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On the,

Diagnosis & Treatment of Acute Intestinal Obstruction

The Selection of a Subject for a "Thesis" must very often be a matter of considerable difficulty, especially to the man who after leaving the Hospital launches out into general practice. This one was suggested to me by being brought into contact with a case of Acute Intestinal Obstruction early in my career & the scantty knowledge which I found I then possessed upon the subject – nor did I find a great deal of enlightment on referring to my text-books where I found the whole subject was very inadequately dealt with. No doubt there are several excellent treatises upon the subject, but one cannot be expected to have all these at hand – but in the ordinary text books the different forms are all classed under one heading Acute Intestinal Obstruction & in many cases no attempt is made to show how they may be recognized from one another –

Cases of Acute Intestinal Obstruction are not of common occurrence to the general practitioner who may not be called upon to treat such a case more than once a year. & sometimes not even that, so that they have not the same advantage as Hospital Surgeons in gaining familiarity with the subject. & when such a case does occur. they are beset by many difficulties they recognize the urgency of the case by the severity of the symptoms & the rapidly failing strength of the patient & pulse. they are often in doubt as to the correct treatment to pursue. but more often they delay in using the means of relief until all chance of saving life has disappeared, not on account of any carelessness on their part. but because the diagnosis is sometimes so difficult & the period when a successful issue to any operation may be expected, is so short. they prefer to use palliative means rather than risk an operation which if unsuccessful. injures their reputation.

In no case is a surgeon put upon his merits more than when he is called upon to treat a case of Acute Strangulation of the bowel.

Every thing he does must be done promptly & advisedly - he sees the patient is suffering intense agony of pain & that unless relief comes soon the patient must die, the weight of responsibility falls upon his shoulders & everything depends upon his power of diagnosing the cause - & his skill in treating such a case -

I remember very well the first case of Acute Intestinal Obstruction that came under my care - I was called one evening at 10 p.m. to see young female who had been performing the duties of a domestic servant during the day but had suddenly been taken ill about 6 p.m. - when I saw her. She was suffering great & intense pain located in the umbilical & epigastric regions; perspiration rolled off her forehead. She had vomited constantly since the attack commenced - her pulse was throbbing & increased in frequency - & the respirations also increased but the prominent feature was the pain. I treated it as a case of colic & ordered poultices to be applied to the abdomen & gave a Mixture & 1/2 Opium pills to be taken every 2 hours - About 4 a.m. I was called again the symptoms had not abated. So I increased the dose of Opium -

The next morning I found things gradually getting worse — the pain had been relieved somewhat for a time but had recommenced again. the change in the patient was great there was evidence of great prostration the face had an anxious look. there was a cold clammy sweat; the pulse was small vomiting still persisting. I found on examining the abdomen tenderness localized to a small region near the umbilicus but there was no localized dulness. nor no tumour to be found. I injected Morphia hypodermically but to no purpose as. she rapidly passed into a state of collapse. & died 27 hours after my first visit to her.

Unfortunately I was not able to obtain a. Post Mortem Examination much as I wished it but I was convinced in my own mind not exactly at the time but after weighing over the symptoms carefully. I having obtained the history of a previous attack of localized peritonitis that the cause was the incarceration of a piece of the small bowel.

I consulted with a more experienced surgeon my principal but not with there was too late.

The question naturally that occurred to my mind was. Could the life of that patient have been by any means saved? the whole course of the attack was so rapid. that it allowed of very little time to consider whether an operation was advisable.

This case produced such a profound impression upon my mind that I resolved to reach up & study the whole subject carefully in its different aspects. although my experience in treating such cases has not been very large. yet I intend to show how I should proceed. to form a diagnosis & the different methods by which each should be treated.

I may say that the most of my information has been derived from the following Sources.

The Lectures delivered by Sir George M'Leod on Intestinal Obstruction during the Winter Session of 1887-8.

Intestinal Obstruction by. Frederick Lewis M.R.C.S.

Gage's Guy's Reports. 1868.

Erichens Surgery.

Bryants. Practice of Surgery.

Braithwaites Retrospect 1851. to 1890.

Lancet, British Medical Journal, & from several freinds who have given me records of cases.

I have thought it necessary to make the subject as complete as possible before going on with the Diagnosis & Treatment proper to introduce in a brief form certain details in the Anatomy of the part which is necessary to know. & also to mention the different forms of Obstruction & the Symptoms which are liable to occur in any of them.

Anatomy.

Land marks of the Abdomen –

Linea Alba – dividing the Abdomen into two parts

Ensiform Cartilage.

Pubic Symphysis –

Pubic Spines.

Anterior Superior Iliac Spines.

Crests of the Ilium –

The Anterior wall of the Abdomen is composed of several Layers of muscles. all of which it is necessary to remember in operating, the direction of their fibres & the fascia's which are connected with them.

The vessels are the External Pudic, Superficial Epigastric & the Branches of the Circumflex Iliac –

For the purpose of locating the organs contained in the abdomen - the surface has been artificially divided into nine portions - & from this we gain the best idea as to the ~~exact~~ position of the bowel -

Right Hypochondriac	Epigastric	Left Hypochondriac
Right Lobe of Liver - Gall Bladder	Middle & pyloric end	Splenic End of Stomach
Part of Right Kidney.	of Stomach Pancreas - Splenic Part of Pancreas	
Hepatic Flexure of Colon	Left Lobe of Liver - Part of Left Kidney	
	Duodenum.	Splenic Flexure of Colon

Right Lumbar -	Umbilical	Left Lumbar -
Greater part of kidney -	Transverse Colon	Greater Part of Kidney
Ascending Colon -	Part of Small Bowel	Descending Colon
Part of Small Intestine	Mesentery, Omentum	Small Intestine

Right Iliac -	Hypogastric	Left Iliac -
Ileo-caecal Valve.	Part of Small Bowel	Sigmoid
Vermiform appendix.	Bladder.	Flexure

This imperative that we should have a thorough knowledge of the above - to satisfy ourselves as to the portion of the bowel where the obstruction exists -

It is necessary that I should say a few words in connection with the Intestine.

