Gordon Hammond

ON
Gastric Ulcer
The stomach as Shakespeare termed it is the workshop and the shop of the whole body, but it is a little know than this, for by the agency of its peculiar juices diplobes these materials taken into it and prepare them for conversion into the living body.

It follows from this that if its functions are interfered with, great disturbance of the constitution must necessarily ensue, and perhaps no disease connected with the stomach gives rise to so much disturbance and annoyance as Gastric ulcer; a disease which in not a few instances leads to fatal results. It may be said of it that it runs a prolonged course admits of cure, and that it is the result of a structural lesion. The disease was not unknown to the older Physicians but they were unacquainted with its true pathway and symptoms; of late years however, much attention has been paid to this.

In this malady a correct diagnosis is of the greatest importance to the Physician; he must have as exact a knowledge as possible concerning the nature of the lesion in the stomach.
and this cord generally be obtained
during the life of the patient affected
with the disease. Dr. Baillie in his
Ninth Anatomy gives a good descrip-
tion of the affect which I shall here transcribe.
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
these are kindly surrounded with
any inflammation have not irregular
convoluted edges as ulcers generally
have and are not attended with
any particular diseased alterations
in the structure of the stomach in
the neighborhood. 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, as at present
an uniform smooth boundary
round the excavation which had
been made. These ulcers sometimes
destroy only a portion of the inner
coat of the stomach at some one
point, but occasionally they destroy
a portion of all the coats forming
a hole when a portion of all the coat is destroyed. This is sometimes at thin appearance of the stomach surrounding the hole, which has a smooth surface and depends upon the processes of the ulceration, at other times the stomach is a little thickened surrounding the hole and at other times still it seems to have the common natural structure. This very good descriptive written mid 1800s or late years ago shows that attention was paid to the subject.

The size of the ulcer varies a great deal, no find them from the size of a split pea up to a large mass of ulceration, but the latter condition is probably rare. The size generally met with is about that of a thimble, most likely depending to a great extent on its obstruction to the state of the constitution at its first invasion.

The disease is announced by disturbances of digestive digestion, at first only uneasiness and pain in the epigastric, then nausea and
and vomiting, the food previously taken being expelled deep; sleep, languor, and delirium.

At this period, the disease is sometimes cut short by perforation taking place terminating fatally in peritonitis; or by small leakage of the stomach, and eaten through the adherent peritoneal wall of the stomach, covering the ulcer to some of the neighboring structures as the pancreas in lines. The adhesions of closing the aperture—made by the ulcer—prolong the life of the patient and prevent ephieb reversion of the contents of the stomach into the peritoneal cavity. On the ulcer extending deeper than the mucous membrane may prove fatal by eroding the bloodvessels and downward hemorhagie. Occupying one these ulcers generally do the cachexy curvature of the posterior wall of the stomach, it follows that the coronary artery, which runs along its deep curvature and the spleen which crosses its posterior surface, are the arteries most open to the
I will now consider the subject under 3 heads (air) The Symptoms, Pathology and Treatment. First I will attend to the Symptoms, and the principal of these are pain, vomiting and hiccough.

