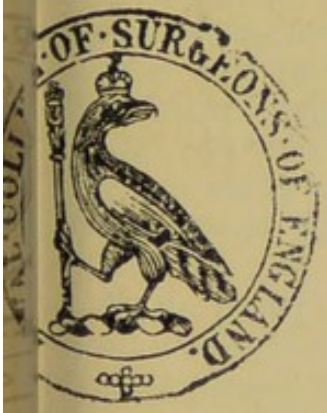
On perforating ulcer of the stomach, from non-malignant disease. Pt. I / by Edwards Crisp.

ON PERFORATING ULCER

OF THE

STOMACH,

FROM NON-MALIGNANT DISEASE.



PART I.

BY

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PREFACE.

Dr. Paris, the learned President of the London College of Physicians, in his work on Diet, says, (p. 21,) "That four arteries, three of which are considerable, are *exclusively* devoted to the service of the stomach; that the rectum begins where the colon ends, and going straight down, (whence its name,) *it is tied to the extremities of the coccyx by the peritoneum* behind, and to the neck of the bladder in men; but in women, to the vagina uteri before, whence arises the sympathy between these parts, (p. 27.) That the *vena portarum* is formed by the concurrence of all the veins of the abdominal viscera," (p 39.) These descriptions, however, as the medical student who has dissected the human body knows, will not meet with the concurrence of anatomists, English or foreign.

But what has this to do with perforation of the stomach? the reader will naturally ask; and my reply is, that many accounts of the pathology of this lesion would square well with the anatomy of Dr. Paris.

In the preface to my last essay, published in 1843, I stated my belief that many young females died from perforation of the stomach, who were supposed to have fallen victims to idiopathic peritonitis, a disease of *very* rare occurrence. This belief has been fully verified by subsequent enquiry, and the reader who infers that the ninety cases of perforation of the stomach which are analysed in this volume, form one-fiftieth of the mortality that has occurred in England from this cause during the present century, will, I believe, entertain an erroneous opinion. The vast majority of the patients have not been examined after death; and a large number of cases, where autopsies have been performed, remain unpublished.

One word respecting the errors of hospital statistics on this disease. Patients laboring under perforation of the stomach are seldom admitted into the London Hospitals for two reasons; first, the symptoms are generally too acute to allow of the removal of the patient; and secondly, owing to the cruel and arbitrary arrangement at most of our hospitals, that persons affected with internal complaints can only be admitted on one day of the week, (a restriction never contemplated by the founders of these institutions.)

It is curious and instructive to glance at some of the opinions on perforating ulcers of the stomach; and the statements of many continental pathologists shew the importance in *this*, as in *all* statistical investigations, of taking into account the climate, diet, habits, medical treatment, and hereditary predisposition of the people, before drawing positive inferences.

Cullen, in his "*First Lines on the Practice of Physic*, 1786," does not allude to perforation of the stomach. Dr. Mason Good, *(Study of Medicine,)* mentions one case in a young lady, recorded by Cruikshank. In the eighth volume of the *Med. Chi. Trans. p.* 245, 1817, Mr. Travers has described the symptoms occasioned by rupture of the stomach. After speaking of the sudden, intense pain, and abdominal

spasm, he says, "A natural pulse for some hours, until the symptoms are merged into those of acute peritonitis, and its fatal termination in the adhesive stage." Craigie, (*Practice of Physic*, 1837,) speaks of "five foreign authors, and six English, who have recorded instances of this lesion." The Essays of Drs. Taylor and Williamson, 1839 and 1841, I have before alluded to. Mr. Prichard, of Leamington, 1838, published a pamphlet on this subject; and he was the first to state that the ulcer in males generally occurred at the pyloric end of the stomach. I find no statistical information in the article in the *Cyclopædia of Practical Medicine*, 1837. The same remark will apply to Tweedie's *Library of Medicine*, 1840, p. 71. Dr. E. J. Seymour, (*Med. Chi. Soc.*, *Lancet*, 1844,) whose general knowledge of statistics is indisputable, stated, "that from an examination of the cases on record, that they were nearly equally divided between the sexes." The late president of the Pathological Society, Dr. C. B. Williams, 1849, thought that in most cases, there was adhesion of the stomach to some neighbouring viscus. Dr. Watson, *(Practice of Physic)* remarks, "almost all the patients (under my care) have been young women, plump, and in good condition, who, up to the moment of their fatal seizure, rather seemed to enjoy perfect health, or at most had complained of slight and vague feelings of dyspepsia;" he adds, "that these ulcers are commonly situate nearer the *pyloric* orifice than the cardiac." Dr. Alderson, (Diseases of the Stomach, 1847,) "believes the subjects of this disease are chiefly young women, otherwise apparently in good health, and generally *fat*." Dr. Budd in his Croonian Lectures at the London College of Physicians, 1847, quoting from Rokitansky's 79 cases, says "that 46 of these occurred in women, and 33 in men;" the doctor adds "that the most common accident in these ulcers is profuse hemorrhage." *In the gastric ulceration, which leads to perforation of the stomach, especially in females, I find, however, that bleeding is of rare occurrence.* Rokitansky, *(Pathological Anatomy Sydenham Society*, 1849,*)* speaks of these ulcers as producing *extreme* pain; he says "they occur at the *pyloric* end of the stomach, chiefly at the period of puberty, very often, particularly in the female sex, as early as the 15th year, and that the size of the ulcer varies from a sixpence to a *cheese-plate*." *Jaksch (Hannoversche Annalen, and Provincial Journal*, 1847*)* states "that of the patients noticed by him, laboring under perforating ulcer of the stomach, 36 had acute tubercle of the lungs, 26 chronic tubercle of the lungs, and 43 pneumonia."

The reader will at once perceive the difference between German and English statistics, and will probably think with me that they should be kept separate.

It must be understood that I have not attempted, in this short essay, to give a complete history of simple ulceration of the stomach, but my object has been to endeavour, briefly to place some of the leading points before the reader in a practical and tangible form.

21, *Parliament Street*,
September, 1852.

On Perforations of the Stomach, from Malignant and Non-Malignant Ulceration, with their Causes, Pathology, and Treatment: By Edwards Crisp, M.D., *Physician to the Metropolitan Dispensary.*

In December, 1837, I exhibited a perforated stomach at the Medical Society of London, and after relating the case, I made the following remarks, which I extract from the report in the *Lancet* (1837, p. 423).

"This case Mr. Crisp considered of importance in a medico-legal point of view. Four cases of a similar kind had happened in his neighbourhood within a few years. All these cases occurred in young girls, in whom there was a disordered state of the uterine function. The ages of two of these patients were fifteen, one was sixteen, and another twenty years of age; in all of them the stomach was perforated near the cardiac orifice. Death took place, in sixteen, seventeen, twenty-seven, and thirty-six hours. Sixteen other cases of this kind he had found on record, fourteen of them occurring in females, one only of whom was married; and in most of them irregularity of the uterine function existed. He (Mr. Crisp) was inclined to the opinion that in these cases there was much connection between the disease and the uterus. In chlorosis a peculiar state of the gastric juice existed, which gave rise to the appetite for strange and unnatural kinds of food. Might not this kind of ulceration be the result of this acrid state of the gastric juice? In two of the cases which had occurred in his neighbourhood, it was supposed by some that oxalic acid had been swallowed, as a small quantity of this poison was detected in the stomach, by analysis after death. The jury, nevertheless, returned a verdict of "Died by the visitation of God." He (Mr. C.) was not surprised that oxalic acid was often found in the stomach, when its contents were analysed, considering the quantity of oxalate of lime which some vegetables contained."