The Small Intestine is a convoluted tube about 20ft long - & is situated in the central & lower portions of the Abdominal & pelvic cavities. It is surrounded by the Great bowel with the Great Omentum & Abdominal Parietes in front & connected with the Spine by the Mesentry -

The first portion the Duodenum - about 10 inches in length - forms a curve round the head of the pancreas it has no mesentry & is the most fixed portion of the Intestine

The Jejunum - includes about 2/5th of the remainder is confined chiefly to the umbilical & left iliac Regions.

The Ileum is the remaining portion & is situated chiefly in the umbilical hypogastric & right Iliac regions & terminates in the Right Iliac fossa at the Ilio-caecal Valve -

The ilio-caecal valve which plays a very important part in some forms of Intussusception consists of two folds of mucous membrane - which form a valvular opening - Foreign bodies are often intercepted in their course here -

At the junction of the small & large intestine we have a large blind pouch the Caecum - found lying upon the psoas muscle - surrounded by peritoneum but quite free - & capable of a considerable amount of movement -

Attached to the blind end is the Vermiform appendix a long narrow worm shaped tube terminating in a blunt point here again we have - the source of trouble - as the end may become attached & form a loop to snare the bowel -

The Large Intestine is divided into four portions The Ascending Colon - passing upwards from the caecum - to the under surface of the liver - where it bends abruptly forming the hepatic flexure - it lies upon the quadratus lumborum - & has in front the ileum -

The Transverse Colon passes across the abdomen from right to left - terminating in the Splenic flexure - above it is the liver gall bladder - great curvature of the stomach & spleen - below - small intestine - in front great omentum - behind transverse meso-colon & third portion of the duo-denum -

The descending Colon - passes downwards into the left iliac fossa - terminating in the Sigmoid flexure - & lying upon the quadratus & kidney

The Sigmoid flexure is the narrowest part of the Great Bowel - situated in the Left Iliac Fossa - it curves inwards across the Psoas Muscle - then descends vertically along the left wall of the pelvis & finally again passes inwards to the left sacro-iliac joint where it becomes the Rectum - which terminates at the Anus -

What are the most dangerous regions.

In connection with Strangulation by Bands & Internal Hernias any portion of the Small or Large bowel may become involved - but there are certain places where Obstruction is most liable to occur -

Ileo-caecal Valve -
Splenic } Flexures.
Hepatic }
Sigmoid flexure -
Lower portion of Ileum -

The next point to be touched upon is.

The Causes of Acute Intestinal Obstruction

These may with great convenience be arranged under three heads - according to the position of the occluding force - in relation to the walls of the Intestinal Canal.

Intra-mural
Inter-mural.
Extra-mural

Intra-mural where the obstruction is within the Lumen of the tube

This includes all foreign bodies which have either been accidently - or purposely swallowed & have successfully passed through the oesophagus. the cardiac & pyloric orifices of the Stomach & have either been caught in some fold of the Intestine or at the Ileo-caecal Valve. & have thus by their presence obstructed the Lumen of the tube.

Foreign Bodies which have accumulated in the Intestine.

Masses of Gall-stones are the chief agents in this variety. These may either pass from the Gall Bladder through the duct into the intestine & accumulate there

& become adherent to one another so as to form a Mass capable of Obstructing the Lumen of the tube —

Or one large Gall-stone too large to pass along the duct may ulcerate through the duct & into the duodenum & so form an Obstructing force —

Medicines which have been given over a prolonged period producing Concretions have been known to be the cause of Obstruction such as Magnesia Sub-nitrate of Bismuth. Sesqui-oxide of Iron.

Masses of Worms & Accumulation of faeces rarely produced symptoms of Acute Obstruction — but we may have Acute Symptoms following in the course of Chronic Obstruction —

Inter-murah in which the obstruction originates in the wall of the intestine it includes several Varieties

Paralysis of a Segment of the Bowel — This is regarded by many as a cause of Obstruction. Mr Treves in his work on "Intestinal Obstruction" treats of it differently & does not include it in his list of Causes. he speaks of it when dealing with the Various affections which have been confused with cases of Obstruction. but as it presents a great many—

of the most prominent features of a case of Intestinal Obstruction I think that. It is very proper to include it amongst the Causes. examples of it a very rare & are due to Enteralgia. Reflex paralysis or some affection of the General Nervous system.

Spasm of a segment of the intestine is exceedingly rare. but has been observed in cases of Lead Poisoning or Enteralgia. (Sir G M Leeds Lectures)

Twist in the Bowel.

This includes Volvulus of the Sigmoid Flexure & other parts of the Bowel.

Acute Knotting produced either by Strangulation over a band. or by a band or adhesions dragging upon the bowel. I so excluding the A Medical confrere told me of a case of his. where there were all the symptoms of Acute Strangulation produced as was shown during the Post Mortem examination by a narrow band unattached at one end to which has occluded the intestine in which way he could not say.

Intussusception is a frequent cause of Acute Intestinal Obstruction

The several varieties are named according to the segment of the bowel involved -

We have

Enteric occurring chiefly in the lower segment of ileum

Ileo-caecal in which the ileum & caecum pass into the colon. The most common of all

Ileo-colic in which the end of the ileum protrudes through the ileo-caecal Valve -

Extra-mural or where the occluding force acts from without producing partial or complete occlusion of the calibre of the tube -

Amongst the many causes which may produce Acute Obstruction in this manner the formation of Bands or the adhesions of pre-existing diverticula forming Loops through which a portion of the Intestine may pass is by far the most important as the origin of a large number of the cases we meet with in practice.

In nearly every case we will find that the attack has been at some time preceded by some local peritonitis which has resulted in either the

formation of a loop or the attachment of some diverticula as Meckels or the Appendix Vermiformis producing as it were a snare to catch at some period the unwary bowel.

Internal Hernias -

I include amongst this Class two varieties & I do not see why the above should not be also included amongst this variety because they are really hernias pure & simple -

(1). Hernias or protrusions of a portion of the bowel through some natural opening in the abdomen.