The character of the pain in this disease is peculiar; it is a deep gnawing, characterless, and in one case the patient said that it was like a knife passing right through her back. In the earlier stages of the disease it is often little more than a feeling of weight and tightness in the epigastrium, and that digests into a burning sensation, and a deep gnawing pain, producing a sickening degeneration and gradually extended to the small of the back and some time after meals when the stomach is distended, the pain usually attains as the stomach gets empty to be renewed again at the next meal. In some instances, however, the pain immediately follows deglutition, such a fact according to Dr. Whiston affording a presumption that the Candicid athermy of the stomach is the site of the lesion. If the lesions are large in the case illustrated, it is
said that the pain loses its acute character, becoming continuous during the intervals of the meals, lasting days or even weeks without intermission, as it even occurs chiefly in an empty stomack and is alleviated by the ingestion of food. The situation of the pain is also characteristic; that place to which it often remains strictly limited, corresponds to the centre of the epigastrum. In other instances again it occupies the boundary of the epigastric and umbilical regions instead of being in the middle of the former, the portion of the epigastric region to which the pain is referred forms a circular area of about two inches in diameter. Other writers first described the dorsal pain as constituting an other very important symptom generally coming on a few weeks or months later than the epigastric pain and from this time forth (if not as occurring) is almost as constant and characteristic. The pain is also of a gnawing chronicity, the position being about the last dorsal and the first lumbar vertebrae and confining itself to this region.
Of the about 20 cases collected by Dr. Bristow 15 were found with an ulcer of the Coudicæa extremity of the stomach. Concerning
with pain in the left hypochondrium, and 5 illustrating the same connection
between the right hypochondrium and the pyriform extremity of the organ.
The effect of pain on pressure may also guide as to a diagnosis; generally speaking the least pain is unendurable and the burning is limited to the painful part of the epigastric already specified.
The diagnosis of the subdivision of the ulcer depends on the effect, which
the patient's position has in either producing or relieving the pain; when
he lies so as to bring the contents of the stomach in contact with it,
then the pain is perceived, but when
the patient lies so as to keep the ulcer above the content, he enjoys
comparatively ease; and in general
in all such cases there is great remission
of pain, as long as the patient remains
in the erect posture. This arising from
the great majority of these ulcers being
in the neighborhood of the dependent
edge of the stomach. And illustrating this
made of diagnosis I shall quote the
following case reported by Dr. Osborne.
I will briefly give the outlines of the case. Patient aged 30, pain at the cardiac end of the stomach about two hours after eating, which are generally followed by the vomiting of a sour fluid; the pain is generally brought on and when present always aggravated by lying on the right side; bowels mostly confined but appetite good. On a review of his state it appeared that although he still complained of pain, yet it was much diminished, and was not increased by lying on his right side; the vomiting had ceased altogether and no sour expectorations; along with other remedies a sinapism was applied to the stomach every evening. Some time after admission he complained of severe headache, his appetite now failed and he had both vomiting and diarrhoea set in and the patient died. Post mortem at the upper curvature of the stomach near the pylorus there were superficial ulcerations, a patches of stained mucus membrane and also some patches in which the mucus membrane was entire, but with a whitish opaque structure between it and the peritoneum.
Of several other cases where the position of the patient, led him to the seat of the bleed, as in this case, took the patient lying on his right side aggravated the pain.

Cassidy the pain in Gastric bleed in young females is often affected by the acts of menstruation, sometime increasing & provoking the ordinary pains of the bleed with tenderness in the breast, vomiting, debility &

There is a relation between the pain & the menstrual epoch, commencing from 24 to 36 hours before the appearance of the flow; when it disappears about 24 to 36 hours after the commencement of the menstrual discharge.

Vomiting is another symptom Gastric bleed; usually occurring when the paroxysm of pain has reached its greatest height, and seldom ends without emptying the contents of the stomach & it usually brings relief from the pain.

As regards the proportion of cases in which gastric bleed is attended with this symptom; it is rarely absent from the whole course of that malady, and thus seems no
doubt but that the vomiting is in proportion to the size of the ulcer. This vomiting is not only very disgusting but dangerous. As the fluid entering the food shrinks after its reception into the stomach, the patient may die of incineration, adding to the fatigue by the abnormal nervous and muscular contractions.

Hæmorrhage is the next symptom of gastric ulcers. This is owing to the villi eating into some of the interior of the submucous tissue, the hæmorrhage is often preceded for a day or two by loss increased by pain, which is an evidence that the ulcer is spreading, but in other cases it occurs without any aggravation of the usual symptoms. If the blood be poured out in small quantities, slowly, it may pass off by the bowels without causing vomiting; more frequently however it is poured out in large quantities at once and acting so as an emetic.

The patient grows weak and listless both without fever, the chronic discharge copious and black, he has a sense of weight at the epigastrium and a feeling of nausea and
Pain in the side, succeeded by the vomiting of black, clotted blood, followed by a state of faintness; the hemorrhage ceasing. In some cases however, it is extremely probable that blood is offered in considerable quantity without vomiting any vomiting whatever, is passed at once through the pylorus into the intestine.

