On the - Perforating Ulcer -

Thomas Hyne
The simple or perforating ulcer of the stomach derives its interest, not only from its frequency, but also from the often rapidly fatal effects which attend it. While on the one hand, the existence of any serious disease is ignored by its subject; who feels only a slight degree of uneasiness; on the other, the symptoms are well marked, from the very outset, and life may be extinguished in a few days.

Its early recognition and appropriate treatment are of the utmost importance to one whose existence is every moment in jeopardy, depending on the power of resistance
left in the weakened part, and whose movements, however trivial are liable at any moment to snap through the barrier between the two cavities and usher in a speedy death.

Rarely seen before puberty, it then suddenly increases in frequency, proportionately becoming more so with advancing years, and reaches its maximum in the later periods of life.

Among the predisposing causes may be enumerated, intemperance, continued mental anxiety, exposure to inclement weather, destitution, indeed whatever tends to debilitate the system, malaria, and old age.

Females are doubly liable to suffer from it, and in them the period of puberty seems to predispose peculiarly to perforations, and this is very noticeable among domestics.

The influence of the menstrual function in this disease is not yet established.
Chronic females at or about the period of puberty are particularly liable to suffer from this termination; yet it cannot be said that it is the cause of perforation, nor that it is the immediate cause of the disease; since we meet with the same disease in the opposite sex, as well as in persons of both sexes before the access of puberty.

At the same time very many females menstruate regularly, even profusely, during the whole progress of the lesion.

It may however act as one of the many predisposing causes, by vitiating the general state of the system.

The accession of puberty however produces a marked increase in the frequency and fatality of the disorder, more particularly among females.

The lesion is more frequent among the poor than among the rich.

According to Dr. Brinton the ulcer occupies the posterior surface, the lesser curvature and the pyloric also in 86 per cent. of all cases; and its
comparative frequency in all parts is as follows:—

on the posterior surface in 43 per cent.
— " super curvature " 23 "
— " pyloric extremity " 16 "
— " both anterior posterior curvature " 8 "
— " antecor surface " 5 "
— " erect curvature " 2 "
— " cardiac pouch " 2 "

This number is liable to variation, and Dr. Pottinson estimates these "plural cases" at 21 per cent., and the percentage diminishes in the inverse ratio to the number.

The mode in which they originate is still an open question among pathologists.

Nobinatally holds, that they it begins with acute, circumscribed, red-softening, or with circumscribed sloughing of the mucous membrane; and says it is still more probable that the ulcer increases in depth in this manner, the tissues at the base of the ulcer sloughing and exfoliating.
layer by layer.
Dr. Rowntine attributes its origin to sloughing of the mucous membranes, and its progress to the continual attrition of the food and the evolvent action of the gastric juice on the denuded muscular fibre and lymph.
Dr. Bichet also considers it as a loss of vital assimilative power, in the part affected, and the substance liquefying molecule by molecule inconceivable of defect of assimilative power.
Lastly, Dr. Asborne considered it as the result of a group of gastric glands, initiated to secrete that fluid in such proportion and intensity as to dissolve the surface with which it first comes in contact, thus removing the mucous muscular coats.
The subject is one of considerable difficulty, since the remainder of the stomach presents usually a healthy appearance on inspection. The ulcer varies in size from that
of a fourpenny piece to that of a crown piece or even larger, but instances of these larger measurements are comparatively rare.

They are usually circular, or oblong, when two or more of them unite other forms are assumed — sometimes, for instance, it may extend like a band around the pylorus.

The ulcer presents an appearance as if the portion of the parities had been punched out. It has a clean well-defined margin, which according to the length of its duration or the constitution of the patient, may be on a level with, or elevated above the contiguous mucous membrane. The thickening is caused by inflammatory exudation, chiefly into the submucous acellular tissue. In cases of long standing the condensation may extend to some distance, when the mucous membrane over it acquires a dirty brown hue, whereas in weaker cachectic constitutions, or where the progress
of the ulcer has been very rapid, the thickening extends only a very short distance, about a line or two, around its circumference.