This includes Diaphragmatic when it is not the result of a rupture of the diaphragm but through one of the natural openings or some congenital deficiency

Obturator Hernia where it passes through the Obturator foramen & has not shown itself externally

Ischiatic Hernia where a small portion of the bowel protrudes through the Sciatic notch either above or below the pyriformis muscle -

(2) Hernias or protrusions of a portion of the bowel through some abnormal orifice in the abdomen either as the result of congenital deficiency or an injury causing a rupture of some of the membranes.

We may have congenital deficiency leaving an aperture in any of the membranes connected with the Abdomen. They have been found in the Omentum. Mesentery. Broad Ligaments. Diaphragm.

Then as the result of Injury we may have Hernias through the Omentum Mesentery Suspensory Ligaments of the Liver & Diaphragm.

Decidedly the majority of such cases occur through apertures in the Omentum & Mesentery.

I think we cannot dismiss the subject of the Causes of Acute Obstruction without referring to those Malformations which sometimes though rarely present themselves in the Anus & Rectum.

I saw a case a week or two since where a child was born with imperforate anus; but was unsuccessful in finding the blind end of the Rectum.

The most common Varieties are.

A Simple Membrane stretched across the orifice.

Where the Rectum is deficient & terminates in a cul-de-sac

Symptoms of Acute Intestinal Obstruction -

(1) Pain. Probably one of the first & best signs - In nearly every case it comes on suddenly & increases in severity.

This is a rule Continuous, but is subject to remissions & exacerbations, it may disappear before death occurs.

At first it is localized either over the seat of the obstruction or to the Umbilical region but its area may become enlarged & diffused if inflammation occurs.

(2) Tenderness over the Abdomen - as the result of peritonitis or congestion of the involved part of the bowels.

(3) Vomiting is rarely absent -

May occur Early in the course of the attack or be delayed -

May be continuous or intermittent

May be absent altogether. This is very rare in cases of Acute Obstruction.

(4) Meteorism is a symptom which is not constant. It requires some time before it is developed - as a rule 2 or 3 days but it depends upon the form.

(5) Constipation sometimes Early sometimes Late. depending upon the locality of the Obstruction -

(6) Collapse. is a very constant symptom depending upon pressure of the Nerves especially upon the Solar plexus - it is most apt to occur where the Obstruction is in the Small bowel & where a considerable portion of the bowel is involved -

(7) Hiccup. very distressing often.

(8) Movement of the Bowel - as observed through the abdominal walls. rarely seen except in very emaciated persons.

(9) Boiborigmy. rarely seen in Acute Cases.

(10) Diminished Secretion of Urine. depending upon the Acute-ness of the attack & the amounts of Collapse & Pain -

(11) Constitutional Symptoms.

Diagnosis.

We now arrive at the Subject proper - there we are beset with most of our difficulties we have first to arrive at the conclusion that it is some form of Acute Obstruction & then we are to decide which of the many varieties it is which is present -

The Cause of the difficulty in diagnosis is due first to the great number of causes which may occasion Obstruction & the diverse conditions under which it may be produced -

In making our diagnosis our object must be that it shall be as complete as possible looking at it from every point of view & therefore one examination should not be sufficient many symptoms are only present for a short time such as the presence of a tumour which may be quite distinct at one time & yet absent when we again visit the patient

I think if the following order was observed in dealing with such Cases it would assist us greatly & prevent us falling into serious errors although it may take up more time than we can afford -

I intend to observe the following order & can answer for it in two cases where it has proved of great benefit & has lead me to a correct diagnosis.

(1) Clinical History
(2) Mode of Onset.
(3) Appearance & Character of Symptoms.
(4) The Various Methods which have been adopted & devised to assist us in making our diagnosis -

(1) Clinical History -

The following facts can be obtained from the person - or if unable - from some relatives.

Has the patient at any time previous had a hernia? if so we must not fail to examine the site & see whether it has again made its appearance - looking carefully to the Inguinal & Femoral Canals -

Is there any history of General or more particularly Localized Peritonitis?

Is there any history of Dysentry?

Has he suffered from Severe Colic -?

Has he been subject to the Passage of Gall-stones?
Is there any history of Tuberculosis in himself or his family? especially in reference to tubercular peritonitis.
If a female - is the patient Hysterical?
Is the patient Pregnant?
Has she suffered or is she suffering from any Disease of the Ovaries - or Fallopian tubes?
Enquire carefully into the previous action of the Bowels as to Constipation -
Has the patient been accustomed to take Narcotics.
Has the patient received any injury to the abdomen at some previous time or recently?
Has he some time previous, undergone great exertions or Violent exercise? -

If we can obtain answers to these questions we often get the key-note to the whole diagnosis in the case of Children many of these questions are inapplicable but they are well worthy of a Surgeon - spending a little time over -

Having satisfied ourselves as to these points in the Clinical History let us now enquire ~~as to the~~ as to the Mode of Onset -

If we find a history similar to this. The patient has either with or without premonitory Symptoms be suddenly seized by marked symptoms such as severe abdominal pain resembling colic, early & copious Vomiting complete constipation with evidence of Shock. & considerable depression if we find on percussion that there is some distension or the presence of some tumour or tenderness. Pulse increased & feeble. Urine Scanty. & high Coloured.

Then I think we are justified in looking for the cause amongst some of the following.

Spasm of the Intestine
Internal Hernias -
Strangulation by Bands -
Intussusception
Volvulus -
Foreign Bodies -

Spasm & Paralysis of the Intestine are of such rare occurrence that I think it advisable to deal with them by themselves & say all that is necessary of them here & then go on to the more common forms.