In the majority of instances, after some time has elapsed, the hemorrhage returns, the circumstances of the former attack are repeated, and after a day or two the hemorrhage again ceases. When hemorrhage has once occurred, it is very apt to occur again, and even when it is great seldom proving immediately fatal, in Mr. George Pindell's long experience of this malady I only died from this vomiting of blood. The bowels in this disease are generally constipated, affording a well marked contrast between it and ulcer of the first portion of the duodenum, which gives rise to diarrhea much more frequently than gastric ulcer.

Amenorrhea is also said to be a very frequent symptom of gastric ulcer, and is often coincident with
copious hemorrhage, the Aomena hemorrhage, which is
occasioned by it just as it would be any
other hemorrhage; there is certainly any
connection between the state of it and
the menstrual period. There is asso-
ciated with gastric ulcer a Cachexie
state of the body; the leading effect
of frequent paroxysms of pain,
the fatigue and inanition implied
by the almost constant vomiting,
the drain of copious hemorrhage,
the loss of digestive powers &c. &c. is a cause
of this disease. This Cachexie is best
marked in middle aged people
and corresponds to the haemorrhage
generally associated with Gastric
Ulcers in the young female.

The peritonitis that sometimes
occurs in the course of this disease
is notified by very acute symptoms
the patient is suddenly attacked
by an excruciating pain commen-
sencing in the epigastric region
and spreads rapidly over the abdomen
To diffusion being accompanied
by all the symptoms of peritonitis,
the abdomen tender on pressure
the patient assumes an aspect which
resembles the pictures of this part, unit
A repetition of the usual respiratory symptoms. This is followed by swelling of the abdomen and tympanitic distention of the bowels, these symptoms continuing for as fat as from 24 to 36 hours.

Preparation by erosion of a large bloodvessel and consequent haemorrhage following fatality is recommended.

According to Dr. Reid, it was fatality only at the time in one instance amongst a considerable number, that had fallen under his strict observation. The bleeding is capable of being staunched, and the injury repaired. As I said before that this accident of the idea is rare, I will briefly record the following case by Dr. Lockhart. The patient was a man aged 38, his countenance was brisk, but exsanguine, pulse 100, and weak, tongue pale, and slightly furrowed, he made no complaint of pain anywhere. He had been eating for 2 years, had suffered much pain across the epigastric region, and had frequently vomited his meals. Five days before, he had been suddenly attacked with faintness and giddiness, and then vomited.
about 2 quarts of blood: he was an habitual spirit drinker. On the afternoon of the day on which he entered the hospital, he was again seized with giddiness and fell into a state of syncope in which he
remained for several minutes.

Upon recovering, he vomited a large quantity of blood not less than 3
pints. The next morning early, he brought up a like quantity under
similar circumstances and he passed
3 evacuations from the bowels all
of them bloody. He was gradually
worsening during the whole of the day.
Towards the evening he vomited about
half a pint more blood; he died
quickly the next morning. Post Morte
The stomach was distended, the intesti-
nines had in several places a black
appearance from the clots of their
contents. The stomach contained
about two pints of coagulated and
clotted red blood, and at the upper
edge of its lesser arch was a small
perforated ulcer with hardened
edges: in the center of this ulcer, there
were visible the nitrates of 3 or 4 centics
filled with purulent clots of blood.
Some of the most terrible cases
A perforation can also to occur in highly unmanic females, and apparently run a short course. These patients however are mostly anaemic and have been troubled with previous dyspeptic symptoms.

I will just consider one disease with which gastric ulcer is liable to be confounded and that is Canker of the Stomach. The Canker especially affects those of middle and advanced age; the symptoms generally come on 12 to 18 months prior to the death of the patient. It is an accretion with that peculiar expression of the features called the cancerous. Cachexia and often with cancrinous disease of the organ; the pain is of a long standing character, the vomiting is also generally late, the haemorrhage is also more common and if a coffee grounds appearance, the haemorrhage in gastric ulcer is fluid, gastric ulcer is also frequent in middle and advancing age, and has a cachectic attendant on it, which is often quite undistinguishable from cancer, rapidly in cancer the vomited matter shows the cancerous cell growth.
I have now to say something regarding its appearance in the 
bleed subject. Which besides being 
diagnosed by the symptoms and 
directing the treatment of this malady, 
suggest points of interest in respect 
to its origin and etiology. 

Pathology

Age. The ulcer is more frequent in 
the females than in the males, the 
proportions being nearly as 2 to 1. 