As the ulcer deepens, each layer of the wall is found to be less affected so that when it reaches the peritoneum, the opening in it is much smaller, when perforation takes place, than that in the mucous membrane; forming a hollow cone as it were, with its apex at the peritoneum.

The base of the ulcer is usually hard and dense, at other times it is soft and gelatinous.

Before perforation takes place, that portion of the exposed peritoneum roughs and acquires a yellowish hue. The abdominal surface however previously becomes roughened, and covered with lymph.

But adhesions may be formed and thus, for a time at least, the fatal effects of the escape of the contents of the stomach are averted.
Perforation is said to occur in the pro-
portion of about once in every eight
cases. But the liability to this grave
termination varies greatly during
different periods of life, for females,
in whom the event happens twice
as often as in males—are greatly
more liable to it from the period of
puberty till they attain the age of
25 or 2½, while in males there seems
to be no such extremes—

As age advances the probability of
perforation diminishes. The position
of the ulcer must necessarily influenced
the frequency of this mischief: for when
the stomach can contract adhesions
with neighbouring organs, and thus
oppose the escape of its contents, it
is for a time averted; and just as
we find an ulcer, situated on the
anterior wall, or cardia, extenuate
to be the most unfavourably circum-
stanced in this respect, as we find
the reverse to be the case in those
situated on the posterior wall and the
The pyloric extremity.

The pancreas as we might expect from its situation is the organ most often found united to the stomach, and the liver, spleen, diaphragm, mesentery, colon & abdominal wall have severally been found to fulfill the same office yet not all with equal efficacy; for with some of the last mentioned, the mobility of the stomach does not permit of the requisite degree of adhesion, and often some sudden motion breaks it down.

The ulceration may advance after the adhesion is formed, first involving the lymph, then the tissues of the organ to which it is attached. Thus fistulous openings result and these have even been found penetrating the lung through the diaphragm and liver; or have proceeded through the abdominal wall, opening externally, and gangrene is sometimes the consequence.

Should the healing process be retarded, suppuration an excudation of fibrinous
lymph will be found filling up the cavity of the ulcer, and uniting the severed edges of the mucous membrane. This gradually contracts till at last there remains merely a pocked cicatrix to mark the seat of the lesion. This very often, is found to cause alterations in the form of the stomach—especially when the ulcer has been of considerable size. In the smaller ones there is a mere stellate scar left; in the larger the stomach becomes vacuolated, and if near the pyloric orifice may almost wholly occlude it, and thus dilatation may also ensue.

During the progress of the ulcer death may result from hemorrhage. Here is commonly then, an erosion into some large vessel, the coronary, splenic arteries are most frequently found to have been the source. But the capillaries of the stomach also contribute their quota to the general result, and the deeper the ulcer...
The more severe will the flux prove, since they reflex will not have suffered so much subdivision.

Hemorrhage may be derived from other organs during the process of ulceration as from the reflexes of the liver, pancreas, spleen.

Cancerous growth is sometimes associated with the ulcer, and may thus absorb the minor evil, by growing all round its base, forming a hard tumor, or an excrescence. Tubercle and other diseased states are sometimes found associated with it, but not so frequently as to lead to the belief that they are intimately connected with it.

Among the symptoms of gastric ulcer, vomiting immediately or soon after taking food, and pain are the most prominent. The matter ejected are often tinged with blood, or consist wholly of that fluid, constituting hemorrhage. These with a peculiar cachexia and other occasional symptoms will be noticed in detail.
Throughout the whole duration of the disease the pain is rarely absent, and though it may be described simply as a feeling of uneasiness, oppression, or weight, yet in no long period it becomes hot, burning, or gnawing—generally continuous—and liable to exacerbations on the reception of food or drink of any kind into the stomach, particularly if they are stimulant. But drinks are especially notorius for producing this distressing effect.

The pain is usually alleviated by vomiting. The exacerbation comes on either immediately, or very shortly after the admission of food, ordinarily within ten minutes, though in some persons it has been delayed for longer periods.