They are termed by some writers "Pseudo-strangulation" The leading features of this form is that it differs from all the others in that there is no mechanical obstruction but a paralysis or spasm of a segment of the gut which in both cases ceases to have any movement & so prevents the passage of the contents of the bowel & gives rise to the symptoms of Acute Obstruction

We shall be guarded especially in our diagnosis we if find that it occurs in the course of some of the following disorders - peritonitis enteritis & perityphlitis or if we have an history of a recent injury which has affected the reflex nerve centres such a condition has been produced by a kick upon the abdomen - or a crush of the testicle or again is there an disease of the General Nervous system -

Though the majority of the symptoms of Acute Obstruction may be present - yet there is often the absence of one or more - which in any of the other

forms would be inexplicable. Should put us on our Guard -

In the greater number of these cases the Paralysis or Spasm is in the Small intestine. ~~Ulceration~~ ~~or excoriation of the Anus or Rectum. have produced the latter or prolapsus~~ :- but the latter has been observed in the Rectum & Anus. secondary to Ulceration. Excoriation or morbid sensitiveness of the mucous membrane -

I think then that if we study the Clinical history & find this form occurring during the course of some disease & that there is a want of completeness in the symptoms we should not have much doubt as to the diagnosis -

As regards the treatment. We must look upon the Obstruction as a symptom & treat the disease to which it is secondary -

Having now cleared the ground so far we come to those forms which are more common -

viz

Strangulation by Bands -
Internal Hernias -
Volvulus -
Intussusception Acute.
Foreign Bodies -

Let us now consider the Various points by which a correct diagnosis may be expected.

Age

We find that Strangulation by Bands or through Apertures rarely occurs during infancy but is most frequently met with between the ages of 20 & 40 years.

Volvulus rarely occurs before that age & is most common between that & 60 years.

50 per cent of the cases of Acute ~~Intussusception~~ Obstruction occurring under the ages of 10 years are due to Intussusception

Then as regards foreign-bodies we can have it occurring any time.

On the subject of age - I would remark that a consideration of it will often be of great use to us - thus if the Obstruction is in an infant we should naturally look first to Intussusception as the Cause - if in a young adult to Strangulation by Bands or Internal Hernias - if above 40 then to Volvulus -

Sex - We are not able to obtain much information from this source - but males from their occupation & habits are more liable to be affected than females - as regards Strangulation & Volvulus - but in Intussusception & Foreign bodies they are pretty equally divided

Previous History

In the Case of Strangulation by Bands - there is a distinct history of previous peritonitis (either general or localized) in over 50 per cent of recorded cases -

We are not aided so much as regards Internal Hernias - but we may have the history of a similar attack which has passed off -

In Volvulus we have as a rule the history of Constipation over a prolonged period -

This source of information is of little Value - as regards the next form viz Intussusception which is also important where we have Obstruction due to Foreign Bodies - If we find the history of constant attacks of pain due to the passage of Gall-stones then we ought to be on the look out for the cause as resulting from the Accumulation of them - but it is very important when the foreign body has been swallowed & passed down the Alimentary Canal - into the bowels although this is not always reliable - as shown in the report I have before me where a lady supposed she had swallowed her false teeth - & being of a highly nervous temperament she fancied she could feel them in the abdomen - She developed several of the symptoms of Acute Obstruction - but Vomiting was markedly absent - the only the production of the said teeth after a successful search would convince her & the symptoms disappeared as rapidly as they appeared -

Having thus gone carefully into the preceding we now begin to examine into the various symptoms & the means by which we gain from them information which we require to guide us in our diagnosis.

I have previously noted the symptoms which may occur in the Course of an attack of Acute Obstruction & this now my object to try & bring into the various points which are present in the various forms in which one form differs from another & to state as clearly & concisely as possible how we can most readily grasp at the assistance afforded by them.

Pain. This symptom is one of the first & most conspicuous features of Intestinal Obstruction & we naturally look both to give us some enlightenment on the subject. This the earliest or one of the earliest to appear. & is the one which appeals most to the patient himself. & attracts the attention & sympathy of others.

In all the forms we are discussing the pain is persistent & liable to exacerbations although it varies in intensity & duration & site. & from these points our -

diagnosis mainly depends -

Characteristics of the Pain in Strangulation by Bands.

(1) Usually the first symptom

(2) From the commencement very severe.

(3) Griping & colicky - in Character.

(4) Persistent in character. throughout but liable to exacerbations. the pain sometimes bending the patient double -

(5) Sometimes abates in severity as the case goes on, & may disappear before death if collapse supervenes -

(6) Situation. In by far the majority of cases the pain is referrable to the region of the umbilicus although in some cases the pain is over the seat of the Obstruction -

Characteristics of the pain in Internal Hernias

(1). Usually first symptom

(2). Commences gradually but soon becomes intense.

(3) Griping in character.

(4) Persistent throughout unless collapse occurs.

(5) Situation

In many cases referrable to the umbilicus but where the bowel has been strangulated through the diaphragm then the pain may be in the epigastric region although it is often referred to the umbilical region again when the hernia is through the sciatic notch then the pain may occur in the right or left iliac regions

Characteristics of the pain in Volvulus-

(1) The earliest symptom

(2) Not so severe as the two previous-

(3) Paroxysmal at first becoming persistent & continuing so.

(4) Situation In many cases it is referrable to the umbilicus but in as many cases it locates itself over the sigmoid flexure-

Characteristics of the pain in Intussusception

(1). Usually the first symptom

(2) Here we find that the pain gradually increases in severity up to a certain point & until it reaches a certain limit & then gradually subsides

(3) Colicky & decidedly paroxysmal -

(4) Indefinite at first but gradually becoming localized over the region of the invagination

The pain is not so severe in this form as in Strangulation the marked feature of it is it being paroxysmal & having intervals free from pain

Characteristics of pain in Obstruction by Foreign bodies -

(1) Not always the first symptom.

(2) Not anything like so severe.

(3) Persistent

(4) Colicky.

(5) The Site depends greatly upon the position of the Obstruction but is referrable to the umbilical region -

From the Characteristics mentioned we see that it is really a very difficult matter to gain any thing very definite from the symptom. because in all the pain is one of the earliest symptoms that it is persistent or nearly so. that it is liable to exacerbations & that it is colicky in character & that in a great number of cases it is referrable to the umbical region if not in the first instance then very soon afterwards - but it is only by studying the case minutely that we see slight indications which lead us to suspect one form rather than another.