In August, 1843, after more extensive investigation of this subject, the following paper appeared in the *Lancet* (also in the form of a pamphlet). I now republish this communication; and then, as in my Essays on Intestinal Obstructions, and on the Morbid Conditions of the Bile, I will give the result of my subsequent experience and statistical inference.

ON PERFORATION OF THE STOMACH. (1843).

Several treatises upon this disease have been written by continental physicians during the last fifteen years. The subject, however, has been but little attended to in this country; for, although a large amount of information exists in the medical journals in the form of cases and short essays, but few communications of a comprehensive character are to be met with. Among the few, I may mention particularly, the papers of Messrs. Taylor and Williamson, the former in the "Guy's Hospital Reports" (1839), and the latter in the "Dublin Journal" (1841.) The various authors that I have consulted differ much respecting the nature, cause, &c., of these lesions, and the discrepancies appear to me to arise from the very common error, amongst medical writers, of drawing conclusions from a few facts. I shall endeavor to avoid this by selecting a large number of cases from which I can deduce my inferences.

Perforations of the stomach arise from three causes, viz., external violence, poison, and from simple or malignant ulceration. The perforation from the action of the gastric juice I believe is invariably a post-mortem occurrence, and therefore is not included. Spontaneous

perforations of the stomach have been divided into two classes, viz., those arising from malignant disease, and those produced by simple ulceration. It is my intention in the present paper to notice only the latter, which are of much more frequent occurrence, and in a medico-legal point of view, of greater interest. The best pathological description I have met with of this disease, is in Baillie's "Morbid Anatomy" (1795. American edition.)

"Opportunities occasionally offer themselves of observing ulcers of the stomach. These sometimes resemble common ulcers in any other part of the body, but frequently they have a peculiar appearance; many of them are surrounded with hardly any inflammation, nor have they irregular eroded edges, as ulcers generally have, nor is there any particular diseased alteration in the structure of the stomach in the neighbourhood. They appear very much as if some little time before a part had been cut out from the stomach with a knife, and the edges had healed, so as to present an uniform smooth boundary round the excavation which had been made. These ulcers sometimes destroy only a portion of the coats of the stomach at some one part, and at other times destroy them entirely. When a portion of the coats is destroyed entirely, there is sometimes a thin appearance of the stomach surrounding the hole, which has a smooth surface, and depends on the progress of the ulceration. At other times the stomach is a little thickened surrounding the hole; and at other times it seems to have the common natural structure."

The symptoms produced by these ulcers are often so slight that their presence in the young has seldom been detected, and not until the frightful train of symptoms which follow the perforation, does the medical attendant suspect their existence. For a few years, and sometimes only for a few weeks, previous to the fatal termination, the patient suffers from dyspeptic symptoms, occasionally of a severe character; such as violent pain in the region of the stomach, vomiting after eating, flatulency, acid eructations, emaciation, &c., but more frequently the symptoms are only those attendant upon ordinary cases of stomach derangement, and in some few instances the individual has appeared in perfect health. The symptoms produced by perforation of the stomach* are so peculiar that I can scarcely imagine it possible for a man who has seen one case to fail in his diagnosis.

The lesion occurs generally a short time after a meal, and the patient is often in a tolerable state of health up to the time of the perforation. The symptoms are as follows:—

1st. *Violent* and *sudden* pain in the region of the stomach, extending soon over the whole abdomen, attended, in most cases, by vomiting.

2nd. The abdominal muscles at first spasmodically contracted and drawn into knots.

3rd. The countenance extremely anxious, the patient often expressing a conviction that death is inevitable.

4th. The pulse at first quick and sharp, afterwards small and thready; indeed, the latter symptoms are those generally attendant upon the last stage of peritoneal inflammation.

5th. The intellect is generally unaffected. Some patients have complained after the administration of medicine, that it has "passed over the belly."

The symptoms, of course, vary somewhat in different instances, but

* The symptoms attending perforation of the intestine are less severe in the first instance, and death does not generally take place so early as in stomach perforations. Perforations of the intestine usually occur after fevers.

the chief characteristics are the *sudden pain, extreme anxiety of countenance,* and the *abdominal spasm.* The following cases have occurred in this neighbourhood (Walworth) during the last few years. The patients were all chlorotic females under twenty-three years of age.

Case 1. Dec. 26, 1837. Half-past two, p.m., I was called to A. W., ætat. 20, who about eleven o'clock, was seized with sudden pain in the region of the stomach extending over the abdomen. She was that morning as well as usual, and ate a hearty breakfast of bread and butter (three or four slices,) a round of toast, two cups of coffee, and one of tea. Her mother gave her two drops of essence of peppermint, and afterwards went to a chemist's for a draught to relieve spasm; this she took and vomited immediately; the matter ejected appeared to consist of bread and butter and coffee; her mother than gave her a tablespoonful of brandy, which was also ejected.

I learnt the following particulars from Mrs. W.:—When six years of age she had extensive inflammation of the leg and thigh; this was followed by great debility, which lasted for twelve months. Since that period she has never been confined to her bed, but her health has been in a delicate state. For some months she has complained of pain after eating, followed by vomiting; she also had pain when leaning towards the left side; she had a pallid, chlorotic appearance, but was plump and muscular. For many years, has been in the habit of eating large quantities of black and green tea. About eighteen months since she lived as servant to a gentleman who was in the habit of taking calomel, which he kept in the house; believing that she was bilious she took some of this medicine, unknown to her master, and ptyalism was produced. She has for some years been subject to palpitation of the heart, which was produced by any sudden excitement. Had menstruated regularly; the discharge light colored, and very small in quantity. When I first saw her she presented the appearance of a person who had taken poison. The countenance extremely pallid and ghastly; skin warm and dry; the pupils rather contracted; she had had vomiting, but I could not see the ejected matter; the pulse about 100, small, and rather feeble; she complained of pain over the whole abdomen, which was rather increased by pressure; the bowels were relieved this morning early; the abdomen not distended. I ordered leeches and hot fomentations to the abdomen, gave a scruple of ipecacuanha, and part of a sulphate of magnesia mixture every four hours. Eight, p.m. Much the same as when I last saw her. The powder produced vomiting, but her mother says only watery fluid was ejected. The pain slightly relieved; bled her to eight ounces (syncope produced). A grain and a half of opium to be taken directly, and repeated every four hours. 27. Nine, a.m. No sleep; pain not relieved; the countenance more ghastly than yesterday; pulse very feeble; skin cold; says she thinks she should be better if the bowels were acted upon; has passed no water since twelve o'clock last night; bladder not distended; the abdomen hard, and rather tympanitic; the blood taken neither cupped nor buffed. An aperient mixture, with sulphate of magnesia, to be taken every four hours, and a purgative enema to be administered directly. Died at half-past ten, a.m. During the night complained of excessive thirst, and drank a quart of toast and water.