The position of the ulcer in the viscus will regulate the period of its occurrence; for when situated near the cardiac extremity, it must necessarily be produced much sooner, from its being exposed early to the irritating influence...
of the food, and conversely if near the pyloric extremity of the viscus, the pain will be experienced at a later period.

The pain is referred to the epigastric region, but is not diffuse, being limited to a spot immediately below the umbiform cartilage, in the median line, or we may find it transferred to one or other hypochondriacum, to the right or left of that situation.

Later in accidents, but very constant when it does come on, is pain referred to the back. The vertical limit is from about the 8th dorsal to the 2nd lumbar vertebra. It is very often medial, but, like the epigastric pain, it is liable to suffer the same changes in a lateral direction, though rarely to a greater extent than two inches on either side of the spine.

This deviation is often useful in helping us to form an idea of the probable position of the lesion, provided it be to the same side of the median
line in both regions—then we may infer its existence to be near the cardiac or pyloric extremity, according to the direction indicated; and also according to the level of the pain may we surmise the likelihood of the ulcer being situated in the great or left curvature. It has also been affirmed that according to the comparative intensity of the pain in the anterior or posterior regions, would be the probability of its situation in the anterior or posterior wall.

Pressure commonly intensifies the pain, provided the part can be irritated. (This test however must be applied with the greatest delicacy & caution, from our ignorance of what progress the ulcer may have made towards perforation, lest we hasten that unwished for event.) The pain may thus be made intolerable. But a difference exists as to the ease with which this test can be applied on the two regions. The viscus is covered posteri—
only by a thick unyielding wall comprising the spine, and a thick mass of muscles, while the anterior covering is comparatively pliant and yielding. Pressure then applied to the back, would be of little service in attaining our object, but by a careful manipulation anteriorly, we usually find the pain in the dorsal region to be aggravated as well as the epigastric. And this serves to explain the comparative immunity from suffering afforded by certain postures—The patient by experience soon discovers, and adopts, that one most comfortable and most devoid of pain, and the relief obtained is usually commensurate with the freedom of the part from irritation. That part of the organ which contains the lesion is suffered to lie on the sound one, otherwise the amount of irritation would be perfectly unbearable.

But except in cases exist, deriving benefit from no position—Motion or muscular exercise and mental
emotions also increase the pain, hence the value of complete rest as a remedial means; for with very few exceptions, the horizontal posture is that found most comfortable to the patient, as well as that most free from danger.

The decubitus has thus been found occasionally to indicate the position of the ulcer in the organ;—for instance, if the patient lie on his back, the ulcer is probably on the anterior wall; if he assumes the prone position then it is on the posterior wall; or if he reclines on the right or left side the ulcer may lie on the cardiac or pyloric extremity respectively.

Dr. Osborne has published some cases in the Dublin medical journal proving the general correctness of these views, and they may be of some value in a diagnostic point of view—where no position ameliorates the patient's suffering, then or where no preference is shown to any particular posture, the diagnosis will be difficult. In females, the pain is generally increased towards the period of menstruation.
The evacuation begins a day or two before the appearance of the discharge, and abates about an equal period after its establishment.

During this period the pain may be greatly altered in character and even in situation—vomiting. The character of this symptom is liable to modifications, being present in many as a simple regurgitation, or as emesis of the most intractable description. Sometimes it is easy and painless, at other times it is attended with intense suffering. On its cessation however the pain attending the evacuation usually, as was formerly stated, is absent. The vomited matters too are liable to variations according to the time and circumstances under which they are ejected—thus after food has been taken they may consist of that food unchanged, or it may have become solid, or mingled with bile. But though it occurs independently of digestion, as is seen in the case of confirmed drunkards.
then it presents the characters of a glairy alkaline fluid.
Vomiting comes ordinarily after a meal. Its frequency and intensity depend on the relative magnitude and duration of the ulcer, and the presence of adhesion, all of which favor its occurrence in the more severe forms.
The vomited matter may be mingled with blood in various proportions, or they may consist wholly of the latter. Haemorrhage into the stomach is as variable in quantity as in its source. Sometimes so much escapes as suddenly to cause distention of the viscus, occasion syncope, or cause death; or on the other hand it may ooze away in small or large quantity - in the former case the haemorrhage is usually intermittent and arrested on the approach of fainting, by allowing of the formation of a clot to plug the mouth of the vessel, but no correct data can possibly be obtained with regard to the amount which may be daily lost by the second mode, through the medium of
the numberless orifices of the gastric pleura.