Tenderness of the Abdomen - is a symptom which is not always constant & is not an early symptom but after the case has developed for some time it as a rule occurs as the result of peritonitis set up - when localized it is of great diagnostic value. as it points to the site of the obstruction. but as this localized tenderness is transitory. it is a great point to be able to discover it - so that at every visit we should -

carefully palpate the whole of the abdomen -

In Strangulation by Bands or Internal Hernias - the majority are accompanied by tenderness which generally makes its appearance on the second or third day - over the region of the Obstruction but it rapidly becomes diffused owing to the onset of peritonitis

In Volvulus tenderness on pressure occurs very soon after the pain develops - much earlier than the forms above - commencing over the Sigmoid & extending rapidly -

In Acute Intussusception we have in some cases marked pain on pressure occurring very early indeed but this is the exception in the majority it is only developed after a considerable time & may be general or localized Rarely ever present

When Foreign Bodies are the cause of Obstruction then it is rare to have tenderness unless peritonitis has set in -

It will thus be seen that this Symptom is of great value in diagnosing the Seat of the Obstruction - which is a very important point gained.

The next Symptom · Vomiting is I consider of much more value from a diagnostic point of view than either pain or tenderness both. because we are enabled to obtain from the time of its appearance & the character of the Vomited matter a pretty good indication as to the part of the bowel implicated. Thus if the Obstruction is high up in the Intestinal tract then we should have the Vomiting amongst the first Symptoms. in some rare cases preceding the pain. whereas if it is further down the tube then Vomiting will not appear so early nor will it be so continuous or violent when very low down in the tube then it may be absent altogether.

Then as regards the Vomited Matter -

If the Obstruction is high up in the tube then the vomited matter will be found to consist of the contents of the Stomach & never either faecaloid or faecal matter.

If it is lower down about the region of the ileum. then it will consist of first the contents of the Stomach, then a pea-soupy mixture faecaloid

But if it is still lower down in the Colon. then we have true faeces vomited -

In Strangulation by Bands - vomiting is a more constant & marked symptom than in any of the forms we are dealing with - it makes its appearance early first the contents of the stomach ~~then~~ & bilious matter - then faecoloid & in the large majority of cases stercoraceous matter following one upon another -

In Internal Hernias - we find a similar condition as in the above -

In Volvulus - vomiting is by no means so constant or so intense as in the preceding forms - in about 30 per cent of cases met with - it is so trivial that it may be said to be absent - it is also a late symptom rarely occurring before the 3th or 4th day & sometimes later than that -

Nor in - Intussusception is Vomiting such a prominent symptom but it more constant than in Volvulus - it is a very early symptom but it differs from the others - in its liability to fluctuations being very severe for 3 or 4 days & then ceasing for a time it is most liable to occur where the invagination is high up in the tube

Vomiting is not neither a constant nor a severe symptom in Obstruction by Foreign Bodies - often absent altogether

Meteorism of the Abdomen.

From examining the record of several cases of Strangulation by Bands & Internal Hernias I find that it is not a very early symptom but is developed after the case has proceeded for 3 or 4 days & that at no time is it at all pronounced - a marked contrast to what we meet with in Volvulus where it becomes a conspicious & leading feature, showing itself very early in the course in the left Lumbar Region & extending rapidly over the whole abdomen -

In Intussusception it is by no means common if it does occur it is late & never much developed - but it is of great service if we find it extending over the whole abdomen - except one dull spot there it is very significant of Intussusception.

In Obstruction by Foreign Bodies speaking more especially of Gall-stones ~~it never is constant~~ Meteorism is never either a constant nor excessive symptom, although cases have been reported where it has rapidly spread over the whole abdomen -

In all the forms after the onset of peritonitis the Amount of Meteorism increases -

Derangement of the Functions of the Intestines –

We naturally look in dealing with this subject for some change in the functions of the intestine & at once occurs to us that we must have sooner or later entire stoppage of the secretion from the bowel –

Constipation does not occur so often as we should naturally expect – although in the Majority of cases it does. It is sometimes preceded by diarrhoea which sets in for a time but is always followed by Constipation –

In both Strangulation by Bands & Internal Hernias constipation is at once a very early feature & absolute from the first

Preceding death you may have the passage of a stool which in all probability has been collected below the Obstruction –

Again in Volvulus it is an early & absolute symptom with few exceptions –

But it is in Intussusception that the value of the symptom from a diagnostic point of view is brought out – & this is shown in two ways –

(1) Diarrhoea sets in early in the course & with continue until the lumen of the tube is occluded –

(2) The Motions contain a considerable amount of blood in them the amount depending upon the acuteness of the Attack -

In Obstruction by Foreign Bodies it depends considerably upon the Foreign Body as to whether Constipation is complete from the beginning but it rapidly becomes so -

Tenesmus is a Symptom which is the cause of great distress to the patient & is Associated with those cases of Obstruction which occur in the lower bowel - hence it is a very uncommon concomitant of Strangulation by Band & Internal Hernias. It is more frequent in Volvulus but only rarely is it severe. whereas in Invagination of the Bowel especially the Ilio-cæcal & Rectal forms it is a very prominent & often pronounced & may remain constant throughout the attack -

Rarely is it found in Connection with foreign bodies -

Hiccup is a Symptom of no diagnostic Value -

These are then the symptoms to which our attention is particularly invited by the patient himself. It is now our duty to examine the various constitutional symptoms which show themselves & to see what we can glean from them to further aid us in our search after the cause.

From a diagnostic point of view we do not expect to gain so much information from these but there are a few points which it is often worth while to look into which will help us materially in establishing our diagnosis.

In Strangulation by Bands & Internal Hernias - we often see the Hippocratic face to perfection - we have the pinched, drawn in features the sunken eyes, the sharp nose, the projecting cheek bones the lips drawn up from the teeth, with the look of great anxiety & pain depicted upon the countenance

In Volvulus & also Intussusception though not as a rule so perfect - yet it is always present to a certain degree

In Obstruction by Foreign Bodies this peculiar

condition of the face is not by any means so distinct & constant as in the preceding forms & never it is so strikingly brought out probably because pain is not such a pronounced feature in the case.

