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## CASES

OF

GREAT ENLARGEMENT OF THE STOMACH,  
WITH REMARKS,

BY

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(From the *Edin. Med. and Surg. Journal*, No. 144.)

THE stomach has occasionally been found preternaturally distended, dilated, or, more correctly speaking, enlarged to such an extent, as to fill the whole of the abdomen from the epigastrium to the pubis. A large accumulation of fluid almost always accompanies this morbid condition of the viscus; and the name of dropsy of the stomach has been assigned to it by some authors. This enlargement of the organ is not unfrequently attended with disease of the internal and muscular coats, and sometimes of the py-



lorus. In other cases, these parts are found to be healthy, and the enlarged stomach is then considered to be in an unusually relaxed or atonic state. In both conditions of this viscus, some parts of the intestinal canal are much contracted, with or without thickening of the coats, and there is also occasionally a diseased state of some of the abdominal viscera.

This disease is so very rare, that but few instances have fallen under the observation of any practitioner.

The following are the cases that I have been able to collect from medical authors, and which I shall divide into three series.

1. Comprises cases with lesions of the coats of the stomach, with or without disease of the pylorus, or contractions of the intestinal canal.

2. Includes those in which the coats of the viscus are found to be healthy and the pylorus free from disease, but where there are sometimes contractions of the intestines.

3. Is a collection of cases, which are too imperfectly recorded to enable us to draw any conclusion from them, and are only given in illustration of the enlargement of the stomach.

#### FIRST SERIES.

CASE I.—Mauchart \* relates the following case of a man whose health had been deranged for eighteen years, who had scarcely quitted his bed during that time. His malady commenced insensibly. He had occasional vomiting; at other times diarrhoea; sometimes symptoms of disorder in the breast. The most celebrated physicians could not discover the cause of his disease, and afforded him no relief. He died almost suddenly, although for some days previous he had felt stronger and more vigorous than usual, and had eat a full meal only two hours before.

On dissection, the body was much emaciated, the abdomen much distended. The intestines, forced into the pelvis, were in a great measure concealed by the stomach, which was enormously enlarged by gas and fluid. It had descended a hand-breadth below the umbilicus. The epiploon was contracted, and adhered to the great curvature of the stomach. It had no fat, but showed numerous blood-vessels. The small intestines were filled with gas and fluid like the stomach, but the colon was small, and contained nothing. The spleen, larger than usual, adhered to the diaphragm by its posterior part. The rest of the viscera were in a normal state, although many physicians had declared there was a tumour in this region. The stomach contained twelve pounds of a bloody fluid of a fetid odour, black like ink. The colour was occasioned by a hemorrhagy from the nose, which happened two days before. The coats of the stomach were so thin that they

\* *Miscellan. Academ. Nat. Curios.* Dec. iii. et iv. 1696, p. 142.



were scarcely the thickness of a sheet of paper. They were thickened towards the pylorus, but the pyloric orifice was not contracted. The liver adhered very strongly to the stomach. These two organs sent out reciprocally long fibres, and their substances appeared to be confounded together.

CASE II. is related by Bonetus.\* A woman of large stature, aged 48, had a tumour in the abdomen gradually increasing, so that she believed herself pregnant; but the time of gestation having elapsed, she consulted a physician, who pronounced her dropsical. Medicines were tried in vain. The tumour enlarging gradually, at length increased to such a size, that she was scarcely able to carry her burthen, although she continued to discharge her usual duties. She at last fell into a continued fever, with difficulty of breathing, insatiable thirst, with great restlessness, and she died in seven days after.

*Sectio Cadaveris.*—Before proceeding with the examination, the body was tapped, and ninety pounds of serous fluid were drawn off. On opening the abdomen, the peritoneum adhered so firmly to the stomach that it was impossible to dissect them, or to separate them by force. It was found that the trocar had entered the stomach. This organ was of unusual magnitude; and its two orifices so near that they touched each other. The omentum was in the inferior part; the liver and the rest of the bowels were sound. The stomach measured more than a French ell. Its depending part contained the remainder of the serous fluid. Each orifice was sound; but in the opening of the pylorus was a cyst of the length of the middle finger, and a little larger than the thumb, filled with limpid fluid, and entering into the duodenum. Besides, the internal membrane of the stomach was covered with many hydatids, partly whole, and partly broken.

CASE III. is given by Hasenohrl.† A woman, aged 50, had been addicted to the use of spirituous liquors. She very often rejected her food; the bowels were constipated. For the last year vomiting became more frequent, till at length she rejected all her food six or seven times a day or oftener. She died wasted and exhausted.

*Necroscopic Appearances.*—The common integuments being removed, a membranous body of immense size was discovered, extending from the diaphragm to the border of the pubis, and covering the whole contents of the abdomen. Even none of the intestines were visible. This being removed, the whole of the large intestines were exposed to view, which were found so small and contracted, that they equalled only the diameter of the index-finger. Nothing besides was worthy of notice, except that they contained indurated fæces. This enormous membranous body was

\* Sepulchretum, Lib. iii. Sect. xx. Obs. 48.

† Sandifort's Thesaurus Dissertationum, Vol. i. p. 3.



found to be the stomach, which was distended to such a size as to contain easily twenty measures of fluid. The pylorus was thickened and contracted, being altogether surrounded by a cartilaginous ring. The liver was indurated, and the spleen smaller than usual.

CASE IV.—Bang\* gives a case of vomiting in a man of 52 years, which had followed a few days after the exhibition of a strong emetic. It was then of six months duration. All the ingesta could only be retained a few hours. He complained constantly of pain in the cardiac region on pressure; but no hardness could be detected there. The bowels were sluggish, the pulse very weak, and there was great emaciation. The patient lived fourteen days in this way after his admission into the hospital.