Examination twenty-eight hours after death.—Messrs. Waterworth and Beane present. External appearance of the body plump, firm, and muscular. The skin very white, especially on the face; the abdomen considerably distended; the parietes covered with about half an inch of fat: on cutting into the peritoneal sac a large quantity of fetid gas escaped. *Abdomen.*—The peritoneum was covered with a layer of soft yellow lymph; its cavity contained about three pints of whey-like fluid, with flakes of lymph. There was much lymph on the liver and intestines, but the convolutions of the latter were not adherent. The peritoneal coat of the stomach and intestines not reddened or congested. On pressing the stomach gently, fluid was seen to issue from a small round aperture with smooth edges, which would admit the passage of a common-sized pea: this opening was situated at the posterior part of the lesser curvature of the stomach, about an inch from the concavity, and midway between the cardia and pylorus; directly opposite this apperture, on the anterior part of the stomach, was another opening about the size of a shilling, with smooth defined edges; the stomach was carefully removed (its contents being preserved), and the interior presented the following appearances:—Mucous lining much corrugated, having a soft, pulpy appearance, but not easily detached; no redness or ecchymosis on any part. The edges of the small opening were thin to the extent of one-sixth of an inch, but the edges of the anterior aperture were perfectly smooth, and had the appearance of having been cut out with a sharp instrument. The fluid on the mucous membrane had not an acid taste. At the greater curvature, about the middle, was a small ulcer with the edges slightly raised; the mucous membrane in other parts appeared thinner than natural. The lining membrane of the œsophagus was of a purplish colour, but there was no abrasion. The inner lining of the intestines covered with a whitish mucus; the contents fluid and resembling that in the cavity of the abdomen, though somewhat darker; no inflammation or congestion in any part. The large intestines healthy; the excrementitious matter of a natural consistence and appearance. The liver very white, but its structure normal. The spleen soft and pulpy. Nothing remarkable was observed about the uterus and its appendages, except that the Graafian vesicles were more numerous and larger than usual. The bladder was empty. *Thorax.*—The pericardium contained about an ounce of serum; both ventricles of the heart hypertrophied; no blood in their cavities. The auricles contained dark blood adherent to the sides. The valves and every other part normal. The structure of the lungs healthy. Brain not examined.

Case 2. August 19, 1842. I was requested to see Miss R., King's-row, Walworth, aged fourteen years and seven months. She is a tall, delicate-looking girl. During the last four or five months she has frequently complained of pain in the abdomen, and the bowels have been rather costive (the menses appeared first seven months ago, but no discharge has taken place since). She is now labouring under violent pain in the abdomen; the bowels have not been relieved for four or five days; the lower part of the abdomen is very tense and prominent; pulse small, quick, and rather wiry. Bled her from the arm to eight or ten ounces; effervescing aperient medicine every four

or five hours, with calomel and colocynth; hot fomentations to the abdomen, with gruel enemata. After this treatment had been pursued for about thirty hours the bowels were copiously relieved, and the symptoms immediately improved, and after a few days she was considered convalescent. The abdomen, however, remained much harder than natural, and a tumour could be felt at the lower part. I did not see her alive after this, as her parents removed to Lambeth.

December 16, (four months from the last date), Mrs. R. sent to inform me that her daughter died yesterday morning. I called, and after much persuasion I obtained permission to examine the abdomen. I also learnt the following particulars from the mother. She states that her daughter had improved in health since I last saw her, and remained tolerably well, with the exception of occasional pain in the abdomen, until Wednesday evening, about seven o'clock, when, after taking tea, she was seized with violent pain in the abdomen, with frequent vomiting; this was succeeded by great prostration; the abdominal muscles were drawn into knots, and she told her mother that she was "struck with death." At twelve o'clock Mr. Wagstaffe, of Lambeth, was sent for; he tells me that he "found her in the state described by her mother; the pulse very quick and feeble, with anxious countenance," &c. He administered some medicines, but considered the case hopeless. She died at eight o'clock on the following morning, thirteen hours from the commencement of the attack. The intellect remained perfect to the last. The menses did not appear after the time before-mentioned. During the last few weeks she expressed a great desire for red herrings.

I opened the body thirty-two hours after death. Mr. Wagstaffe was unfortunately from home.

External appearances.—The body well formed; length five feet eleven inches. The abdomen very large and tympanitic. On cutting into this cavity the intestines were seen of a brickdust colour, much distended with flatus, but not adherent. The peritoneal surface was covered with an immense number of small, hard, round, tubercular deposits, varying in size from a pea to a small nut. About an inch below the umbilicus was a hard tumour, about two inches in thickness, eight in length, and three or four in width. This was situated in a transverse direction; the structure appeared to be the same as that of the forementioned deposit, very hard tuberculous matter, with intervening cellular tissue. On removing the intestines, a quantity of dark-coloured fluid was seen in the peritoneal cavity. The serous surface of the stomach was not so red as that of the intestines, and only two or three tubercles were seen upon it. On cutting into that viscus a small opening was seen, about an inch and a half from the cardiac extremity, at the posterior part. The aperture would admit the end of the little finger; the edges were not thickened, and the mucous lining throughout presented a healthy appearance. The stomach was quite empty. The uterus was of its natural size and appearance. I was not allowed to examine the head and chest.

Case III. The following case occurred to Dr. Moore, late of Camberwell:—

A girl, æt. 15, tall and delicate, apparently in the enjoyment of good health, after giving a violent scream, became insensible. She

was cold and pallid, the pupils were much dilated, and the pulse scarcely perceptible; there was vomiting of a glairy matter. As the symptoms appeared to be those of compression, and, as the pulse was small and feeble, Dr. M, had given a stimulating and aperient clyster. By this treatment the system was slightly roused, and she was then bled; this blood was perfectly arterial in colour, and did not coagulate. Her hand was placed on the region of the stomach, and as this appeared to indicate distress in that viscus a mustard poultice was applied. Dr. Clutterbuck saw the patient in the evening, and again prescribed venesection, which was performed, but without avail, for the next morning she expired. About thirty hours after death a very careful examination of the brain was made, but no traces of disease (with the exception of about a drachm of fluid in the ventricles) were found. In the stomach, about two inches from the cardiac orifice, there was an ulceration without elevation, penetrating through all the coats, and allowing of the escape of some fluid into the peritoneal cavity. The mucous membrane was red, and was eroded for rather a greater extent than the muscular coat; and the peritoneum, on which the fluid lay, was slightly rough, but in no other way injured by the contact. The fluid was rather acid, and on being strained through paper left a deposit of a fatty matter. Inquiries were made respecting her health previous to the occurrence of the foregoing symptoms, and from what could be ascertained it appeared that she had been cheerful and in good health, with the exception of a slight loss of appetite. She had menstruated six months previous for the first and only time.

In a recent communication from Dr. Moore, he informs me that "some of the fluid which escaped from the stomach was sent to Mr. Hume, the chemist, to be tested, and he, in reply, said he had no doubt that it contained oxalic acid," The father of the girl told Dr. M. "that he had lost one or two daughters in the same way."

Case IV. March 26, 1836, I assisted Mr. Hughes, late of Camberwell, in the examination of the body of the girl who was supposed to have died under rather suspicious circumstances. I obtained the following particulars from the mother:—"E. P., Bowyer-lane, Camberwell, æt. 15½ years, of healthy parents, for the last two months has been subject to occasional vomiting, coming on only after dinner, sometimes directly, and at others half an hour after taking food; never complained of pain in the region of the stomach. Was formerly very lively, but of late her spirits had been rather depressed; she was, however, able to go about her usual employment, that of assisting her mother (who is a laundress), until five o'clock on Thursday, the 24th, when after dinner (she ate eleven oysters, with vinegar and pepper, two slices of bread and butter, and afterwards drank some small beer), she complained of violent pain in the abdomen, and threw herself upon the floor; she vomited three or four times, was carried up stairs, and placed upon the bed, where she slept till seven, when her mother woke her. She said she was better, had a small quantity of gin and water, and about as much nitre as would lie on a sixpence, also a dose of medicine which her mother had obtained from a chemist. She slept with her sister, and during the night was getting out of bed several times for cold tea. About four o'clock her sister proposed calling her mother, and also mentioned sending for a medical man, but

she said "no, the pain is gone, and I shall go to sleep." At half-past six she was found dead; Mr. Hughes was called directly; the limbs were cold and stiff, the head and trunk warm. On Thursday morning, when hanging out the linen, she was observed to put her hand several times to the stomach, but did not complain of pain. Of late she drank large quantities of cold water; the bowels were rather constipated, and she was subject to flatulency. Had not been under the care of a medical man since she was two years of age. About fourteen days before her death her mother took her to a chemist's on account of her not having menstruated; some pills containing sulphate of iron were given. Mrs. P. is in the habit of using large quantities of bleaching fluid (composed of one pound of oxymuriate of lime to a gallon of water). "She is quite sure that her daughter never drank any of this liquid."