In all the forms – the tongue is at first white & then coated brown according to the acuteness of the attack

Thirst is a very marked symptom in Strangulated by Bands & Internal Hernias which is not usually present in Volvulus, Intussusception & Foreign Bodies, or only in a slight degree – but it bears a distinct Ratio to the amount of Vomiting

From the Pulse we learn very little in all varieties it is small & rapid. as a rule about 120–150 per min-

As regards Temperature in Strangulation by Bands. Internal Hernias & Volvulus. the temperature often is subnormal reaching as low as 96° & in one or two cases recorded 95° & a peculiar feature about it is that it may continue so in spite of the onset of peritonitis

In Intussusception Obstruction by foreign Bodies the temperature remains about normal - or very slightly below the average.

In all except the cases mentioned at the onset of peritonitis the temperature rises to 100 - 3 -

As regards Respiration in all the forms except Volvulus we have the respirations increased to a certain extent & costal in character.

But in Volvulus Dyspnoea is often a very pronounced symptom & is the cause of much anxiety & is no doubt due to the mechanical interference with respiration by the development of gas & distension of the Abdomen -

Urine - The quantity of urine is diminishing in quantity according to the amount of pain & Collapse - in all forms. some think the diminution great in Strangulation by Bands &c. & less in the other forms -

W. Barlow in Guys Hospital Reports of 1850 endeavoured to diagnose the situation of the Obstruction by the amount of secretion he says " where there is a

perfect Obstruction in the upper part of the small intestines there is almost total suppression of urine & where it is in the colon. then the urine is abundant -

Future experience has proved this to be right in the main but it would be a great mistake to let our diagnosis depend upon the amount of urine in some cases this is wrong entirely thus in a case where the Obstruction was in the ileum the amount of urine was abundant -

We have now spent a considerable time in discussing the various symptoms we must now devote our attention to any source of information viz Physical Signs - & we will follow the Clinical Rule. & speak in the first place of -

Inspection -

By its means we ascertain the condition of the Abdominal walls the amount of distension which may be present & in certain cases the movements of the bowels, again we will notice the absence of diminished ~~breathing~~ abdominal breathing & the increased costal breathing - we should also examine carefully - the sites of - inguinal - femoral - & umbilical hernias -

In all the forms except Volvulus we find that until peritonitis sets in, the abdominal wall remains flaccid or until the amount of Meteorism becomes pronounced so as to cause enlargement of the bowel & to stretch the skin so as to give it that smooth glistening appearance which we so commonly see -

But when we approach a case of Volvulus then we are at once struck by the enormous distension which is present very early. The swelling if we see it in time we will notice commences over the region of the Sigmoid & rapidly extends until the whole abdomen is involved.

The Observance of the movements of the Intestine through the abdominal wall & noting the place where such movements stops is of great value as a means of diagnosing the site of the Obstruction. This is a physical sign which has been made a great deal of & to only since it has been shown by experience that it only in very rare cases indeed. That any use can be made of it that it has fallen back in repute

Our only chance of observing it, is when the abdominal walls are abnormally thin or where the patient has suffered from some emaciating disease previously

Palpation is decidedly the most useful of the methods of diagnosing where we are at present employing

From it we ascertain -

The appearance of Localized & General Tenderness

The appearance of a Tumour & the increase in

Its size &c -

We have formerly discussed Localized & General Tenderness.

In Strangulation by Bands & Internal Hernias it affords us little or no aid in finding a tumour because when we consider that only a very small piece of bowel is necessary to be involved to give rise to symptoms of Acute Obstruction we cannot therefore expect to be able to make out a tumour only where the involved bowel is of considerable size can we hope to find it & when we consider the places where such Obstruction is likely to occur we find our chances of discovery are again enormously reduced -

In Volvulus we may at a very early stage be able to define the limits of the enlarged Sigmoid Flexure but its distension is so rapid that it is very often too late before we arrive

But it is in Intussusception that we find the great value of Palpation - according to some -

Statistics a tumour is observed in a little under 50 per cent of cases. In a case of my own of the ileo-caecal variety in a young child I was able to feel a distinct cylindrical tumour ~~[illegible]~~ which I found quite firm & that during an exacerbation of pain it increased in size & become quite hard.

From the observations of others I find that a tumour may be more easily determined in a young child than in an adult. & that it is the ileo-caecal & colic varieties that present it.

Rarely have we double invaginations in that case we might be able to feel two tumours.

Leichtenstein has drawn up Statistics showing the relation between the tumour & the different forms of intussusception.

It is very rare in Obstruction by Foreign Bodies to be able to feel the obstructing force.

Percussion when it is taken in conjunction with Palpation is often of great service.

For the same reason that Palpation is not of much service in Strangulation by Bands & Internal Hernias. so is Percussion.

but in cases where a large quantity of bowel is strangulated there we have a localized dull area corresponding to the site of the tenderness which is brought out more fully if a certain amount of meteorism is developed but is masked if the distension is in any way considerable

In V Hernias if percussion is carried out at an early date in the history of the case a dull area may be detected in the Rt Left Iliac Region but here as in the above it may be masked by the distension It is much more liable to be so on account of the rapidity with which Meteorism develops

In Intussusception percussion as an accessory to palpation is of great service we are able to find a dull area over the seat of the involved bowel in about 50 per cent of cases In Ivory case I was able to find a localized dulness over the descending colon M. Roland Humphreys M.R.C.S. in the "Lancet" reports a case where no tumour could be felt but localized dulness was found one inch below the umbilicus extending to the pubis

It requires extreme delicacy & care to find any localized dulness in Obstruction by Foreign Bodies

Auscultation - I have failed after having examined numerous records of cases of Acute Intestinal Obstruction to find any mention of Auscultation being of any service in Diagnosis except in connection with the injection of water into the Rectum & Auscultating the Colon -

If after applying the Stethoscope over the Caecum & having water injected into the Rectum & can hear the reach the Caecum then it is evident that we must look for the Obstruction above & in the small bowel - & so excluding from the field Volvulus & the more common forms of Intussusception.

Mensuration affords us no Assistance -

We now pass to the last means at our command in making our Diagnosis viz the Special Methods which have been adopted to assist us.