On opening the body, the stomach was found of an enormous size, extending below the umbilicus and to the right iliac region. It contained partly air, which was with difficulty pressed through the pylorus; and partly a great quantity of brown liquid, of a strong acid odour. The right extremity of the stomach contracted for about a hand-breadth near the pylorus. The substance hard through the whole circumference; the diameter the thickness of a finger-breadth; the opening was much straitened, yet pervious; many glands of great size, and a number of nuclei in the internal surface; the intestines greatly contracted; a gelatinous fluid was effused into the abdomen; the pericardium much extenuated; and the heart much diminished in size.

CASE V. is one recorded by Chaussier,† of a man 50 years of age, who had been for a long time in infirm health. Pain in the epigastric region, especially after eating; copious vomiting, returning at intervals of four or five days; constipation; urine scarce; legs œdematous; and abdomen much distended. This case was mistaken for dropsy, and tapping was performed. Air, and some pounds of a fluid slightly mucous, frothy, and of a blackish-colour, escaped. The patient seemed immediately relieved; but very soon he experienced anxiety and feebleness, and he died in the course of the night. On dissection no fluid was found in the abdomen. The stomach was prodigiously distended, and descended even to the pelvis. It was discovered that this viscus had been pierced by the trocar. It contained fluid resembling that which had been evacuated by the puncture. The pylorus was scirrhous, and cartilaginous in some parts.

CASE VI.—A man aged 31, a vine-dresser, was received into the Hospital of Beaune on the 6th October 1816, for a chronic affection of the stomach. He stated his disease was of three

\* *Selecta Diarii*. Tom. i. an. 1784, Sept. Sect. vi.

† Chaussier, *Memoire sur les Fonctions du Grand Epiploon*. *Mem. de l'Acad. de Dijon*, 1784.



years standing, and produced by a fall. There was difficult digestion ; a sensation of heat, which appeared to arise from the presence of acid water or gas, which he disengaged by frequent eructations ; a painful swelling, which, by pressing back the diaphragm, threatened suffocation, by diminishing the capacity of the thorax ; appetite variable, but on the whole sufficient to sustain the strength, if the substances introduced had been sufficiently digested and assimilated ; but the stomach was filled by degrees with aliment and drink ; and which, after being retained a longer or shorter time (from one to eight days,) and having accumulated just to the point of perfect repletion, were returned by a kind of regurgitation in considerable quantity at once. This state was accompanied by obstinate constipation ; scanty urine ; much emaciation ; and pulse from time to time irregularly febrile. On examination by the touch, before vomiting, a soft and flatulent developement of the inferior part of the abdomen was discovered ; and percussion used alternately on the two sides of this region produced the equivocal sound of an undulation. On the stomach being empty, the epigastrium was depressed ; and the touch did not reveal either well defined indurations, or parts much affected with sensibility. Moxa was applied to the epigastrium ; soaps, mercurials, diffusible stimuli internally were administered, and alternated with laxatives, which easily procured alvine evacuations, but without any sensible relief to the stomach. Purgative injections were used to relieve a spasmodic state of the stomach ; and narcotics for diminishing morbid sensibility, which at times became exquisite. Some improvement and relief were procured by these means ; but nutrition was only feebly maintained, and the patient at length died on the 3d of February 1817, reduced to the greatest state of marasmus, and having preserved his mental faculties to the last.

*Dissection.*—The body was opened on the same day. The abdomen presented sensible fluctuation through the greater part of its extent. This space was occupied, as was supposed, by the stomach, excessively dilated. This viscus, distended with fluid and gas, filled anteriorly the epigastric and umbilical regions, and its *cul-de-sac* reposed under the iliac fossa. The liver was nearly natural in colour and consistence, but its volume did not equal the double size of the fist. This extreme diminution appeared to be owing to the contraction or straitened state of its vessels, occasioned by habitual pressure from the developement of the stomach. The gall-bladder was relatively very considerably developed, and contained pale and transparent bile. The pyloric extremity of the stomach, and the commencement of the duodenum, gave the feeling of a hard tumour three inches long ; and when this was laid open, a canal two inches and a-half long, and of the diameter of a large writing quill, beginning at the sound part of the duodenum, and opening



into the stomach was exposed. Along its irregular passage, which was formed by degenerated mucous membrane, there was neither erosion nor ulceration. The stomach contained gas, fluids, and a portion of aliment, and was capable of holding ten *litres*, or more than twenty wine pints of water. The substance of the viscus was very soft, and easily torn. The muscular fibres were considerably separated from each other. Its mucous membrane was sound, but showed towards the great curvature and *cul-de-sac* some brownish bloody spots, which were only points where the dilated arterial capillaries allowed blood to escape. The spleen, almost glued to the great *cul-de-sac*, was only the size of a small egg. The pancreas was of the usual size, and sound. The intestinal canal was in general narrow. The lungs, compressed for a long time by the volume of the stomach, were, as it were, withered, but sound. The membrane of the pericardium strongly adherent.

The next two cases are related by M. Andral Junior.\*

CASE VII.—A woman, aged 65, poor and emaciated, began to show symptoms of an organic affection of the stomach towards the end of June 1821. She had difficult digestion; alternately voracious appetite, and complete anorexia; acid eructations; nausea; frequent vomitings many hours after eating; and pain in the epigastric region. These symptoms increased daily in intensity. The patient entered the Hospital of La Charité in May 1822. She was then reduced to the last degree of marasmus. The stomach could be traced quite across the abdomen, and occupied visibly the greater part of the belly. Its lower edge rested immediately on the pubis. Its diaphragmatic arch described a curve descending from the umbilicus, then remounted towards the right hypochondrium. The patient complained of habitual pain in the supposed seat of the pylorus, which was worse at intervals. She vomited in about forty-eight hours a great quantity of brownish fluid. After vomiting, the tumour formed by the stomach subsided, but did not disappear. The vomiting took place without effort, almost as a simple regurgitation. The patient frequently desired food, but, as soon as she had taken it, the mouth became insupportably bitter. She discharged by the mouth large quantities of gas. The tongue was natural; thirst moderate; motions scanty; pulse frequent and very feeble; skin dry and without heat. The origin of the disease could not be ascribed to any cause. She became rapidly weak, and after being fifteen days in the hospital, her features changed, the pulse ceased to beat, the extremities became cold, and she died in agony, having preserved to the last moment the full use of her intellectual faculties.