Examination thirty hours after death.—The external appearance of the body plump and muscular; the face very pallid and waxy. *Thorax.*—The heart healthy; about one ounce of serum in the pericardium. The cavities of the pluræ contained about three quarters of a pint of serum. The lungs perfectly healthy, but more gorged with blood than usual. *Abdomen.*—The peritoneal surface of the small intestines of a brickdust colour, with a slight deposit of lymph and agglutination of some of the folds of the ileum; a large quantity of a yellowish fluid in the cavity of the abdomen; this was seen to issue from an aperture, about the size of a sixpence, in the small curvature of the stomach, about an inch and a half from the cardiac orifice; a portion of the under part of the peritoneal surface, about an inch in diameter, strongly adherent to the tranverse arch of the colon; on separating this an opening was found in the stomach as large as half a crown, the mucous membrane around slightly puckered. On cutting into the stomach the mucous membrane was found softer than natural, and in many places ecchymosed. Around the first-mentioned aperture the coats were considerably thickened, the sides of the opening smooth, and appearing as if cut with a sharp instrument. The inner lining of the œsophagus rather red, and easily removed with the finger-nail. The mucous lining of the intestines healthy, perhaps rather softer than natural. The liver very white, its structure apparently healthy, as were all the other viscera. The brain not examined.

An inquest was held on the body, and the jury adjourned the inquiry for the purpose of having the contents of the stomach examined. This was done by Mr. Phillips, lecturer on chemistry at St. Thomas's Hospital, who reported that he found a small quantity of oxalic acid in the fluid. The verdict of the jury, however, was—"Died by the visitation of God."

Case 5.—The following case occurred some years since to Mr. Bristowe, of Camberwell:—

A delicate chlorotic girl, about sixteen years of age, had been under Mr. B.'s care for dyspepsia and occasional pain in the side. She was suddenly seized with violent pain in the region of the stomach, extending over the abdomen, which soon became tympanitic, and she died about twenty hours from the commencement of the attack.

On a post-mortem examination a round aperture was found in the smaller curvature of the stomach. The peritoneal covering was also inflamed.

It is not my intention on the present occasion to allude particularly to this subject in a medico-legal point of view, although two of the cases in this respect are of great interest. The contents of the stomachs were examined by good chemists, and oxalic acid was found in both. The history of the symptoms, however, and the knowledge that there is no well-authenticated case on record of this poison having produced perforation of the stomach *during life*, are sufficient, I think, to decide the question. The instances of perforation from poisoning are very rare. The mineral acids (more especially the sulphuric) sometimes produce this lesion. Arsenic, bichloride of mercury, the alkalies, &c., are also said to occasion it. I can scarcely suppose, in the present state of our knowledge, that perforation from poison can be mistaken for that arising from chronic ulceration. Many cases of this kind are on record, but the great advancement of pathological anatomy, as well as the improvements in chemical science, will, I think, prevent such mistakes in future.

I have constructed the following table by selecting cases from the English journals, and adding those which have occurred in this neighbourhood. I have inserted those cases only which appear to come under the head of simple ulceration, and rejected those which I think have arisen from malignant disease. Many of the cases unfortunately are but imperfectly recorded. The menstrual function in the majority is not mentioned, and the morbid appearances are often badly described. These circumstances must, at present, in some measure detract from the value of statistical deductions.

I do not re-publish the table, as it can be referred to in the Lancet if necessary. The following are the deductions:—

Deductions. Cases, 51—Females, 39. Males, 12.

The ages of the females were as follows:—Between 15 and 20—21; 20 and 25—10; 25 and 30—5; 40—1; 50—1; 60—1.

Previous state of health.—The greater number suffered from dyspeptic symptoms prior to the attack; the most frequent of which were occasional pain in the region of the stomach and left side, pyrosis, and flatulence. Vomiting was not a constant symptom, although it occurred in many instances. The menses were irregular in 13: in 25, this function is not mentioned; in one only the patient menstruated a month before the attack. *Most (if not all)* of the females *were unmarried.*

Duration of the attack, from twelve to thirty hours. In one instance (Dr. Elliotson's patient,) life was prolonged for seventy hours.

Morbid appearances.—The apertures in the majority of the cases were situated in the smaller curvature, more frequently midway between the pyloric and cardiac openings, but in many instances near the cardia. In one case only was the perforation close to the pylorus, and in this instance it will be seen that a "fibrous tubular excrescence existed externally." In nine examples, two ulcers were present, opposite to each other; so that when the stomach was in a state of collapse the diseased parts were in contact.

Males.—Of these, only one was under 20 years of age. The aperture in nine was close to the pylorus; in three, midway between the

openings. Five of the examples were of a doubtful character, the parts around the opening being hard and callous.

From the above deductions, it is evident that women are more subject to this disease than men. A *novel* and interesting fact is also elicited, viz., that the aperture in the former is situated *in the left half of the stomach*, whilst in *the male it is generally near the pylorus.* I confess I am at a loss to explain this. Sœmmering and Lefevre believe that the stomachs of females are contracted in the centre, and hence would be more liable to give way at the cardiac half during a state of distension. This explanation appears to be far from satisfactory; indeed it is very doubtful whether the stomach of the female is contracted in the manner described.

Some years since, when I exhibited two perforated stomachs at the London Medical Society, I expressed my belief that a chlorotic condition of system was the chief *predisposing* cause of these perforations; this opinion has been confirmed by subsequent inquiry. The five cases that occurred in this neighbourhood were all chlorotic females, and although the menstrual function is seldom mentioned in the cases recorded in the table, I am induced to believe, from the waxy, pallid state of face, &c., that the great majority laboured under uterine disturbance. I know it will be urged that chlorosis* is often the effect of disorder of the digestive organs, and I admit the difficulty of ascertaining the primary derangement; but the following facts, I think, tend to confirm my opinion, viz., that menstrual irregularity is the primary affection. I believe perforation of the stomach from simple ulceration rarely, if ever, occurs in the female *before the age of puberty*, and seldom *after the cessation of the menses;* that the disease is of rare occurrence in the *married* female; that menstrual ulcers seldom heal until the uterine function is restored. The following case, which occurred to me a short time since, is a good illustration of this:—Mrs. A., a widow, æt. 30, consulted me for an indolent ulcer on the leg, about the size of a shilling; she had not menstruated for six months, but her health was tolerably good; *she had not a dyspeptic symptom.* I tried various local applications without benefit; I then gave the compound iron mixture, &c. The ulcer quickly healed after the first appearance of the menses.

The diagnosis must, in many instances, be extremely difficult; for the symptoms attending ordinary cases of dyspepsia so nearly resemble those accompanied by ulceration, that it is almost impossible to discriminate. When there is violent pain in the epigastric region after eating, flatulence, pyrosis, and pain in the left side, especially when accompanied by a chlorotic condition of system, the presence of ulceration may be suspected.