It would appear that the 
flexibility of an individual to 
become the subject of disease 
gradually rises from a short period 
before puberty, up to middle 
life; at the end of which it acquires 
increases reaching its maximum 
about the age of 30.

According to Dr. Phipps, the 
attention of the ulcer, may be summed 
up by the statement that the lesion 
occupies the various parts of the 
Stomach in about the following 
frequency. In 43 cases percent, 
the posterior curvature, in 27 the 
upper curvature, in 16 the pyloric 
cysternity, in 6 both the anterior and 
posterior surfaces often at opposite 
places; in 3 the anterior surface only.
in 2 its greater curvature; in 1 the Cardiac pouch.

Thus about 30 ulcers in every 100 occupy the posterior surface, the lesser curvature, and the pyloric part of the stomach which together form a segment of less than one half of the total superficial surface of the fund. Hence we may estimate that any part of this continuous segment of the stomach, is on an average about five times more liable to the lesion than the remaining segments formed by the Cardiac fossa, the anterior surface and the greater curvature.

The size of the ulcer is barely smaller than a sixpenny piece, or larger than a crown piece, but in fact no precise boundaries can be applied to it. Its shape is usually circular or oval, but sometimes oblong, paralleled or transverse to the axis of the stomach.

As regards the number of ulcers, two in 10 are present in one out of every five cases.mongine of the ulcer. In the majority of cases the mucous membrane constituting the mongines is shallow and exposed a little above the
The base of the ulcers is generally hard and firm; this arises from the areolar and muscular tissues generally present and to the cedema of lymph, which the process of inflammation usually brings about. In some cases, however, it is of a gelatinous consistency, and so the ulcer is liable to go on increasing in depth. It follows that it would end in perforation of the stomach; but it is found that in the greater number of cases, the recurred pessary prevented by the adherence of the rear, to some of the neighbouring surfaces, thus exciting the gelatinous at the ulcer base, as inflammation occurring on excision of coagulated lymph, which renders it to the adjacent surface of any process with which it may be in contact as the pancreas or spleen. Thus Jackson found that in twenty-two cases of adhesion...
fifteen united the pancreas to the posterior surface of lesser curvature of the stomach; fine attachments the pylorus a lesser curvature to the adjacent liver, one involved the memorandum and one the spleen.

The detection of the lesions varies, if we find aden irregular shallows ulceration without any manner of adhesion and thickening in its peritoneal aspect, we may presume it is a recent perforation. If so the contrary there is adhesion and thickening we may also presume that sometime has elapsed since its first occurrence.

The classification of the ulcer by which it heals is perhaps as peculiar to the ulcer itself. The examinations of James and Ditchard and others showed a total of one hundred and forty seven scars and one hundred and fifty one ulcers, thus making the proportion of the former merely equal to the latter.

The ordinary mode of its healing is by the deposition and
Contraction of lymph at its base into an indistinct thick mass. Perforation. I have already pointed out that when perforation takes place, followed by effusion of the contents of the stomach, fatal peritonitis is the general result, and this may take place so suddenly as to give rise to the impression of poisoning, where the patient for some time before has been apparently healthy.

Perforation by disease and perforation by the gastric juice are both liable to be mistaken (and indeed have been mistaken) for evidence of murder or of suicide by poisoning. Just as Tyre asks peritonitis from poisoning. This may occur in two ways. Firstly, corrosion by ulceration. The perforation by corrosion is by far the most common variety of perforation by poisoning. Sometimes witnessed when the strong mineral acids have been taken, especially the...
Sulphuric Acid: the Stomach in such cases is blackened and extensively destroyed, the aperture is large, the edges rough and irregular and the coats easily detached.

The poison escapes into the abdomen and may be detected there by chemical analyses.

The perforation from ulceration, occasioned by an instant poison, as for example arsenic, is but little known.

Dr. Gayler says that there are only three instances on record, and in a great number of poisoned subjects examined during many years at Guy's Hospital, not a single case has occurred. It must therefore be looked upon as a very rare appearance in cases of instant poisoning.