\* Observations sur des Dilatations excessives de l'Estomac, sans obstacle au pylore; par M. Andral Fils, D. M., Journal de Physiologie, Magendie, Tome ii. p. 239.



*Necroscopic Appearances 22 hours after death.*—The organs within the cranium and thorax were sound.

The stomach occupied almost the whole abdominal cavity. It descended first vertically from the epigastrium to the left iliac fossa. It then directed itself obliquely from left to right towards the right iliac fossa. In this interval its great curvature was concealed by the pubis. It then remounted suddenly towards the right hypochondrium. The intestinal canal was concealed by the stomach, with the exception of some portions of the small intestines, which occupied the right flank, and of the iliac portion of the colon. The stomach contained an enormous quantity of brownish fluid, similar to that vomited during life. The internal surface was throughout of a perfectly white colour; but the whole mucous surface was of great softness. Within the length of four finger-breadths on this side of the pylorus the membrane did not exist. Where its solution of continuity commenced, it formed an irregular whitish pulp. The bottom of the ulcer that resulted was formed by a laminous tissue, which was at least four or five times its natural thickness, and of a pearly white colour. Along the same extent there was no trace of muscular fibre. The pylorus easily admitted the extremity of the index finger. The intestinal canal was very contracted, but sound.

*CASE VIII.*—A woman, 23 years of age, had always enjoyed good health, but, from reverse of fortune, quitted the country for Paris, where her health soon sensibly altered. The appetite diminished, digestion became difficult, and toward the month of February 1821, after having suffered from a fright, which produced prolonged syncope, she began to vomit from time to time all her food, solid and liquid. She did not reject it till many hours after eating. She became emaciated, and gradually enfeebled. Leeches were applied to the epigastrium; various antispasmodics and magnesia were administered occasionally. About the month of December, the vomiting became more frequent, the strength rapidly declined. The catamenia were suppressed. The patient's occupations were interrupted, and she entered the Hospital of la Charité on the 14th February 1822. She then presented the following state. The last degree of emaciation; discoloured complexion; vomiting of solid and liquid food, more or less speedily after eating; moderate pain in the epigastrium, which is soft and yielding, and did not present, any more than the rest of the abdomen, any sensible tumour; pulse very feeble, and slightly frequent; skin dry, and without heat; respiration free. The disease did not show any new symptom before the beginning of March. On the 12th of that month, the pulse became more frequent, the tongue dry, and she died on the 14th.

*Inspection, 24 hours after death—Head.*—A little serosity in each of the lateral ventricles.



*Thorax.*—Some long and dense cellular bridges united the pulmonary and costal pleuræ. Heart nothing remarkable.

*Abdomen.*—The stomach, very much dilated, covered the greater part of the abdominal viscera, and only showed some circumvolutions of the small intestines in one and the other flank. Its lower edge touched the pubis. It was the great *cul de sac* which had suffered the great dilatation. The cavity of the stomach was filled with a yellow greenish fluid; its internal surface of a slight rose tinge, marbled or mottled in some parts. On the side of the spleen it was whiter. There was also a space as large as the palm of the hand of the mucous coat, very soft and elevated like a pulp; elsewhere its consistence was natural. The walls of the stomach were in general thin, and easily torn. The muscular coat was remarkable for its great tenuity. The small intestines were contracted, similar to the intestines of a dog; their internal surface pale. The cæcum did not offer any thing remarkable. The ascending colon occupied its usual place. The transverse colon had followed the great curvature of the stomach, and was placed behind it; its internal surface presented, for about four finger-breadths, a red violet colour, seated in the mucous membrane, and a little thickened. Some red spots or stains of the same nature were observed in the descending colon. The whole intestine throughout was strongly contracted. The iliac portion of the colon and the rectum, which showed no alteration, were filled with very hard matter. Many portions of the large intestines were manifestly inflamed. The liver, much enlarged, extended to the left side as far as the spleen; it fell back upon the diaphragm, even to the fifth rib. Its tissue was sound.

CASE IX.—Eliza Nairne, aged 19, was admitted into the Royal Infirmary in this city, on the 20th of July 1839, and placed under my charge. On admission, the report of her case is as follows:

This patient has for the last five years been subject to vomiting of large quantities of fluid resembling yeast; there is some emaciation; the countenance is not expressive of organic disease; the tongue is natural; the pulse small, in other respects natural; considerable thirst; the bowels are regular, and stools of natural appearance. No pain complained of, nor excited by pressure on abdomen; no hardness. The fits of vomiting have usually occurred at intervals of two days, and are always preceded by much distension of abdomen, in which fluid is usually felt, apparently in the stomach, which is believed to be of great size. The catamenia have never appeared.

A variety of treatment had been used in this case without any benefit. On admission, animal diet was ordered, with little liquid. Tonics of various kinds and opium were at first employed without apparently any good effects. These were changed for diure-



tics, under the use of which some amendment took place. The fits of vomiting became less frequent, and the quantity of fluid vomited, which at first averaged seven pounds, was reduced to four pounds. On the evening of the 17th August, alarming prostration of strength occurred, from which she rallied by the use of stimuli; but she sunk on the afternoon of the 19th; no particular change of the symptoms having taken place before death.