The chief object in the treatment of these cases appears to me to be the restoration of the general health. The patient is often in an anæmic condition, the blood being deteriorated in quality; the menses suppressed, or, if present, scanty, and almost colourless. After attend-

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* The desire, in these cases, for substances of an indigestible character, probably indicates an unhealthy condition of the gastric secretion; and although this fluid is supposed to have no effect upon the living tissue, it is probable that it may, when so depraved, favour the progress of ulceration.

ing to the state of the liver and bowels, some of the various preparations of iron may be administered; probably the sulphate and carbonate will be found most serviceable; Griffith's mixture is also likely to benefit. Sir A Cooper, in speaking of the menstrual ulcer, which appears to me to bear some resemblance to the foregoing, says, "These ulcers are of very common occurrence:" he recommends the compound iron mixture, with Plummer's pill, and believes that these medicines will generally succeed in restoring the secretions. In addition to the above, the following may be tried:—Counter-irritation over the region of the stomach with tartarised antimony or croton oil; sponging the skin with tepid or cold water, and afterwards rubbing with a rough towel; horse exercise, when it can be procured; warm clothing; change of air; and mental quietude. The diet should be plain and simple, composed, in the first instance, of light farinaceous food, and afterwards of substances of a more nutritious quality.

Should the above mode of treatment not succeed in restoring the menstrual secretion, mustard poultices may be placed on the mammæ, or electric shocks applied to the loins, as recommended by Dr. G. Bird, in the "Guy's Hospital Reports." When the disease appears to be unconnected with uterine irregularity, light bitters may be substituted for the preparations of iron; prussic acid and morphia will be found serviceable when much pain is present.

After the perforation has taken place, I apprehend the case must be considered hopeless. Occasionally the aperture is filled up by adhesion of the stomach to some of the surrounding viscera, and in these instances the contents of the stomach do not escape into the peritoneum. Dr. Stokes, of Dublin, in cases of perforation of the intestine, has given opium in large doses; and, in many examples, life has been prolonged by this mode of treatment. In Dr. Elliotson's case, large doses of opium were given, and the patient *lived seventy hours*. Bleeding, followed by large doses of opium, I believe most likely to prolong life; but no mode of treatment, I fear, can be of ultimate benefit.

I have endeavoured, in this imperfect sketch, to condense my observations as much as possible, feeling that I have occupied a greater space than is usually allotted to communications of this description. If I succeed in directing the attention of the profession to a subject which yet requires much investigation, my object will be fully answered.

As I have before stated, the above essay was published in 1843; it will now be my object to extend the enquiry up to the present time, by adding the examples of non-malignant perforation of the stomach, since recorded in the British Journals. I will, however, first relate the following cases, which have been kindly furnished by my friends: with two exceptions they occurred in the same neighbourhood as the five first related.

Cases 6, 7, and 8, by Mr. Hicks, of Newington-butts.—Ann G., æt. 28, of a sallow complexion, with dark hair and eyes, has always enjoyed good health until these last twelve months, during which period she has suffered greatly from dyspepsia, the symptoms being referred to the chest; the pain at times was of so severe a character as to draw her nearly double. She, however, had never complained

of any pain either in the region of the stomach or bowels. There had been shortness of breath and palpitation of the heart; while the catamenia had not made their appearance for ten months. The appetite was exceedingly capricious; a little food sometimes sufficing, whilst at others it could scarcely be satisfied. On the 26th of December, after eating a hearty supper of beef and cold potatoes, she retired to bed, and arose on the following morning in her usual health, and continued so until about ten o'clock, when, on returning from an errand, she was suddenly seized with violent pain at the pit of the stomach, which, becoming much worse, Mr. Otway was requested to see her. At this time there was nausea and vomiting, with very great pain over the whole of the abdomen. There was also great prostration, the surface of the body being cold and covered with perspiration, while the pulse was rapid and feeble. Mr. Otway, thinking that the symptoms might arise from obstruction in the bowels, and that a collapsed state of the system was the consequence of exposure to cold (the weather being very severe on that day), ordered the bowels to be well fomented with warm water and flannels, and calomel and opium to be taken every four hours, with castor oil. From these remedies, however, she derived no benefit, the prostration gradually becoming greater. She died on the following morning, twenty-four hours after being first attacked, never having rallied from the shock to the system, and apparently dying in a state of collapse. On the 27th, Mr. Otway and myself made a *post mortem*, and the following are the appearances presented

Externally.—The body pale and exsanguineous; thorax and lungs healthy, as also was the heart.

Abdomen.—On dividing the integuments, and exposing the intestines, we were first struck by the large quantity of fluid present in this cavity, amounting to two quarts, and having oil floating on its surface, this leading us at once to suspect ulceration of some viscus. Search was at first directed to the stomach, where an opening of the size of a four-penny-piece was discovered on the anterior surface of the small curvature of that organ, near the cardiac orifice; and on laying the stomach open, its whole mucous lining was found to be soft, and easily to be scraped off by the handle of the scalpel; while, near the cardiac orifice, an ulcer of the size of a shilling was seen corresponding to the opening externally, its edges being rough, uneven, and excavated, the coats of the stomach for some distance round being increased to double their natural thickness. There were besides several patches of redness in different portions of the mucous membrane, evidently shewing that there had been great irritation. The liver was large and healthy, but white and exsanguineous, as were all the other organs of the body.

Mr. Hicks remarks—"It is also worthy of observation that the peritoneum shewed no signs of inflammation, notwithstanding the patient lived twenty-four hours after the effusion into the abdomen."

This case, then, appears to be of interest in several points of view. First, that notwithstanding the extent of disease, evidently of long duration, there should have been no pain in the region of the stomach. Secondly, the absence of the *catamenia*, with the accompanying chlorotic symptoms; and thirdly, the absence of all inflammatory action, although the patient lived twenty-four hours after the attack. This last part is,

perhaps, of more importance, in consequence of its being denied by many, Dr. Addison amongst the rest.

Mr. Hicks informs me that he has had, in addition to the above, two other cases in the neighbourhood of his own residence. Both of the patients were chlorotic girls; one seventeen years of age, the other twenty years. The apertures were seated in the small curvature of the stomach, near the cardiac orifice; and in one instance the aperture was posterior, so that it required the viscera to be removed to render the opening visible.

Case 9, by Mr. CHARLES TAYLOR, of Camberwell.—I was called, July 8th, 1848, to Miss L., æt. 36, West-street, Walworth. Is thin and unhealthy in appearance, had been the subject of dyspepsia, and had had pain at the epigastrium after meals for some years. Six or seven years back, had a discharge of blood from the mouth and two medical men saw her; one said it came from the lungs, the other from the stomach. Has never been subject to cough. About a fortnight since, a similar attack of pain was present, but less violent, and soon passed away. The early part of the week she ceased menstruating; the catamenia regular. This morning, (July 8th,) ate her breakfast, and seemed well, and was engaged in washing paint up to half past 10 A.M. About 11 she first felt pain in the lower part of the abdomen, and took a dose of castor oil. The pain continuing, I saw her at half-past 5 P.M.; she was down stairs in the sitting room lying on the sofa, rolling about in agony of pain—this pain being referred to the lower part of the abdomen; she also had pain in passing water; the pain increased on pressure, but the knees were not drawn up. Tongue clean, pulse 110, and easily compressible; the bowels had not acted since the oil had been taken, but were relieved in the morning as well as yesterday—*no sickness*. I looked upon it as the pain of Colic, and gave calomel and opium, and ordered hot fomentations. At 8 P.M. pain not relieved, still referred to the lower part of the abdomen; 20 leeches, followed by hot poultices, with two grains of calomel and one of opium every three hours. Only one dose was taken, the leeches did not obtain much blood, and gave no relief; there was at this time marked anxiety of countenance which was not present in the afternoon. 12 P.M., again saw her, the pain much increased, the legs drawn up, and she was rolling about in bed—pulse 130. As a *dernier resort*, I bled her; only a coffee cup was drawn and she became faint; the blood was thrown away, so that I could not say if it were cupped. A turpentine and oil enema was ordered, and to be repeated if the bowels did not act, but with no avail; she died at half-past four, Sunday morning, just eleven hours after my first visit.