Hemorrhage ensues generally after a meal has been taken, and the event is favoured doubtless by the distended state of the stomach, the attrition of the food combined with the vermicular action of the organ itself, aided by the solvent action of the gastric juice. The blood however may not be vomited, for it seems, if it be expelled in small quantity it often paper through the pylorus and is discharged by the gut. It is usually vomited, if it be poured out in large quantity, and may then present its ordinary fluid character, or be coagulated, or have the common "coffee grounds" appearance. If the blood be extruded by the bowel, the stools may of a dark colour. It is necessary in all cases to make a careful microscopic examination of the matter so obtained, to ascertain whether blood be or be not present in them, and this is easily determined by the detection of the corpuscles, even although the matter present no
There is very often a throbbing sensation in the epigastrium as another symptom.
appearance of its presence under an ordinary observation—

On the occurrence of Haemorrhage the patient complains of Distention, and becomes sick vomits, or syncope may supervene if it be in some quantity, and if it prove excessive death may be the termination—

The bowels are usually confined, but should the blood find an exit by the gut, a lax condition may exist, from the distension and decomposition of the fluid during its transit—

The dejections are dark when they contain blood—

Amenorrhœa is commonly present among females, afflicted with this disease—yet it is not invariably—It is least seen in chronic females—very frequently simple irregularity exists—

From the continued depletion to which the patient is subjected, and the want of nourishment, and the harassing pain and vomiting, it is not a
matter of surprise that the patient should 
speedily acquire a cachectic appearance 
he becomes anaemic, emaciated and 
his expression betrays suffering and 
apprehension — 
Shocked the ulcer take on the healing 
process, then vasculation, structure, 
and deflation are often seen to 
result, and present abnormal 
symptoms— But if perforation occurs 
a new set short train of symptoms is 
established — An acute exacerbation 
of long or short duration, following a 
meal, occurs in the severe symptoms. 

Pain rapidly diffuses itself over the 
abdomen. The patient lies on his back 
with his knees drawn up, and main- 
tains them in such a position as will 
relax the abdominal muscles and 
withdraw any pressure. The bed clothes — 
The abdomen is swollen, tympanic, and 
evry tender to the touch; great anxiety 
and prostration; pulse quick weak, 
after a time collapse sets in and within 
24 to 36 hours the patient expires.
The pain caused by the formation of adhesions is more limited, and commonly is an exaggerated form of the pain formerly experienced — being confined to the same situation.

The diagnosis of gastric ulcers is often a matter of great difficulty, many cases indeed are so perplexing that the physician can only surmise its presence.

The presence of blood, the limited character of pain & the period of its occurrence, with the continued vomiting, and cachexia must all be taken into account, and they are all present more or less during some period of the disease.

Cancerous disease usually has a hard, movable tumor, and its cells are present & capable of detection, the pain is lancinating — and the vomiting in an unusually hot.

The advanced age at which it occurs may be serviceable in many instances to guide our diagnosis.
In the treatment of gastric ulcer we have to promote its eradication, to relieve its retarding effects, and to improve and support the patient's general health. It is of the utmost importance here to inculcate absolute rest, bodily and mental, and to enforce a strict regulation of diet. By the former we hope to obviate as much as possible one of the great hindrances to the healing of the ulcer, and also to avoid the chance of rupture. Another reason for the maintenance of this rule, is the comparative comfort it yields the patient, compared with that experienced on walking about.