It is proper to observe, that on this patient's admission into the hospital, and till the time of her death, she was not much reduced in flesh, but her complexion was pale and leucophlegmatic. She was able to be out of bed, and to walk about the ward.

*Sectio cadaveris on the 21st of August.—Abdomen.* The stomach was greatly enlarged, filling the whole of the epigastrium, left hypochondrium, a part of the right hypochondrium, a part of the umbilical and iliac regions. It contained air and a large quantity of fluid. All its coats were somewhat thickened, and the mucous membrane mammillated. The first half of the duodenum was much contracted, without thickening or adhesion to the surrounding parts. It admitted barely the passage of a quill. Close upon the pyloric portion of the stomach was a rounded depression the size of a shilling, covered by a smooth membrane, evidently an old cicatrix. The contracted portion of the duodenum, when slit open and stretched out, measured eight-tenths of an inch in breadth. The mucous membrane lining it was smooth, but no distinct cicatrix was observed. The kidneys were healthy, as were the other abdominal viscera. The other cavities were not allowed to be opened.

The Second Series comprises those cases where the coats of the stomach and the pylorus are free, but occasionally with contractions of the intestinal canal.

CASE I. Is one related by Morgagni,\* of a man 50 years of age, much addicted to drinking. He was wont to complain of uneasy sensations in the *scrobiculus cordis*. He was admitted with tertian fever, and on this ceasing he began to vomit his food, and continued to do so during the remainder of his life. What he vomited was only the ingesta, which was destitute of taste or smell, except of Muscatel wine, which he took as a cordial. He became weakened, with much emaciation, and slow fever, and sunk rapidly. He never complained of any pain in the belly in the hospital, nor was there any tumour. All external and internal remedies were tried in vain to restrain vomiting.

The body was examined after death. It was much emaciated. Nothing remarkable in the head, except some effusion in the lateral ventricles. The spinal marrow was much softened. In the abdomen, the intestines, and especially the stomach, excepted, nothing unnatural was found. The intestines here and there had

\* Op. citat, Epist. 70, p. 451.



livid stains. The stomach was of surprising length, for, beginning at its usual place, it extended by the left side of the belly even to the pubis, then reflecting upwards and towards the right, it terminated at the duodenum. It was of moderate breadth, and contained nothing but a certain white substance like a pultaceous mass, the supposed remainder of the food.

CASE II.—Lieutaud \* records the case of a man, 65 years of age, who was received into the Hospital of la Charité in the month of March 1752. He had been a long time cachectic; his legs much swelled; and the abdomen much distended, without, however, any sign of effusion; the respiration free; the pulse feeble and febrile; the urine thick and muddy, small in quantity; and the belly very slow. He complained of weight at the stomach, accompanied with dull pains near its region, which has always been more elevated than the other parts of the abdomen. He had desire to vomit, but neither nature nor art could give him any aid. He took very little food, and was averse to medicine. Nothing that was used for ten months could stop or retard the progress of the disease, which terminated by a universal dropsy with effusion in all the cavities, which was manifest a month before death by oppression and fluctuation in the abdomen—the part that was always more affected. There supervened fifteen days before death an acute pain seated in the lateral left part of the belly, under the crest of the *os ilium*, the cause of which could not be discovered. During the latter time of the disease, the patient took almost no nourishment, although the organs of deglutition were free, saying, that he was full and nothing passed. It required very strong medicine to move the bowels, and the tartarized antimony had no effect in exciting vomiting.

The dissection presented very interesting appearances.

On making the ordinary incision of the integuments and muscles of the abdomen, there was discovered on the left side, which was the seat of the pain before-mentioned, a pouch much extended, and situate betwixt the *obliquus externus et internus*, and formed by the recession of these muscles. It contained more than two pounds of grumous blood, of a lively red, such as would be an hour after blood-letting. The abdomen contained about two or three pints of fluid. The state of the stomach and bowels principally fixed our attention. The former was extremely distended, and was filled in proportion, although the patient for some time had taken very little food. The intestinal canal was much contracted, so that all the bowels together did not surpass the size of an ordinary stomach. It was supposed that some obstruction existed in the pylorus; but on close examination, this opening was found perfectly free throughout, as in the natural state.

\* Memoires de l'Academ. des Sciences, 1752, p. 223.



CASE. III. is given by Mr Anderson,\* Surgeon, Leith, of a man about 40 years of age, by trade a weaver. He had for a considerable time complained of want of appetite, indigestion, flatulence, and pain in the bowels. In February 1766, he was attacked with obstinate costiveness, which was with difficulty removed. After this he continued in his usual state of health till about the middle of July. He had then a return of the costiveness, attended with violent vomiting. The costiveness was again removed by proper remedies, upon which the vomiting ceased. But afterwards, he had a periodical return of vomiting every evening between 8 and 9 o'clock; and he never had a stool without the assistance of an injection, which he got regularly every second night. In this way he continued to linger till he died.

On opening the body, the preternatural structure which was discovered was of a singular nature. When the abdominal integuments were laid aside, a large plain surface, extending from the sternum to the pubis, and from one side of the abdomen to the other, was exposed to view. This uncommon appearance surprised those who were present; nor was the surprise diminished, when, upon examination, it was found to be the stomach enlarged to such a size as to fill the whole abdomen. Its fundus descended so far as to fill the pelvis. Here the small intestines were entirely lodged. They were closely pressed together, and quite empty. The *caput coli* was in its natural situation, but, as well as the whole curvature of the colon, was covered by the stomach. The colon at the sigmoid flexure was very hard and much thickened, so as greatly to straiten the canal. For about three inches in length, it was not wider than a goose-quill. Every other part of the intestines appeared to be in their natural state; and no scirrhus could be discovered in any other viscus.