Many methods have been introduced but in many instances they have failed to sustain the reputation they were supposed to have. & have consequently been abandoned -

Enemata.

By means of the injection of water into the Rectum we can calculate roughly the Situation of the Obstruction by the amount of water employed. provided the Obstruction is in the lower part bowel - but it is liable to various fallacies - which so far render its useless as a means of diagnosis -

Dr Brunton in a post-humous work on Intestinal Obstruction stated that the seat could be readily ascertained by observing the amount of water which could be injected into the intestine thus if only a pint can be introduced then the obstruction is not lower than the upper end of the Rectum if from 1½ to 3 pts can be injected then the obstruction is at a corresponding portion of the Sygmoid flexure - a larger quantity points to the colon - but here the indications are less precise - In one instance as far as 9 pints were injected when the seat of the Obstruction was in the upper part of the ascending colon - But this is liable to various fallacies thus Dr Hilton Fagge drew attention to the fact that fluids might be injected beyond the seat of Obstruction whilst the intestinal contents

were unable to pass from above downwards - in such cases instead of helping us in our diagnosis it would not only mislead us but would add injuriously to the accumulation -

Experiments have been made upon the cadaver - to test the height fluid might be injected thus Dr Von Krautvetter on the dead subject & in one case on a moribund patient has shown that fluids may be injected up to the commencement of the colon by means of a long elastic tube - but we should have to take into consideration the resistance which would be offered to the injection by the muscular wall of the intestine & the pressure of surrounding parts in connection with the living subject.

Then again the capacity of the Rectum is so variable that it would be liable to mislead anyone -

This method might be made use of in cases of supposed Volvulus or in some of the forms of Intussusception but we could place very little reliance upon any results -

Another method of Examination is by Introducing the Hand into the Rectum

This method has not been used much in this country, but in Germany it is largely practised Professor Simon of Heidelburg paid especial attention to it

Professor Simon stated that it might be done without risk to the patients. Dr Walsham has made experiments upon the dead subjects & states that the hands 7½ inches at its widest part could be introduced readily, he was able to introduce his hands into the Sigmoid flexure in the living subjects

This method can be of no value in connection with Strangulation by Bands & Internal Hernias. but where we are dealing with Volvulus there is no doubt that a tumour might be found.

In the colic & ileo-caecal varieties of Intussusception we could by this method examine the invagination if it lay in the Rectum.

In Obstruction by Foreign Bodies if the Obstruction is in the Rectum then we should not only be able to feel it, but in some cases to remove it

O. Berries Tabé. though of service in connection with Chronic Obstruction is of very little value in Acute

The Aspirator is a means of treatment is of more value than one of diagnosis yet it has in some cases be used for that purpose - but all we can obtain from it is the knowledge that the Obstruction is either above or below the part of the bowel we have punctured & fæces could - definitely say which part of the bowel had been punctured then the doubt would prove of great advantage - but we can only judge by the situation of the puncture in the abdominal walls & that is very unreliable - & especially in such cases where the position of the bowels may be so altered & misplaced by the Obstruction -

Dr W. Larkin in the Lancet of Nov 13th 1880 thus speaks of the Aspirator - " In the Aspirator we have an instrument which will determine whether any given portion of the ascending or descending colon contains liquid or not - if it does it is of necessity above the seat of the Obstruction " "The Puncture involves no risk"

" For - Against this last statement we have the

testimony of Mr Bryant who in the Medical Times of April 20th 1872 speaking of puncturing says "In putting your needle in there is danger that some would escape & set up peritonitis I think solely from that fear that has prevented my doing it except in extreme cases

If we then decide to aspirate in order to help us in our diagnosis (& in passing I may remark that in no case should we aspirate without we have a second purpose in view viz that of relieving the distension) we should try & find one spot a little less resonant than the rest of the abdomen then we must put the patient under Chloroform & puncture over that part.

The general opinion is that the Aspirator should only be used in very rare cases & after we have exhausted all other methods of treatment.

As a means of treatment it will be referred to afterwards -

Exploration as a means of Diagnosis

We have now exhausted the great variety of means which are in our power to assist us in making our diagnosis complete & yet how often after we have examined carefully all the details of the case & having diligently weighed every symptom present are we still in doubt as to the real cause of Obstruction & how disheartening it is to the busy practitioner after he has spent so much time in endeavouring to eliminate the various symptoms which are to be of use to him. to find that it is all in vain - that he has by no means arrived at the true nature of the case - yet, although he may at the same time by palliative treatment relieve the patient to a slight extent of the most urgent of his symptoms he is confronted by the knowledge that his patient is rapidly sinking & that the cause is still acting & it is then that he looks for some last resort to clear up the matter & set his mind at rest.

The question as to whether the Exploratory Incision should be made or not is now pretty generally agreed upon. now it is the question whether it should not be resorted to much earlier in the history

of the case. & not be looked upon as a "dernier resort".

How often after a person has died with all the symptoms of Acute Obstruction & an autopsy made. has it been proved that a very small amount of manipulation might have remedied the whole thing & saved the life of the patient—

Exploration of the Abdomen has been warmly advocated by many surgeons. but. by none more than the Leeds Surgeons. (Wm Teale. Jessop. Wheelhouse. &c) At the Bath Meeting of the British Medical Association it was discussed at some length. the Leeds Surgeons taking one side & advocating its use whilst Mr Jonathan Hutchinson expressed very unfavourable opinions concerning it. but further experience has proved that it is undoubtedly the only rational means of making a sure & certain diagnosis

Mr Jessop in the British Medical Journal in 1879. records a case with all the symptoms of Acute Obstruction & yet the cause could not be diagnosed with certainty where an exploratory incision was made in the linea alba below the umbilicus large enough to admit the hand. & that after

carefully examining the internal rings a band as thick as a quill was found in the ileo-caecal region under which a loop of bowel was strangulated. the cord was divided the operation completed & the after progress of the patient was all that could be desired -

Now was it possible for that patient to have been restored to health. was there any probability of the band snapping or the bowel receding unless the operation had been performed. & was there an chance of arriving at a correct diagnosis as to the cause of Obstruction -