Post mortem, Monday 8 A.M. Present Dr. Henry Crisp, Dr. Gybb, of Montreal, and myself. On opening the abdomen, a quantity of oily fluid was discovered. Evidence of peritonitis also visible, chiefly about the stomach and mesentery. The lesser curvature of the stomach adhered to the liver, and the adhesion of the two, was in part evidently torn; there an opening was found on the external surface of the stomach. On examining the internal surface of this organ towards the greater end, five or six dark sloughy spots were discovered, and an ulcerated opening, corresponding with the one noticed externally, except that it was much larger, and this extra portion adhered to the pancreas.

Case 10, by Mr. B. Evans of Brixton —Saturday, 18th of January, 1851, I was requested at 10 A.M. to visit Susan Mitchell, æt. 19, employed as a housemaid, who was supposed to have rheumatism. She complained of severe pain across the shoulders, both back and front, rendering it very painful to move either arms or body, but respiration not much affected. Said she had had a weak stomach, and three months ago was for two or three weeks under treatment at the hospital for sick stomach and indigestion. Appetite had been very bad for a long time, never eating much meat, and had occasional pain in the shoulders; thought she had strained herself by carrying up stairs a heavy supper tray on the previous Monday, which gave her a violent pain in her left side, and she became very pale and faint, and obliged to sit down. She continued, however, to do her work until Thursday evening, although she was very sick and rejected all the food she had taken, and once observed in the ejecta two spots of blood—had only slight pain in the side. At the time of my visit there was no pain and only slight tenderness, neither was there distension of the abdomen—the pulse quick, 130, and small—tongue white on the base and centre, but moist—skin and extremities warm—countenance pale, but not anxious —bowels constipated, no relief since Tuesday—a little hesitation in making replies to my questions, but quite sensible—breathing rather quick and short, but not difficult—no cough—no sickness since yesterday—catamenia regular; appeared a fortnight ago. Ordered calomel 3 grains, extract of colocynth 7 grains, and white mixture with wine of colchicum and tincture of henbane every 4 hours—a mustard plaster between the shoulders—and slops, of which she drank freely. At 9 P.M. I was summoned to her in haste, she, having been sitting out of bed, became faint, and the attendant thought she was dead—when I saw her she had recovered from her faintness on being again placed in bed, and answered all the questions put to her. Pulse lost at the wrist—very pale, but features not sunk nor anxious. The belly now much distended and tympanitic, slightly painful and tender, breathing quick —skin warm—tongue moist and cleaner—no relief from the bowels—has not been sick. The severe pain in the shoulders quite relieved after applying the mustard plaster, and she was thought to be better until the faintness came on whilst sitting up. I gave brandy in cold water, and after remaining with her a quarter of an hour she appeared better, and the pulse was felt, though feeble, at the wrist. Ordered more brandy and water to be given, and promised to see her again in half an hour to administer a turpentine injection. The now too apparent abdominal mischief compelled me to give an unfavorable opinion before leaving the house; fifteen minutes afterwards they sent to say that she was again faint. I went immediately, and found her dead.

Examination 15 hours after death. Body well formed and plump, the abdomen being covered with a layer of fat an inch thick. A quantity of fœtid gas escaped on opening the cavity which was discovered to contain about a gallon of fluid, of deep yellow color; numerous vascular patches and flakes of soft coagulable lymph were found in the course of the intestines and mesentery. On the anterior surface of the stomach, nearer the cardiac than the pyloric end, was a circular orifice of the size of a sixpence, looking as though cut out by a punch. The stomach generally was much thickened, especially around the

perforation; and the large extremity presented, on its mucous surface, several large patches of ecchymosis. The lower extremity of the descending portion of the colon, for about six inches, was of remarkably small caliber and unusual thickness; the liver exceedingly pale, but of normal texture, and the gall bladder distended. The kidneys and other abdominal viscera healthy. Permission was not obtained to examine the chest.

Case 11, by Mr EBSWORTH, of Trinity Square, Southwark.—M. L., æt. 42, a widow nine years, of spare habit, and not very strong constitution, after eating a supper of cold beefsteak, more heartily than she had done for some weeks previously, retired to bed. At 2 a.m., November 27th, 1851, she awoke her sister by her groans; and on inspection she found M. L. on her back, suffering the most acute and agonising pain at the "pit of the stomach;" the usual remedy, brandy and hot water, was given, under the idea that it was merely "spasms;" but it only aggravated the symptoms, and I was summoned. I found the patient suffering intensely with pain in the epigastric and left hypochondriac regions. The pain appeared *distinct* from cramp or colic, for the patient persisted in retaining her position on her back, because she said, "if she moved, or turned on her side, the scalding sensation spread over a larger surface, and gave more pain than she could bear." The surface was bedewed with clammy perspiration, the extremities were cold, the features were contracted, the pulse quick and thready. So intense was the pain, from the period of access to the time of my arrival, that the patient had run into collapse. The treatment adopted in the onset was the application of hot fomentations to the epigastric region, hot bottles to the feet, mustard cataplasm, and the administration internally of opium in the form of laudanum, to secure immediate effect upon what I was tempted to hope was mere spasm; but the opium took no effect at all, even with the repetition of several doses, at intervals, of twenty-five minims. Every now and then the symptoms became aggravated—the pain more severe—the prostration more marked. There was *free vomiting*; and the brandy and water which she had taken, with some tea, and a glass of hot water, returned. No solid matter, however, was returned into the basin, as far as I could see. There was some bile. Each vomit was succeeded by a scalding, burning pain; and now the pain in the abdomen became more general. I administered a warm injection of castor oil and warm water, as a croton oil pill had not acted. This injection did not return, although a most copious one. Hour after hour passed on without alteration of symptoms, till at 6 a.m. I gave 30 drops of laudanum, with some tincture of ginger, without mixing it with fluid. After the third dose she became narcotized, and fell off into a doze. At 8 a.m. she awoke, but the same pain existed in the epigastrium, and of the scalding character; but being under the influence of the narcotic, the nervous system did not appear to be so alive to the mischief which, at this period, I considered had taken place within. During the whole of Thursday, November 27th, the patient retained one position, saving when I had her supported on the left side for a few minutes, to administer a second injection. She could hardly bear the operation, she observed, for the pain still gravitated, if I may use the expression, to the left side. This last

injection had a copious effect, and brought away a large quantity of feculent matter. Up to my last visit in the evening the pain was acute in the extreme, and the features still expressive of intense anxiety.

On Friday, 28th, slight reaction had taken place; the pulse became firmer—between 120 and 130. There was general tenderness of the abdomen; but the acute symptoms remained at the upper part of the cavity as before. Leeches, fomentations, calomel, and opium. The tongue at this stage of the disorder was dry and brown, with a tendency in the centre to become black. There was a constant clicking of the uvula. Saturday, November 29th.—Found the patient somewhat relieved, and the bowels had acted copiously; the prostration, &c., remaining. On Sunday she also appeared better, but the tongue shewed the black streak; the pulse did not alter its character. Nourishment in the shape of beef-tea was taken; but she noticed that it passed quickly through the bowels. For a whole week she continued alternately mending and relapsing, the pulse never losing its irritable character, and the uvula and tongue still shewing the feeble condition of the system. On the 7th of December, the fevered tongue, the still further accelerated pulse—140—the high-colored urine, the offensive character of the motions, slight tympanitis of the abdomen, betokened more extensive mischief. The patient required more clothing, wished, and actually got out of bed by herself, where I found her in a chair almost dying. The abdomen had been blistered with the acet. canth., but without good effect. She became worse and worse, and died on Wednesday, December 10th, at 3 p.m., nearly fourteen days after her attack.

I have not thought it necessary to record the daily symptoms, or the remedies given, because they partook of the usual routine treatment of excitement, depression, &c. Peritonitis of a low character was the marked symptom, attended with violent pain in the left side, aggravated on motion.