CASE IV.—Professor Valentini† of Rome relates a case of enlargement and dropsy of the stomach in a youth of 20 years of age, of a delicate constitution, who, in attempting to climb a tree, fell from a considerable height, and received severe contusions on the back and loins. In a few days he became unable to digest his food, which, both solid and liquid, was rejected by vomiting, so that in a short time he was confined to bed from exhaustion. After two months, he was attacked with intermittent fever, when he was visited by Dr Valentini, who remarked anxiety, want of sleep, a sense of weight, and some degree of pain in the epigastric region. After the fever had assumed a mild character, great distension of the stomach took place, beginning from the epigastrium, with constant vomiting of a serous blackish fluid. The patient died in the course of two months from the first appearance of the fever.

\* Edinb. Med. and Philos. Commentaries, Vol. ii.

† Institut. Med. Pract. de Retentionibus, Vol. vi.



On examination after death, the whole of the viscera were found in a natural state, except the stomach, which was enormously distended and relaxed, and contained about thirty pounds ( $22\frac{1}{2}$  of 16 ounces each,) of the same blackish fluid that was rejected by vomiting during life.

CASE. V—M. Duplay,\* in an ingenious paper on enlargement of the stomach, which is substantially stated in the Cyclopædia of Practical Medicine,† gives the following case of a man, 54 years of age, who was received into the hospital under the charge of M. Rayer.

He presented symptoms of hypertrophy of the heart; occasional vomiting; dull pain in the epigastric region; some appetite; tongue natural. The disease of the heart, which was far advanced, chiefly fixed the attention. The patient died a short time after his entrance into the hospital. Next day dissection showed the following alterations.

*Thorax.*—Much effusion of serum into the right cavity. The costal pleura towards the superior and inferior parts of the cavity covered with a false membrane. The lung of the same side reduced one-third of its volume, and strongly pushed upwards. The superior part presented a large quantity of miliary tubercles. The left cavity of the chest sound, except the inferior part of the lung, which also contained numerous miliary tubercles. The heart of an enormous size; the hypertrophy occupied chiefly the left ventricle; the wall seven lines in thickness, and the cavity of the ventricle considerably contracted.

*Abdomen.*—The stomach was found of an extraordinary dimension, and occupied the whole of the abdominal cavity and concealed the intestines. It represented a sort of crescent, one of the horns of which was placed in the inferior part of the left hypochondre; the other remounted into the right. The large and small tuberosity could not be distinguished in the great curvature, which descended to within the hypogastrium, and behind the *symphysis pubis*. The cardiac and pyloric orifices approached each other, and were on the same level. The small intestines were pressed back behind, and in the pelvis, by the enormous volume of the stomach. The great curvature of the viscus from the cardiac to the pyloric orifice measured thirty inches. The little curvature, which was five inches, presented a very morbid incurvation, and which allowed the two orifices to approach each other. From the middle part of the small curvature, to that of the great, the anterior part measured vertically was seven inches. The stomach contained a pint of greenish fluid. The cardiac and pyloric

\* De l'amplication morbide de l'estomac. Archives Generales de Medecine, 2d Series, Tom. iii. October and December 1833.

† Vide Supplement, Vol. iv. p. 665.



orifices were perfectly sound ; the latter preserved its dimensions, and natural formation. The mucous coat presented here and there some red livid spots, but without any trace of ramollissement.

The Third Series consists of the following collection of cases, but which lose much of their interest from their being so imperfectly stated.

CASE I. is given by Blancard.\* A female had fever, much thirst, restlessness, and pains in the whole body. She had also aversion to food ; was reduced to extreme emaciation ; and after a year or two, her belly was distended to an enormous degree.

On dissection, the parietes of the stomach were found greatly dilated, and an immense quantity of fluid was collected.

II.—Heister† relates a case of an enlargement of the stomach in a house dog of the middle size, which on dissection was found to extend from the thorax to the hypogastrium. It so filled the whole of the abdomen that the intestines only occupied four finger-breadths about the pelvis. It was tense and expanded like a drum, and filled with food, and when emptied of its contents could contain sixteen pounds of water.

III.—Hieronymus Laubius‡ mentions a case of surprising distension of the stomach in a robust sailor, 30 years of age, a habitual drunkard. It was four large hand-breadths in length, and two in breadth ; its interior was covered with a mucous substance, which, being scraped off, many blackish stains were apparent. It as well as the small intestines contained a portion of brown and very fetid fluid. The large intestines were distended with fæces and flatus. The rest of the viscera were sound ; but the gall-bladder contained no bile. It is to be observed that this subject had become rapidly decomposed.

IV.—Morgagni§ gives a case of a woman, 40 years of age, who was subject to hysterical affections ; paroxysms very severe. She began to show a depression in the epigastrium, with a swelling in the hypogastrium. This often changed in the course of a day, and became suddenly collapsed. At the interval of four or five hours, she had severe pains and gripings, and oppression of spirits. She often complained that all her bowels were fallen from their place. She had constantly vitiated secretions ; was feverish, and greatly emaciated. She lived thus three months. In the body was found what Valsalva had predicted on consultation. The stomach had extended into the hypogastrium, so

\* Anatom. Prael. Bonet. Sepulchret. Obs. 30.

† Observ. Academ. Leopold. Cent. 7, Obs. 71.

‡ Ibid Cent. 10, Obs. 85.

§ Epist. Anatom. Med. xxxix. Art. 14, de Morbis Ventris, Lib. iii.



that scarcely four finger-breadths intervened betwixt it and the pubis.

V.—Morgagni here quotes a case from the *Bibliotheca Anatomica*, of a young woman whose stomach was so much distended, that its whole fundus was in the hypogastrium.

VI.—In another from Valsalva, a woman was seized suddenly, after a copious repast, with pains in the epigastrium, and she died in a very short time. On opening the body, the stomach was found distended in a remarkable manner, and presented traces of inflammation.