For similar reasons all prejudice and manipulation must be avoided. By regulating the diet we also attain the same object, limiting as we do the contractions of the stomach. Animal food must be strictly forbidden, and a bland farinaceous diet with
milk substituted for it. The food must be cooked previous to being eaten and only small quantities given at a time, though at closer intervals. Should any irritability of the stomach exist, the milk may be combined with lime water to one-fourth of its bulk. Alcoholic stimulants must be prohibited at all times to be taken by the mouth. Should the patient's condition demand them, they may be given by enemata. The best diet at first, and till the symptoms are so much modified and improved, as to favour the idea that convalescence is advancing, is an raw root, biscuit powder, or ground rice, prepared with milk. As convalescence advances, and the patient is thought capable of sustaining no danger from its administration; beef-tea and fish may be given, but the return to an animal diet must always be the subject of much concern. The value of the substitution of these matters in the first instance is enhanced by their easy digestibility and their nutritiveness.
Thus requiring only a small proportion of the gastric fluid, and a minimum of muscular contraction in the organ itself, from their passing quickly through into the gut. The effect of abstinence from their bland non-irritating properties is also a desirable one.

When a return to an animal diet is permitted, the food should be thoroughly masticated before being swallowed; all condiments must be excluded from the dietary, from their stimulating nature and the proportionally large quantity of gastric juice they cause to be secreted. When the stomach is so irritable as to refuse any, even the mildest articles of diet, then recourse must be had to nutrient enemata for a day or two, when the stomach may be in a less irritable condition.

By all these means we often secure a less degree of pain, vomiting, as well as a supply of sufficient nutrients to support the system.
To alleviate the pain belladona or subcutaneous may be applied to the epigastrium or to
the back, both opiates epithems, or dry, cupping have also been employed with
great advantage.

The internal administration of opium too
is of signal service and is best given
in the solid form in gr. 1/12 doses, it is
then less likely to be ejected. Besides
acting as an anodyne it paralyses the
stomach & favours asuerion or necratization.

Bismuth has also proved useful in allaying
the irritability & correcting the acidity it
should be given in gr. 5 doses 3 or 4 times
daily— and may be combined with
Kino and opium should the bowels be
loose.

Dr. Brinton recommends for flatulence the
solution of Potassium in gr. 1/7 doses combined
gr. 1/2 Soda Bicarbonas in the infusion of
Calumba.

Ice internally & externally will relieve vomiting
and the patient should be directed to
swallow small pieces, externally it may
be applied in a bladder.
when the vomiting occurs with an empty stomach, opium is the remedy on which most reliance should be placed. In ordinary irritability, hydrocyanic acid \( \text{HgCN} \) in water is often useful — with these means the diet should be carefully regulated — and a complete rest to the stomach may be required. If the haemorrhage be only trickling the ordinary diet regimen may suffice, but when exsanguine Lee may be employed in the ordinary way, or Gallie acid in \( g \) doses in dilute sulphuric acid and water may be given. The muriate of iron also has been of service.

Or the lead and opium pitt may be given. The bowels must be regulated by Castor oil — in \( \frac{1}{4} - \frac{1}{2} \) doses, or enemata may be given when there is nausea and vomiting produced when administered by the mouth. After convalescence is established the Compound Colocynth pills may be given. The nitrate of silver is held by many to have a salutary effect on the mind, by others it is thought to be deleterious.
If it be given it may be combined with morphine and bread crumb —

The general health should be improved by the administration of ferruginous tonics, a combination of iron and quinine being often extremely useful and may be given in quinine infusion but should this prove too irritating, they may be tried in the solid form with extract of opium in combination.

It will be necessary to guard against giving patients stimulants by the mouth when they are in a state of collapse after perforation, for such conduct can only hasten an untoward termination.

When peritonitis has resulted from perforation - remata must be given to sustain the patient's strength, while opium must be constantly administered. The prognosis then is very bad -

during the convalescence every thing depends on the care with which the patient follows the rules just laid
down, and they must not be departed from without much consideration. Especially in the regulation of the diet does the patient's safety rest, for doubtless many evils have been cried up without the administration of any medicine whatever, and finally it must be annoying both to patient and physician to find—after several weeks rapid improvement—\textbf{all to be undone by a single error in diet, inducing a return of the distressing symptoms, and often in an aggravated form, or even\textbf{}}\textbf{\textemdash even\textbf{}}\textbf{\textemdash even\textbf{}}

Thomas Brynt