lost much flesh in the last five weeks. His bowels had been constive, but open with aperients. He had eaten regularly, but not his usual amount. At 2 A.M. this morning, he vomited about a pint of brown glairy matter.

On admission, he was thin, and pale in complexion. There was some epigastric distension, tympanitic on percussion, extending from the sternum to the umbilicus, with a succussion-splash obtainable on palpation. His tongue was clean, but flabby. He slept badly, but complained only of pain in the epigastrium after food.

November 2nd. He vomited a pint last night.

November 6th. His stomach was washed out this morning, about a pint and a half of glairy fluid being extracted. A similar amount was removed in the evening, with relief to the pain.

November 11th. He had been washed out daily since the 6th, but the introduction of the tube provoked vomiting.

November 18th. The passage of the tube produced some pain, and it was discontinued. He became gradually weaker, vomiting frequently, restless, and delirious.

December 5th. He was more sensible. The stomach contained a large amount of fluid.

December 9th. He was about the same, very weak. The stomach was very full. He vomited mouthfuls of blackish material. A tube was passed for the last time, and three pints of dark fluid drawn off.

He died on December 10th. The *post mortem* examination showed cancer of the pylorus.

In the cases above related, the amount of dilatation detected varied considerably. This seems of comparatively little moment, gastric dilatation being a normal state of many classes of people who live on large amounts of coarse food. The pathological condition begins only when, as in the case of the bladder or the heart, the viscus becomes unable to empty itself.

Cases I, II, and IV appear to have suffered from symptoms of simple dilatation. In the third case, the symptoms seemed to point to a possibility of malignant disease, though this was ultimately negated by the recovery of the patient.

In every case, fair trial was given to drugs and diet before commencing the use of the stomach-pump; though, in the course of the treatment, the Carlsbad salt especially was of great use. The case of malignant disease is detailed to show that, even in cases where severe organic disease exists, the mechanical emptying of the stomach may be of use. At all events, in this case, it did no harm. We have found in hospital practice no repugnance to the introduction of the tube after the relief given by its use has been once experienced, and have completely realised the picture given by Niemeyer of the impatient patient, tired of waiting for the doctor's arrival, begging his assistant to operate forthwith. The relief given by the stomach-pump is speedy and effectual.

The instrument used was a soft œsophageal tube of Parisian make, of black material similar to that of which French catheters are made. This was preferred to those of the ordinary gum-elastic material, or the flexible red India-rubber tubes now in general use. These tubes are more easy to pass than the rubber ones, and are soft enough not to injure the throat. To the tube are attached about three feet of rubber tubing and a glass funnel. The whole operation of emptying the stomach occupies only about three minutes, if the contents be sufficiently fluid. About a pint of warm water was then injected and removed. If there be much semisolid matter in the stomach, it is more difficult to remove, and may require a more powerful suction-pump. It is remarkable how soon the œsophagus learns to tolerate the tube; and after a short time the patient will pass it himself rather than have it done by another hand.

How far this treatment may ever come into general use, as a means of treating other forms of dyspepsia, it is not for us to say; but it appears to us to be in every way preferable to the nausea and discomfort of

an emetic when the evacuation of the stomach is the only object aimed at.—E. J.

POSTSCRIPT.—Since the above paper was read, two cases have come under my care which so far modify the opinions expressed above, that I have delayed publication in order to add some remarks upon them.

The first case is remarkable in respect of the age at which dilatation of the stomach has occurred. Miss A. D., aged 13, was brought to my chambers at the kind suggestion of Dr. Ingham of Haworth. The child had never enjoyed good health. For many months past, it had been noticed that the patient suffered from great distension of the abdomen, and from frequent and noisy rumblings. Vomiting also occurred very often. The appetite had changed, and the bowels as a rule were constipated, although sharp diarrhoea had appeared at intervals. The catamenia had appeared once or twice eighteen months before, but not since. The appetite is further described as not being always bad, but that the child would be fairly well for a day or two, that then the appetite would fail and the bowels get wrong, and, finally, abundant vomiting come on, when the child would be easier again for a time. The first event seemed to the parents to be a growing distension of the abdomen, which fell again when free vomiting had taken place. The vomit was described as profuse, and ejected with great violence as "in a spurt", so that half a washhand-basin is soon filled; food, mucus, and liquid came up, representing apparently the accumulation of days. The mass was often very frothy, offensive dark in colour; at other times there was rather water and catarrhal matter. Loud rumblings occurred at all times. On examination, the child was thin and had lost much flesh. The pulse was 70-80, and occasionally intermittent. The tongue was clean. The abdomen was tumid and had the elastic quality of a dilated stomach. It was painless to pressure, very resonant, and rumbled loudly when irritated by handling. The stomach was visibly hypertrophied even to the eye, and obviously so to the hand, for by grasping it its contractions were to be excited as readily as in the case of a distended uterus, and its twistings and sectional contractions were curiously evident. On succussion, large splashing were obtained with ease.

The second case is also in a young woman who now occupies one of my beds in the Leeds Infirmary. She is about twenty-five years of age and fresh-looking, not seeming at first sight to be emaciated. She presents the usual signs of dilatation of the stomach, and was sent in under my care by the kindness of my friend Mr. Fowler of Wakefield, who had recognised the nature of the case. I refer to her for this reason, that, on coming round the ward one morning, I found splashing in the stomach, although the organ had been syphoned but a short time before. This surprised me, and I requested Dr. Barrs to make a comparative experiment with the stomach-pump. He has reported to me that in this case he finds himself often unable to remove all signs of splashing by the use of the syphon alone, but that if he then completes the washing with the stomach-pump, he succeeds in dispelling all splashing on palpation. There is, however, the objection to the stomach-pump that solid matters when withdrawn are liable to stick in the valves. As we find that it is still open to question which instrument is in any case the best adapted for thoroughly emptying the stomach, we must work at this subject a little longer before expressing a final opinion. Both pump and syphon have their advantages, and in some cases the use of both may be necessary.—T. C. A.

Leeds, February 1880.

MEDICAL MAGISTRATE.—Mr. John James Nason, M.B., has been placed by the Lord Chancellor on the commission of the peace for the borough of Stratford-on-Avon.

OPEN SPACES.—The trustees of Lincoln's Inn Fields have refused the request of the Kyrle Society that these gardens should be thrown open at certain times like the Temple Gardens, the expense of supervision being borne by the Kyrle Society. They give the reasons that the gardens were purchased, inclosed, and planted under the authority of an Act of Parliament passed in the eighth year of the reign of George II (1734-5), at the instance of the then owners of the houses round Lincoln's Inn Fields, and that the whole cost of the purchase of the ground, and of the formation and maintenance of the gardens, has been borne by the successive owners and occupiers of these houses, the amount required for the purpose having been raised from time to time by means of rates levied upon them by the trustees under the powers of the Act. The right to the use of the gardens belongs, therefore, to the owners and occupiers of the houses round Lincoln's Inn Fields. The trustees are satisfied that the admission of the public would cause serious injury to the trees, shrubs, and flowers, and also occasion annoyance to many of the owners and occupiers of houses in Lincoln's Inn-Fields, who would resist this encroachment on their rights, as being beyond the powers of the trustees.