VII.—“A young man,” says Lieutaud, “of very delicate health, experienced suddenly after eating, great difficulty of respiration, and considerable swelling of the belly. He died almost instantly. The stomach was found of a volume so considerable, that it not only occupied the whole belly, but likewise a great part of the chest. The lungs were partly destroyed by suppuration. The heart was small. The liver descended very low. The spleen was very small; and there was no trace of the epiploon.”

VIII.—In another case of a woman who was hypochondriac, and who had heat, dryness of the hands, difficulty of respiration, want of appetite, and constant eructations, the stomach after death was discovered to be very large, and filled with black blood.

IX.—Besides the above, Lieutaud\* has recorded some cases of enlargement of the stomach, chiefly quoted from other authors. In one, the case of a woman, who appeared to have died of intestinal strangulation, the stomach was found so distended, that it was at least six times its ordinary size. The intestines were extremely dilated.

X.—Professor Christison favoured me with the short account of this case, which he received with the preparation from Dunfermline. The patient had long complained of dyspeptic symptoms, and had vomiting of a brownish fluid. The stomach was found greatly enlarged. The following are the dimensions: Along the greater curvature from the cardiac to the pylorus, 3 feet 8 inches; along the smaller, 15 inches; round the cardiac end, 20 inches; at the middle, 18, and at the pylorus, 12 inches. It required 16 English pints of water to fill it.

#### OBSERVATIONS.

We have remarked, that, along with this enlargement of the stomach, there is sometimes a diseased state of its coats, and of the pyloric region, with contractions in some parts of the intestinal canal, and an effusion of fluid, occasionally to a great extent, into the cavity of the viscus, while at other times, but rarely, the organ is empty. We have observed also, that the enlarged sto-

\* Hist. Anatom. Morb. Obs. 21, 22, 23, and 25.



mach may be free from disease, and the pyloric orifice quite pervious, and in its natural state, and in such cases the viscus may be equally distended with fluid, or empty, as in the instances now recorded.

In the first series of cases, we have found, *1st*, altered structures or disorganization of the coats of the stomach, some of these of several years duration, and varying almost in every instance. In Case I. the coats of the stomach were not thicker than a sheet of paper. They were thickened towards the pylorus, but the pyloric orifice was free. In Case II. the pylorus, though sound, was obstructed by an oblong cyst, which passed into the duodenum. The external membrane of the stomach was covered with numerous hydatids; the two orifices approached very near each other, as in Case V. of second series. In Case III. the pylorus was thickened and contracted, being altogether surrounded by a cartilaginous ring. The large intestines much contracted. In Case IV. the right extremity of the stomach was contracted for about a handbreadth near the pylorus. The substance hard throughout the whole circumference, and of a finger-breadth in thickness. The pyloric opening much straitened, though pervious. Many glands of great size, and a number of nuclei in the external surface. The intestines greatly contracted. Case V. pylorus scirrhus and cartilaginous. Case VI. the pyloric extremity of the stomach, and the commencement of the duodenum hard, and the canal contracted for two inches and a-half to the diameter of a large quill. The substance of the stomach was soft and easily torn, and the muscular fibres much separated. In Case VII., the internal surface was a perfect white, and the whole mucous membrane of great softness, and within a certain space from the pylorus it was awanting. Here there was an irregular whitish pulpy raised substance. Ulceration had followed. There was no trace of muscular fibre at this part, and the intestinal canal was contracted. In Case VIII. some discoloration of internal surface; a part of the mucous coat, as large as the palm of the hand, very soft, and elevated like a pulp; the parietes of the stomach generally thin, and easily torn. The muscular coat remarkably attenuated, and the intestinal canal contracted. These two cases, therefore, resemble each other. In Case IX., which fell under my care, the coats were somewhat thickened, the mucous membrane mammillated, a cicatrix was discovered in one place, and the duodenum contracted.

*Second Series.* We find that in all the cases the stomach was sound, and there was no difference in any of the coats or the openings from a healthy state of these parts; for although in some of the cases the appearance may not be fully given, yet, inferring from the general reports of the condition of the organs, we must conclude



that no disease existed, except in Cases II., III., and V., in which the intestines were in some parts much contracted.

In the Third Series, we have too limited an account of the various cases from which to draw any inferences as to the actual state of the stomach, except its preternatural enlargement.

Some authors have attributed this enlargement of the stomach, with its great accumulation of fluid, simply to a gradual collection of ingesta of liquids and solids, which the viscus, from its diseased state, cannot transmit in the usual way; and hence it becomes distended or dilated in an extraordinary degree.

Others, as Frank, Valentini, &c. consider this morbid condition as a dropsical affection, and proceeding from the same causes as effusion into the serous cavities.

This anormal state of the stomach, which renders it unfit for the performance of its usual functions, has been divided into three conditions:

1. Scirrhus and obstruction of the pyloric opening, and thickening of the surrounding portion.
2. Diseased state of the membranes, particularly of the muscular coats, which are hypertrophied or attenuated.
3. Paralysis of the coats, when these are otherwise found to be in a sound state.

Chaussier, Duplay, and others have ascribed this disease of the stomach, and the great accumulation of fluid, chiefly to the first of these conditions, whereby the contents of the viscus are prevented from being carried forward into the intestinal canal. But on examining the cases which we have related, and these, we may observe, constitute by far the greatest part, if not the whole, that have been recorded, we shall find that only in Cases II., III., IV., V., and VI. of the first series, five cases in all, had the diseased or obstructed state of the pyloric region existed. In the greatest number of cases this opening presented no obstacle to the free transmission of the chymified aliment into the duodenum.