In the perforation from disease the aperture is commonly of an oval or rounded form, about half an inch in diameter, situated in the centre, in the curve of the stomach and the edges are
smooth.
The rate process of the aperture is often delayed; the mucous coat is the most
removed, the peritoneal coat the least. The coats of the Stomach
around the edge of the aperture are usually thickened for some
distance, and when cut they have almost a cartilaginous
hardness.

These characters of the aperture will not alone indicate
whether it be the result of poisoning or disease; but the
absence of poison from the Stomach, with the want of those
characteristic marks I intend poisoning would enable us to
dismiss the history of the case.

Besides the history of the case during life would materially
assist us in our diagnosis.

Expiration by the digestive juice

John Hunter was the first

to announced the remarkable
fact that the Stomach is capable
through the agency of its own fluid
of digesting its own tissues.
The dissolving power of the gastric juice survives awhile the vitality of the body, and acts after death upon the stomach as upon the food submitted to its influence during life.

Hunter's discovery was verified by several observers, and plausible explanations were framed to account for its supposed frequency. Dr. Adams thought that the stomach was soluable by the gastric juice only when the organs became instantly dead, and no organic vitality lingered in its tissues; and he took the continued presence of the blood and the absence of the rigors which are test of such unnatural sudden death. He correctly supposed also that temperature was concerned in the matter.

Mr. Allan Burns observes that softening and perforation sometimes become in persons
acids of chronic diseases, and he concluded that the gastric juices could exercise its soothing power not only after being forced past into the stomach, but also while still contained in its jugged vessels. This degree the simplicity of Hunter's views was observed chiefly by continental writers respecting the operation of disease in causing these softenings.

Two years after the publication of Hunter's first paper, Dr. Robert Curschell in a French essay reads before the Royal Academy of Medicine in Paris that the action of the healthy gastric juices was sufficient to account for changes. Which by M. Maurice Louis, were attributed to the operation of disease.

The stomach in which this agency of the gastric juice is discernible shows no marks of
Perforation, but their nature
exhales a peculiar acrid odour
and bitterness applied to the ef-
enes spots turns red.

As regards the frequency of
perforation in the course of gastric
ulcers, its occurrence is so far excep-
tional that not more than one
in every seven or eight cases of
this lesion ends in this way.

The time of life at which
perforation occurs seems quite
uninfluenced by the site of the
ulcer, and that on the inner
surface of the stomach: this lesion
is twice as common, and on
the Carcinic end five times as
common in the male as in
the male, in whom conversely
the pyloric extremity appears to
be perforated three or four times
as often as in the female.

I think I mentioned before
that the perforative, in the majority
of instances occurs immediately,
After a meal, when the stomach is distended, but it may also be brought about by vomiting or excessing vomiting. I have mentioned before that hemorrhage was one of the most important symptoms of gastric ulcer. I have now to notice its production.

The blood of surface involves the vascular mucous membrane, eroding at first the capillaries the arteries and aorta from which they arborize, the arterial and venous plexuses which occupy the submucous muscular tissue; but the most serious class of hemorrhage is one in which the bleeding comes from a large artery of the stomach, such as the inferior and splenic. The blood poured out from these sources, immediately becomes a clear and clotted appearance due to its mixture with the gastric contents; and even when these bleedings are renewed, their
What of forty females?
first attack is nearly fatal.

As regards the complications of the disease with lesions of other organs, it would appear from the statements of Jakob, Dittich, and Lengel, which refer to some hundreds of cases that pulmonary tuberculosis is present in about nine-teen or twenty per cent. Jakob and Lengel estimate the frequency of pneumonia and pleurisy at about twenty-seven per cent. Lengel ten per cent to be pree-
died by suppuration.

Next as to its etiology.

Old age, privation, fatigue, mental or mental and intestinal, or frequently coincide with this disease, that they leave no

answer in doubt as to being its immediate cause; still it is also highly probable that its pro-
duction is sometimes owing to a chronic vice of the system;

and when ulceration has taken
place, it is very obvious why it should be so slow to heed, such as the great and quiet alteration which the stomach undergoes at the different periods of digestion, and the chemical change which the food undergoes.

