Thyne

On the Perforating Ulcer

Thomas Thyne

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, proportionally 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 perforation, and this is very noticeable among domestics. The influence of the menstrual function in this disease is not yet established.

Chlorotic females at or about the period of puberty are particularly liable to suffer from this termination, yet it cannot be said that amenorhoea 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 accesp of puberty - At the same time very many females menstruate regularly, and even profusely, during the whole progresp of the lesion -

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

The accesion of puberty however prpduces 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 sac 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.
" " lesser curvature " 23 " "
Pyloric extremity " 16 " "
" Both anterior + posterior surfaces " 6 " "
" Anterior surface " 5 " "
" Great curvature " 2 " "
" Cardiac pouch " 2 " "

Their number is liable to variation, and Dr Brinton 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.

Rokitansky 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

No applause

layer by layer.
Dr Budd attributes its origin to Sloughing of the mucous membrane, and its progress to the continual attrition of the food and the solvent action of the gastric juice on the denuded muscular fibre and lymph -
Dr Sieveking considers it as a loss of vital assimilative power, in the part affected, and the substance liquefying molecule by molecule in consequence of defect of assimilative power -
Lastly Dr Osborne considered it as the result of a group of gastric glands, irritated 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 round the pylorus -

The ulcer presents an appearance as if a portion of the parieties 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 areolar 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 weak 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 + dense, at other times it is soft + gelatinous –

Before perforation takes place, that portion of the exposed peritoneum sloughs, 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 proportion 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 24, 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 influence the frequency of this mishap; 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 cardiac extremity to be the most unfavourably circumstanced in this respect, so we find the reverse to be the case in those situated on the posterior wall and 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 walls have severally been found to fulfil 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 set up, ~~suppuration~~ an exudation 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 puckered 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 sacculated, and if near the pylonic orifice may almost wholly occlude it, and thus dilatation may also ensue -

During the progress of the ulcer death may result from hæmorrhage - There is commonly then, an erosion into some large vessel, The coronary, + splenic arteries are most frequently found to have been its 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 the vessels will not have suffered so much subdivision -

Haemorhage may be derived from other organs during the process of ulceration as from the vessels 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 tumour, or 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 matters ejected are often tinged with blood, or consist wholly of that fluid, constituting haemorhage - 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 - Hot drinks are especially notable for producing this distreping effect-
The pain is usually alleviated by vomiting. The exacerbation comes on either immediately, ~~after~~ 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 accession; 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 diffused, being limited to a spot immediately below the ensiform cartilage, in the mesial line, or we may find it transferred to one or other hypochondrium, to the right or left of that situation -

Later in accession, 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 mesial, 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 mesial

line in both regions - then we may infer its existence to be near the cardiac or pylonic 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 lesser 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 poster-

iorly 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 ~~most~~ comfortable and most devoid of pain, and the relief obtained is usually commensurate with the freedom of the part from irritation - That wall 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 exceptional 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 be 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 patients suffering, 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 exacerbation 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 ulcer, usually abates, as was formerly stated. 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 sour, or mingled with bile. But should it occur independently of digestion, as is seen in the case of confirmed drunkards

then it presents the characters of a glary alkaline fluid.

Vomiting comes on ordinarily after a meal. Its frequency and intensity depend on the relative magnitude and duration of the ulcer, and the presence of adhesions, all of which favor its occurrence in the more severe forms.

The vomited matters 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 sources. Sometimes so much escapes as suddenly to cause distension 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 plexus -

Haemorhage 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 passes 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 are of a dark colour -

It is necessary in all cases to make a careful microscopical examination of the matters 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 matters present no

I 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 Hæmorrhage the patient complains of distension, 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 —

Amenorhœa is commonly present among females afflicted with this disease — yet is not invariably —

It is best seen in chlorotic females. — very frequently simple irregularity exists — I

From the continued depletion to which the patient is subjected, and the want of nourishment, and the harassing pain & vomiting, it is not a

matter of surprise that the patient should speedily acquire a cachectic appearance He becomes anæmic, emaciated and his expression betrays suffering and apprehension - -

Should the ulcer take on the healing proces, then vacculation, stricture, and dilatation are often seen to result, and present anomalous symptoms - But if perforation occur a new yet short train of symptoms is established - An acute exacerbation of long or short duration, following a meal, or some emotion or exertion ushers in the severe symptoms - Pain rapidly diffuses itself over the abdomen, The patient lies on his back with his knees drawn up, and maintains them in such a position as will relax the abdominal muscles and withdraw any pressure arising from the bed-clothes - The abdomen is swollen, tympanitic, and very tender to the touch; great anxiety and prostration; pulse quick & weak, after a time collapse sets in and within 24 to 36 hours of the perforation 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 ulcer 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 occupion, 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 moveable tumour. and its cells are present + capable of detection, the pain is lancinating – and the vomiting is usually later –

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 cicatrization, to relieve its untoward effects, and to improve and support the patients' general health

It is of the utmost importance here to inculcate absolute rest, bodily & 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 pressure 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 milk

milk substituted for it - The food must be cooled previous to being eated and only small quantities given at a time, though at shorter 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 patients 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 arrow-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 a little attrition from their bland non-irritating properties is also a also a desideratum -

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 of these means we often secure a less degree of pain + vomiting, as well as a proper amount of nutriment to support the system -

To alleviate the pain blisters or rubefacients may be applied to the epigastrium or to the back, ~~but~~ opiate 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 $\frac{1}{4}$-$\frac{1}{2}$ doses, it is then less likely to be ejected - Besides acting as an anodyne it paralyses the stomach + favours adhesion or cicatrization Bismuth has also proved useful in allaying the irritability + correcting the acidity it should be given in gr X 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 Iodide of Potassium in gr $\frac{1}{4}$-$\frac{1}{2}$ doses combined gr XV Sodæ Bicarbonatis 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 M iij - iv 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 trifling the ordinary diet regimen may suffice, but when excessive Ice may be employed in the ordinary way, or Gallic acid in gr X doses in dilute sulphuric acid and water may be given - The muriate of Iron also has been of service -
Or the lead and opium pill may be given -
The bowels must be regulated by castor-oil ~~and~~ in ℥i - ii doses. or Enemata may be given where there is nausea + ~~vomiting~~ produced when administered by the mouth - after convalescence is established the Compound Colocynth pill may be given -
The nitrate of silver (gr 1/4 doses) is lauded by many to have a salutary effect on the ulcer, by others it is thought to be deleterious;

If it be given it may be combined with morphia 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 quassia 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 a conduct can only hasten on a fatal termination
When peritonitis has resulted from perforation - enemata must be given to sustain the patients strength, while opium must be constantly administered,
The prognosis then is very bad -

During the convalescence every thing depends on the care with ~~which~~ 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 patients safety rest, for doubtless
many ulcers have cicatrized without the administration
of any medicine whatever,
and ifinally it must be annoying both
to patient + physician to find - after
several weeks rapid improvement, -
all to be undone by a single error in
diet, inducing a return of the dis-
tressing symptoms, and often in an ag-
gravated form, or even peilling the
patients existence -

Thomas Thynt