Again, this morbid condition of the stomach has been attributed by others to a diseased, overdistended, or attenuated, state of the coats, which prevents the organ from exercising its contractile power in propelling forward the contents with sufficient force to overcome the natural resistance of the pyloric orifice; for in order that the prepared alimentary matters may pass from the stomach into the duodenum, it is necessary that the muscular fibres, especially that portion near the pylorus, should enjoy their healthy state. But it is to be remarked, that such conditions of the coats have only been found in seven of the cases enumerated in the first series; and the three last of these are included in those with pyloric obstruction. Besides, if we reflect farther on the numerous cases, both of scirrhus of the pylorus and its adjoining re-



gion, and the chronic diseases to which the coats are subject, without any such enlargement or collection of fluids occurring, we shall come to the conclusion that we must look for other causes for this anormal condition of the organ in the instances before us.

We have also to observe that, independent of the limited number of cases with obstructed pylorus, or diseased state of the membranes of the stomach, there are others in the Second Series, where the pyloric orifice and the coats of the viscus were in a perfectly natural state; and some of these were of the largest dimensions, and the accumulation of fluid greatest. Here, then, is the absence of all lesions capable of explaining the dilatation of the stomach. The pylorus is free, and the coats of the viscus do not show any disease. In such cases, a cause has been sought for, in some supposed defect or paralysis in the nervous apparatus, analogous to that which takes place in paralysis of the bladder. But as in most of these cases to which we have alluded, vomiting had constantly taken place, the coats of the stomach could not have lost their contractile power, unless we believe that the action of the abdominal muscles is sufficient for the expulsion of the contents of the stomach, without any assistance from the muscular coat of the organ itself. But supposing that such were the case, we may not admit a similarity betwixt the bladder and stomach, in regard to the peculiar functions of each. It is true, they both resemble each other in being receptacles for matter received into their cavities, to be transmitted into other canals. They have a similar apparatus of membranes for this purpose, equally capable of contractility and expansion; and when any obstruction prevents the exit of their contents, each viscus will be dilated till nature or art relieves it from the accumulated fluid, or fatal consequences must soon follow. But, in other respects, there is a great difference betwixt the functions of these two organs; for while the bladder is, as it were, a proper recipient of the urinary secretion, the stomach has important functions to perform in the process of digestion, through which it must stand in a different relation in many respects in the animal economy. And without venturing an opinion on the idea entertained by some authors, as Itard,\* Andral, Frank, and others, that this affection should be classed among dropsical diseases, we may remark, that we do find in many of the cases such pre-existing lesions, resulting from sub-acute inflammation of the parts, similar to what we find accompanying effusion in other cavities and tissues, and which, in the cases now before us, we should expect to affect the balance of the circulation. We may here remark the case of hydatids, which is a legitimate cause of effusion in some dropsical affections; and al-

\* Dictionnaire des Sciences Medicales, Tome xxii. p. 424.



though we must admit that the liquids received into the stomach will add to the accumulation, yet we cannot deny that, under the above-mentioned circumstances, the secreting and absorbing powers of the stomach may be morbidly increased or much retarded, and that, from one or both causes, the quantity of fluid will be much augmented.

We have observed, that, in a great proportion of the cases recorded, contractions of some parts of the intestinal canal presented themselves more frequently than any other lesion of the stomach, —these may have acted so far as an aggravation, by preventing their due action and propelling powers, and also by exciting an antiperistaltic motion of the intestines.

Upon the whole, we are disposed to consider this enlargement of the stomach, with its great accumulation of fluid, as depending rather on a peculiar state of the system, implicating the functions of life, and particularly of the vital action of the viscus itself; and, considering the position of the organ in its relation with the animal economy, and in its peculiar vital properties, we may remark, that, in certain conditions of the system, original or acquired, or of the blood itself, as in some of the cases above-mentioned, where the fluid in the stomach was of a dark colour, and this, independent of any scirrhus or diseases of the coats, there may occur circumstances which will promote the accumulation of fluid within its cavity, and the preternatural enlargement of the viscus, in which the lesions above-mentioned may be considered as concurrent causes.

It is to be regretted that the state of the urinary secretion has been so much overlooked, as we find it only mentioned in three of the cases. In all of them it was deficient in quantity.

We do not here take into consideration the enlargement of the stomach, which is sometimes met with in gluttons and maniacs, from over-eating, and in certain cases, where a habit has been acquired of drinking large quantities of fluid; for in such instances the causes are sufficiently obvious to require any comment.

*Diagnosis.*—It is of importance to be able to distinguish well this affection of the stomach from other enlargements to which the abdominal cavity is liable; as it has been mistaken for ascites and encysted dropsy, and even confounded for a time with pregnancy itself.

In ordinary cases it will not be difficult to detect the nature of the disease, although it may happen, from the displacement of the stomach, and the new relations which are established among the abdominal viscera, and perhaps from disease of these also, that the practitioner may find himself embarrassed, especially when there has been no evidence of the march of the disease.

On examining the cases which we have related, we shall find that the following symptoms were generally present, although it is to be regretted that so little is known of the rise and progress of th  
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disease, until it was far advanced, or even suspected. Indeed in many of the cases, the real character of the affection was not discovered till after death.

The symptoms that seem to have accompanied the commencement of this enlargement, were those of indigestion, such as flatulence and eructations, occasional vomiting, irregular appetite, sometimes nausea, and pain or uneasiness in the epigastrium, constipation, or all the usual symptoms of scirrhus of the pylorus, chronic gastritis, or neurosis of the viscus, with general progressive emaciation. But when the great enlargement of the stomach, with the usual copious accumulation of fluid is established, we can readily ascertain it by the following signs.

*Tension or Swelling of the Belly.*—When the patient is examined in a horizontal position, the tumour is found extending from the left false ribs, to the right iliac fossa, of the shape of a marked oblong protuberance. When the patient is in the vertical state, the epigastrium is less prominent than the part of the abdomen lower. The swelling or tumour gives throughout a sensation of fluctuation. The size of the tumour or distension of the belly will depend on the extent of the enlargement of the stomach, and its consequent descent, which may be so low as to reach to the pubis. The nature of the protuberance is soft and yielding, and seldom or never presents any hardness, except when complicated with other diseased viscera, which is seldom the case.