Treatment
There are certain special indications of treatment to be followed in the case of this choleic.
The patient must be kept quiet and in bed; all local obstructions to the circulation of the bile are to be removed; the constitution at the same time to be supported in effecting this, to limit or suppress the results of the biliary. Blister, dry cupping, and hot fomentations, are very useful local applications in allaying the severe growing pain complained of by the patient.
The epigastrum is the best site for their application, but they may also be applied to the back, when
there is also dorsal pain.

Blistering are most useful when the disease is recent, and occurring in young and well-nourished subjects.

Youtan somatice is not usually given, it lowers the patient too much; where the system is very much exhausted by the burning and the pain still severe, dry cupping is the means of alleviating it. Fomentations one after

very grateful to the patient. But a still more valuable remedy

of an opposite kind is febrin. In

many cases of Obstructive vomiting, great relief is got by swallowing

lemons of it; and perhaps it is

still more useful when there is

herniation, given internally as

well as applied externally.

The best remedy however for

severity and continued pain is

opium, given in the dose of

one grain at a time; and whos
Diarrhoea is present, perhaps there is nothing so useful as the compound zinc powder combined with a little bismuth, in doses from 5 to 10 grains of the former, with 10 to 12 of the latter, and given every 1 to 2 hours; this combination also very often relieves the pain and vomiting as well as the diarrhoea.

In the vomiting itself, a variety of remedies are in use. When it accompanies nausea and flatulence, the infusion of calomel with the bicarbonate of potash, often gives relief; but perhaps the best remedy of all is medicinal naphtha, given with some aromatic, this may be said to be useful in all causes of chronic vomiting. When the vomiting occurs in intensity and frequency and the stomach can retain neither food or medicine, nutritive emetics must be given, this often
Giving a day or two of rest to the stomach. The enemata may consist of beef tea, milk, and boric.

In respect to the hemorrhage which occurs, in the earlier stages of this disease, if there is merely a streak of blood in the vomit, and the stools dark coloured, scarcely anything need be given, beyond what is necessary in treating all cases of gastroic ulcer; but when the bleeding comes from a large bloodvessels and is in the time arrested, we must try by every means to give the stomach rest, and giving at the same time a little ice from time to time; a rigid observance of the horizontal position and the minimum of food that will support life. Where there is more oozing occurring frequently some astringent is necessary, such as gallic acid given in doses from 5 to 10 grains along with the same quantity of dilute
Sulphuric acid, with a little water, ice, also will be found useful here.

Diet. This should be bland and nutritious. Those afflicted with this disease find their symptoms aggravated by coarse meals, animal food, tough and hard substances, by hot food and drink; while the use of bland nourished food, in small quantities, not only relieve the symptoms, but often if steadily persevered in, completely cures the disease. Milk diet is the best, given in small quantities and at frequent intervals, this fluid not only containing all the substances necessary for the support of the organism, but in a state which favours their digestion. It is chiefly by the irritability of the stomach, that we can judge, and as a rule good new milk is found to answer best, when the stomach is only in a moderate degree irritable. Arrow root may be given, and the quantity frequency of it must also be
prescribed for the patient. As convalescence advances, the patient may
get tea or ground rice, afterwards the may advanced to flour, a bread
boiled with milk. After the stomach has been used to this for some time
nothing is better than the French "bouilli" a nutritious seldom used
here. The patient may then get
coast or boiled meat.

These I think are the chief con-
siderations in regard to the
eat of the patient. Stimulants
as a general rule are not given;
in fact it is quite out of place
to give alcoholic stimulants, ex-
cept in the shape of an enema.
Opium. This as I said before
was an important remedy it
alleviates pain, soothes the nervous
system, and procures sleep. The
drug is better born when admin-
istered in the solid form, when the vom-
iting is excessive it does not yield
to the pain & bismuth. By most
practitioners it is thought to be
Most useful, especially in cases of long standing, large size, obstinate character in diseased or exhausted constitutions. When the patient is convalescent or returns to his ordinary diet, his precautions are by no means at an end with respect to the disease. A single spoon after many months may bring back the whole train of symptoms, therefore it is advisable that a person who has been the subject of gastric ulcers should refrain from all spices in diet and drink. Exactly all violent spices must be dispensed with. Pressure on the epigastrium should be avoided, & in women if they insist on wearing stays they must not be tight, as their injuries—ever effects is very obvious, and in fact the patient must be prudent ever after.

Landon Hammond