Post mortem appearances twenty-four hours after death. Body *spare*, but not much emaciated. Abdomen tympanitic. On opening the abdomen the visceral and parietal peritoneum was adherent, with plastic lymph of recent formation, and easily broken down. The intestines also were matted together; but their convolutions were easily separable. There did not appear to have been any very great peritoneal inflammation generally, until I came to the separation of the under surface of the left lobe of the liver, which I could scarcely detach from the superior surface of the stomach, from the effusion of recent fibrine. On separating these organs, however, my finger passed into a cavity from which pure pus rushed out. From this circumstance I proceeded to dissect out the stomach, and found it glued to the surrounding structures by the effusion of bands of lymph, which encircled the large formation of matter. On examining the stomach, it presented a pulpy mucous surface on its greater curvature, without any noticeable inflammatory condition; but the lesser curvature presented a red vascular appearance, leading to a circular aperture, with rounded edges; and at this portion the peritoneum appeared jagged, as if suddenly ruptured, and through this aperture the contents of the stomach had been poured, to a very limited extent, into the peritoneal cavity.

Case 12, by Mr. J. Bredall, of Vauxhall.—A female servant, æt.

27, in my employ, a steady, well-conducted girl, who rose early, and was very industrious, was suddenly seized Sunday, March 4th, 1848, whilst dressing for church, with violent pain in the region of the stomach. She had eaten a hearty dinner of roast beef and baked potatoes. The pain continued with great severity, and she died in forty-eight hours from the time of the seizure.

She was stout and well-proportioned; had a palid skin; and complained occasionally of indigestion; but the symptoms were not sufficiently urgent to induce her to apply to me.

On examining the body, with Dr. Buck and Mr. Statham, we found general peritonitis, and a small aperture in the stomach, which was partly plugged up with a piece of the peel of the baked potatoe.

As far as my recollection serves, the aperture * was seated in the anterior part of the stomach, near the pylorus; and this opinion is confirmed by that of Dr. Buck. The uterus and its appendages were sound, and the menstrual function had been regular.

Case 13, by Mr. H. Davis, late of Tenbury, Worcestershire.—I attended a fine girl (a servant) at intervals, for several years, who suffered chiefly from amenorrhœa and dyspepsia, accompanied with pain in the side. She was rather stout, and had a waxy, sallow complexion. I was called to her on Wednesday morning, and learnt that when holding her mistress's child, soon after breakfast, she suddenly screamed and fell down in violent pain. From the symptoms I diagnosed perforation of the stomach or intestine, although, as she lived five days, I began to doubt the correctness of my opinion. Frequent doses of calomel and opium were given, and as little food and drink administered as possible. The *post mortem* examination revealed general peritonitis, and a small aperture at the lesser curvature of the stomach. Opposite to this aperture was an old ulcer, which was plugged up by the pancreas. This probably occurred about eighteen months before her death, when she suffered so much pain in the epigastric region that I was induced to apply leeches.

Mr. Davis adds—"I have reason to believe that two other cases of perforation of the stomach occurred in young girls under my care, although my diagnosis was not verified by a *post mortem* examination."

Case 14, by Dr. C. F. Moore, of Dublin.—Margaret —, æt. 28, a strong and healthy woman, living in the capacity of housemaid, states that she was perfectly well April 29th, 1835, with the exception of a slight pain in her stomach, which she had had for a few days; her bowels had also been rather confined. Had menstruated on the 25th. At 12 o'clock on the day first mentioned, she was settling her mistress's room, after having breakfasted heartily, when she was suddenly seized with pain in the stomach and retching. I saw her at 2 o'clock. She had thrown up about half-a-pint of brownish fluid. The abdomen was very tender on pressure; but her pulse was not much increased in frequency, and was in other respects natural. Her tongue was clean, and she did not complain of thirst. She was largely leeched, and opium and other medicines were administered. At 9 o'clock her pulse was extremely quick, and much weaker. From 11 she sank rapidly, and died at 4 o'clock on the following morning.

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* It is right to observe that Mr. Statham's impression is, that the aperture was in the duodenum. I saw the stomach, but omitted to take a note at the time.

On examination, after death, the body presented externally every appearance of previous good health. On opening the cavity of the abdomen the most intense peritonitis was found; and the fluid contained in the peritoneum smelt strongly of mint water, which had been given in some draughts the day before. A small round opening was found perforating the coats of the stomach. It was remarkably smooth, and had all the appearance of having been slowly formed. These *post mortem* appearances I state from memory, and have forgotten the exact position of the ulcer.

In addition to the nine examples of perforating ulcer from non-malignant disease above related, I find in the British Journals, since 1843, thirty-nine cases. *Lancet.*—Cases by Messrs. Goddard, Taylor, Dendy, Roupell, Payne, Abram, Broxholm, Routh. *Medical Times.*—Seymour, Smith, Pearson, Routh. *Medical Gazette.*—Barlow. *Guy's Hospital Reports.*—Hughes, Hilton, Ray. *London Pathological Transactions.*—Spurgin, Addison, Williams, N. Ward, Johnson, O. Ward. *Provincial Journal.*—Young, Collyns, Cox, Fletcher, Russell, Fletcher. *Dublin Journal.*—Hamilton, Law, Stokes, Lees, Macauly.

Of the above, including the nine private cases, eight were males, and forty, females. The ages of the males were 23, 50, 50, 54, 56, 68, one is described as "middle-aged," and the age of another is not named. The ages of the females were 15, 16, 17, 18, 19, 19, 19, 19, 19, 20, 20, 20, 20, 20, 21, 21, 22, 23, 25, 27, 27, 27, 28, 28, 28, 28, 29, 33, 36, 36, 39, 42, 48, 50, 60. In five the ages are omitted, but three of these are described as maid-servants, and one, Miss ——.

Four of the above were married women, and two of them æt. 42 and 48, widows. Of the married women, one, æt. 27, was in bad health at the time of her marriage, and the perforation took place seven months after; another, æt. 28, was subject to gastrodynia, but the date of her marriage is not named; the third, æt. 48, was living as a servant, and in the last, æt. 39, the perforation was complicated with external abscess. As regards occupation, four were ladies, twenty-five maid-servants, two milliners; and in nine the occupation is not named. The uterine function is generally not alluded to; some are described as chlorotic, others as anemic, and in some the menses appeared regularly.

The situation of the ulcer was nearly as in the former table. In the females, generally nearer the cardiac orifice than the pyloric, whilst in the males, the perforation was closer to the pyloric extremity of the stomach, and accompanied mostly with thickened edges. In nine cases two ulcers existed on the opposite sides of the stomach.

On adding these 39 cases to the 51 first recorded, the general statistics of age and sex in the ninety cases are as follows—

Males 20
Females 70

The ages of the males were 19, 21, 23, 23, 26, 35, 36, 50, 50, 51, 54, 56, 60, 60, 68, and in five the age is not named.

Of the females thirty-seven were between 14 and 20; twenty-seven between 20 and 30; eight between 30 and 50; two were 60 years of age, and in five the ages are omitted.

On comparing the two tables, there is a remarkable correspondence in the inferences, as regards sex, age, and morbid appearances. One

circumstance which I alluded to in my former Essay is curious, viz., that in eighteen examples *two ulcers were present on opposite sides of the stomach.*

I find by measurement the distance between the two orifices of the stomach in the adult is about six or seven inches; in the child at birth, from an inch to an inch and half. I mention this because some of the accounts of the distance of the ulcer from the orifices are vague and unsatisfactory, and it will be well for future observers to speak from accurate measurement. The greater vascularity, the more abundant supply of nerves and absorbents to the smaller curvature of the stomach, will probably account for the more frequent occurrence of ulceration in this part; and the situation of the pancreas, offers a ready explanation of the more frequent adhesion of this organ to the aperture in the stomach.