*Vomiting.*—This is a constant symptom. It consists of fluids alone or mixed with aliment. It may return at periods varying in time from several times a-day, to every two, three, or four days, or even as long as once a-week. It is often preceded by a sense of fulness, and is followed by marked relief, and with sudden diminution of the volume of the belly. Sometimes the vomiting is a kind of regurgitation, and the quantity discharged thus at once is very great. The stomach, however, is never completely emptied of its contents. The vomitings sometimes become less frequent towards the conclusion of the disease, but in general they are more frequent. The colour of the fluid rejected in the majority of cases was dark, and this happened where there was no disease of the coats of the stomach or the pyloric region.

*Great Emaciation.*—This almost constantly happened as the disease advanced. It facilitates much the diagnosis, as the enlarged stomach can more easily be traced through the parietes of the abdomen along its course.

In this advanced state of the disease, there were also a sense of weight and oppression in the epigastrium, and occasionally pain in that region.

In the cases where the tongue was examined, it was very little changed, generally pale; the pulse was feeble and irregularly febrile; and the appetite variable.



M. Duplay has given directions for the external exploration of the abdomen in this disease, which have been quoted in the article in the *Cyclopædia of Practical Medicine* already referred to. These include the different modes of examination by the touch, pressure, percussion, and the ballottement. The most certain sign in the latter, which is performed by the aid of a hand placed on each side of the abdomen; and gives a particular sound similar to that from a bladder half filled with air and water.

By the signs we have indicated, we can readily distinguish the enlargement of the stomach from other tumours or swellings in the abdomen. We may not confound it with ascites, as the swelling of the abdomen does not proceed in the same manner. In the enlargement of the stomach, it advances from the superior to the inferior part of the belly. The fundus of this viscus, which contains the liquid, descends from above downwards; but in ascites, the fluid accumulates first at the hypogastrium, toward the lower part of the flanks; and it is here the irregularity is met with. The intromission in the volume of the abdomen, which coincides with the repletion and depletion of the stomach, will also assist in establishing the differential signs of these two affections.

Besides the characters that are proper to encysted dropsies, they can easily be distinguished, also, by the above signs, which we may consider pathognomonic of the affection of the stomach.

Pregnancy cannot be confounded with it, except through great ignorance, or carelessness. The form of the abdomen and the progress of its increase. Auscultation, which makes known the pulsation of the foetus, or the bruit of the placenta; the internal touch, which discovers the state of the uterus, and the other sympathetic signs of pregnancy, are all opposed to an error of this kind.

*Treatment.*—From the obscurity of the affection at the beginning, the very gradual manner of its progress, or the lateness of the period at which the patient has applied for assistance, the opportunity is commonly lost for arresting the disease. No permanent aid can indeed be expected from medicine, when it has been so long established; for what can we do where the enlargement of the stomach has taken place to a great extent, especially when there are indications of disease of the coats of the viscus; and where the powers of the constitution have become so much exhausted?

If we find the patient's strength not greatly impaired, and if there be pain in the epigastrium on pressure, a febrile state of pulse, and furred tongue, the antiphlogistic regimen should be strictly enforced; topical bleeding, according to the degree of local pain, or the strength of the patient; a succession of blisters, or the application of moxa to the epigastric region; and the use of mild laxatives, alternated with injections to open the bowels freely.



Where there are no symptoms of local inflammation in the region of the stomach, tonics should be given, such as light bitters, subnitrate of bismuth, &c. and gentle aperients and injections; animal diet, restricted in quantity, and a rigid abstinence from liquids; anodynes to procure rest, and to relieve distressing and uneasy sensations. Bandages have been recommended to give support and tone to the abdomen. Diuretics are worthy of notice, where there is great accumulation of fluid, since, by promoting the action of the kidneys, the stomach may be much relieved, as in dropsical affections.

But in such unpromising cases we cannot look for any lasting amendment. The patient, after a long state of suffering, sinks at last under the protracted disease, and want of nutrition; and it is remarkable to observe how rapidly and suddenly death sometimes closes the distressing scene, without any previous marked change in the symptoms.



If there are no symptoms of local inflammation in the region of the stomach, tonic should be given, such as light beer, carbonate of lithium, &c. and gentle aperients and injunctive a natural diet, restricted in quantity, and a light exercise. If there is any evidence of gastric trouble, and to relieve this, and uneasy sensations. Medicines have been recommended to give support and tone to the abdominal muscles, and worthy of notice, where there is great accumulation of fluid, such as glystering the action of the kidneys, the stomach may be kept relieved, as in chronic affections. As a tonic, we cannot look for any lasting benefit in such unimpaired cases, but a high state of nutrition, which is not under the influence of disease, and want of nutrition, and it is remarkable as to how rapidly and suddenly healthsome-ness returns, without any previous marked change in the system.

The stomach is a muscular organ, and its action is regulated by the nervous system. It is situated in the upper part of the abdominal cavity, and its function is to receive and digest food. The stomach is divided into two main parts, the fundus and the pylorus. The fundus is the upper part, and the pylorus is the lower part, which leads into the duodenum.

The stomach is supplied with blood by the celiac artery, which branches into the gastric artery and the hepatic artery. The gastric artery supplies the stomach with blood, and the hepatic artery supplies the liver. The stomach is also supplied with blood by the splanchnic nerves, which are part of the sympathetic nervous system.

The stomach is covered by a peritoneum, which is a thin layer of tissue that lines the abdominal cavity. The peritoneum is divided into two layers, the parietal peritoneum and the visceral peritoneum. The parietal peritoneum lines the abdominal cavity, and the visceral peritoneum covers the organs.

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