I have not in this enquiry contented myself with a mere examination of recorded cases, but I have visited most of the museums of London, Dublin, and Edinburgh, for the purpose of examining specimens, and the result fully agrees with the conclusions I had formerly arrived at. Ulcerations of the pyloric end of the stomach, especially from malignant disease, are comparatively more numerous in the museums; but it must be borne in mind, that a young girl affected with perforation would seldom be taken to an hospital; a fact that some enquirers have entirely lost sight of, and hence their statistical errors.

The distinction between ulcerative perforation and that from the gastric juice, (after death,) is so well marked that it is scarcely necessary again to allude to it. The aperture in the former being generally circular and smooth; in the latter, irregular, ragged, and flocculent. I have two preparations in my museum from perforation by the gastric juice, which illustrate this. The rounded form in simple ulceration is easily accounted for by the elasticity of the peritoneum. If the mucous membrane is scraped off a healthy stomach, and the peritoneal coat ruptured, the aperture will assume a round or oval form. And in many of these perforations, I believe that the serous membrane for a long time is the only boundary wall between the stomach and the cavity of the peritoneum; the rupture being often occasioned by distension of the digestive organ by food or gas.

Perforation from poison, as before remarked, is of rare occurrence and would readily be detected; the mineral acids, especially the sulphuric, being the most likely agents to lead to this result. The blackening by the sulphuric, the yellow tinge of the nitric, and the state of the œsophagus would generally lead to a correct opinion. In the Dublin College of Surgeons' Museum, and in the Guy's Hospital Museum, there are some interesting specimens of stomachs acted upon by the mineral acids.

Let us ask what proof is there that these ulcers in the female generally depend upon uterine derangement? I think the table is the best answer to this question, although, I am far from admitting that a positive conclusion can be drawn from it; but when the ages of the patients, the sex, and the situation of the perforations and their comparative unfrequency in married women, are taken into account, the probability is much strengthened. I know of no case on record of ulcerative perforation of the stomach, before the age of puberty; although, I have not examined all the foreign journals. If anemia, and the impoverished

condition of the blood accompanying it, were the sole predisposing cause, we have abundance of these cases before the age of puberty. Is it not more probable that want of uterine action; the arrest or impairment of the menstrual secretion; the abnormal state of the blood, and the depraved appetite often dependent thereon, are the chief causes of these perforations in the young female?

It may be said that these lesions occur in women who menstruate regularly; but those who are accustomed to investigate the diseases of young females, are aware of the difficulty of getting at the truth in this matter, and often what is called *regular* menstruation, on a careful investigation, turns out to be very *irregular*.

Treatment.—As I have said before, the practical inferences to be drawn from these cases, is the necessity of early attention to the symptoms that indicate a disposition to the ulcerative process; there are no signs by which simple ulceration of the stomach can be *positively* recognized, but in many cases its presence may be diagnosed with tolerable certainty. The subjoined case which has lately been under my care at the Metropolitan Dispensary may be given as an example, I could enumerate many such, they are of frequent occurrence in Dispensary practice. Mary B., æt 36, (maid-servant,) for the last three or four years has been subject to indigestion, accompanied with pain in the epigastric region, especially after taking food: the pain often extending to the back, there is also a sense of heaviness in the region of the stomach; slight tenderness on pressure, with frequent flatulence and acidity, she is pale and chlorotic-looking, but says "*the menstrual function is quite regular.*" On enquiry, however, I find that the discharge is of a pale colour, and only appears for one day. She was much benefited by chalybeates, but the slightest irregularity of diet produced an aggravation of the symptoms. The above may be considered only a case of ordinary indigestion, but in many instances of perforation of the stomach in females, the symptoms are much less marked, indeed many of the subjects of this fearful lesion are said to have been in "good health," although the greater number were pale and anemic.

The treatment I have advised (p. 12) appears to me to be the most applicable in these cases, the object being especially to attend to the uterine function. It is true that the same kind of ulcer may occur in the male, but if the cases are carefully investigated, it will be found that the vast majority of the perforating ulcers in men are of a different character, the seat of the lesion is generally nearer to the pylorus; the sides of the ulcer are more thickened and irregular, and the symptoms better marked.

When perforation has taken place, the sequel may be described in a few words:—intense and sudden pain, spasm, inflammation, sinking, death. The intellect remains perfect to the last, and the poor patient is generally conscious that the hand of death is upon her; life may be prolonged from twelve to forty hours, and occasionally, when the opening is partly plugged by the pancreas, or any impediment is formed to the escape of the contents of the stomach into the peritoneal cavity, for a longer period; but these cases are comparatively rare. In the Dublin Medical Press, a case of recovery from supposed perforation of the stomach is recently recorded, but the conclusion I think is scarcely warranted, that perforation existed. The remarkable case by

Messrs. Hughes, Hilton, and Ray, in the Guy's Hospital Reports, 1846, is one of the most interesting (that I know of) on record. The symptoms of perforation appeared in February, and the patient (a girl aged 27) died of a second attack in the following June. The autopsy revealed the marks of old peritonitis, and according to Mr. Hilton's opinion the first perforating ulcer had been plugged up by adhesions; I fear, however, notwithstanding the efforts of nature in this case, that we can seldom or never hope for a cure when the contents of the stomach are constantly escaping into the sac of the peritoneum. Cases 11 and 13 by Messrs. Davis and Ebsworth are also of great interest, and tend to shew that life may occasionally be prolonged for a considerable period after perforation has taken place.

I believe that an ulcer when once formed in the stomach but seldom heals, although the progress of perforation may be stopped by adhesion to a neighbouring viscus, especially the pancreas; I have examined several supposed cicatrices of ulcers of the stomach, but the result of the examination has been far from satisfactory. In the Museum of St. Thomas's Hospital, preparations 17 and 19, are described as cicatrized ulcers of the stomach, but they do not appear to exhibit complete evidence of the reparative process. After the peritoneal coat has given way, the best chance for the patient is perfect quietude (if possible) abstaining from all food and drink, (except ice) and the administration of large doses of opium. Perhaps the application of a wide bandage immediately after the invasion of pain, might have some effect in preventing the escape of the contents of the stomach through the aperture. I am not aware that this plan has ever been adopted, but I think it is worthy of trial. In many cases the peritonitis, ~~&c.~~, is of a sub-acute character, and large bleedings probably do harm; the patient in most instances appears to sink from prostration and nervous exhaustion. In my former Essay, I advised bleeding, but my subsequent information leads me to think that in this form of peritonitis it should be resorted to with great caution. If the patient survive more than twenty-four hours, and peritonitis of a well marked form be present, the abstraction of blood from the arm, and the combination of calomel with opium may be serviceable.

The administration of purgative and fluid medicines by the mouth should be strictly avoided, as by passing into the peritoneal cavity (as they often do) they aggravate the sufferings of the patient. Strong beef tea enemata, and the avoidance, as much as possible, of all food and drink are most important, and in the way of medicine, opium or morphia (in the form of pill) in large and repeated doses is the important agent. It may not effect a cure, but it will generally, I believe, prolong life and assuage the sufferings of the patient.

When the symptoms are so well marked as to indicate almost the certainty of the occurrence of perforation, would the abdominal incision be justifiable? I dare not advise it, but I believe that the operation will be performed hereafter. In those melancholy cases, where the patients are cut off in the very spring and noontide of life, a suggestion which many will consider Quixotic, is perhaps excusable.

The next Essay will include the statistics of Perforation of the Stomach from malignant Ulceration, with an analysis of the cases by Continental authors.