Mr. Teale says in the British Medical Journal of 1879 - "Exploration of the abdominal cavity is to my mind justifiable on two cardinal grounds. Firstly the mere opening of the peritoneal cavity is not necessarily a dangerous operation secondly there are many cases of Obstruction of the bowels - which must prove fatal unless relief can be given which can only be rightly directed by means of exploration of the abdominal cavity

Sir George M'Leod in the British Medical Journal of 1876. says" An exploratory incision

should always be promptly performed if obstruction occurs & resists treatment -

~~Mr Jonathan Hutchinson~~

There is a fair amount of unanimity amongst authors as to the opening of the abdomen in cases where the diagnosis is clear but are there not many instances where the diagnosis is doubtful where the cause of the obstruction can only be determined by an exploratory incision ought we not then to open the abdomen on the possibility of finding some removable cause & do we lessen the chances of recovery by an exploratory incision where we find we cannot remove the cause.

Since the introduction of Antiseptics it has been shown that opening the abdomen is not the serious operation that it was previously thought to be & that by using the necessary precautions the abdomen may be opened & the intestine carefully examined from end to end without any serious after results - when we consider that Ovariotomy may be performed with good results it is difficult to understand why we cannot simply perform the initial parts of that operation -

Of course there are some very important objections to the exploratory incision & some opponents to its use -

The great fear on the part of surgeons is that of exciting peritonitis

Wm Teale - in the British Medical Journal of Sept 27th 1879 says " In those cases in which recovery seems hopeless unless surgical relief can be given we need not be deterred by the fear of peritonitis from submitting the patient to the safer risks of exploration -

He quotes three cases of his where the seat of obstruction was unknown & there was a healthy peritoneum where an exploratory incision was made with the result of one recovery. & although death occurred in the other two yet in none of them was peritonitis present -

But no doubt there is a great danger of inducing peritonitis & although antiseptic precautions are used it will sometimes occur -

Again after the exploratory incision has been made it is often the case that although we find the seat of the obstruction yet we are not able to remedy the mischief by any means - so that if we are able to make our diagnosis

clear & decided. it will scarcely be thought justifiable by the patients & his friends to make an incision simply for the reason of finding out the cause of the Obstruction

Again the operation of opening the abdomen in order to determine the exact seat & cause of Obstruction as a preliminary step to further operation has not been so successful as you would naturally think

Sir George M'Leod in the British Medical Journals says "Adhesions bands twists loops &c are so difficult to recognize clearly or to find even after the abdomen has been opened that Laparotomy offers but a slender chance of success - Inflammation becomes so soon developed as to make the operation very hopeless -

Another objection is that the exploratory incision is left until every other method of treatment has been tried & the patient is reduced in strength so that he has no possible chance of recovery even if the cause is found & some subsequent operation performed which relieves the bowel -

The Last objection is The reputation of the surgeon is at stake this refers more especially to the general practitioner. if he were to make the incision & that that he could not relieve the Obstruction or if he were to liberate the bowel & the patient should die then in the majority of instances the operation & surgeon will receive the credits of causing the death of the patient & not the Obstruction this I think very often deters a medical man from undertaking such a proceeding although he may at the same time be convinced in his own mind that this is the proper course to pursue -

But it is necessary that further experience should strengthen the growing surgical opinion in favour of greater boldness in exploring the abdomen in hopeless cases of Obstruction. Many will be found to have been hopeless from the beginning in others the operation has been delayed too long - a few will recover as the direct results of the operation & if we can thus save the life of even a few of those that suffer I think we ought to resort to the method more often -

Treatment -

As we have found in discussing the diagnosis of Acute Intestinal Obstruction that it is by no means an easy & simple matter. So in the case of Treatment we will find that it is equally difficult, that we can lay down no hard & fast lines of treatment which will be applicable in each case - Each case must be treated according to the different & widely varying aspects under which it presents itself & a great deal depends upon the tact & skill together with an adequate knowledge of what ought to be done - That the success of the treatment depends -

Having once made our diagnosis sure or as decided as possible then we must promptly commence our treatment remembering that certain opportunities very often present themselves for a short time only & that without we seize upon at once & make the most of them we are apt to find that by hesitating or failing to see them in their proper light we have allowed a Golden Opportunity to pass by which may never return & also remembering that the longer we delay our Chances of success are diminished

"He who hesitates is lost" is very applicable in -

such cases of Obstruction -

Great advancements has been made in the treatments of Obstruction during recents years -

The great factor that has brought this change about is undoubtedly the knowledge, that we may open the abdomen without great risk -

How would such a remark as this have been received 30 or 40 years ago - " If a case of a patient suffering with symptoms of strangulated bowel - that is sudden abdominal pain accompanied or soon followed by vomiting of a pushing & persistent character, if this patient be the subject of an old hernia the rule of surgical practice is to explore the hernia whether it presents the local features of strangulation

Should nothing be found in the hernial swelling to explain symptoms the surgeon then explores the neck of the hernial sac. & on this exploration yielding no results he is often & should always be led to explore the abdominal cavity "

Yet Mr Bryant in Jan of this year on returning from the Chair of the Harveian Society stated that such was the surgical practice -

Surgeons have gained great confidence & instead

of resorting to a great variety of drugs which could not have any possible chance of relieving the patient they have now their attention drawn to the possibility of performing Laparatomy Some Subsequent Operation if necessary early in the course of the case -

The treatment of Acute Intestinal Obstruction then resolves itself under the following heading -

(1) Food.
(2) Medicine
(3). Minor operative measures
(4) Major operations -

The feeding of the patient in Acute cases is not such an important element as in Chronic - where it is necessary to sustain the patient by various means which we could not employ in Acute cases - but this is a matter that requires our very careful attention as we have the vital powers of the patient being rapidly exhausted by the severe symptoms which are present - we must therefore not neglect to employ every means which we are able to command - to promptly allow for this undue expense of vital force -

our attention is so much enforced upon other forms of treatment that we are very apt to overlook this important form of treatment.

In the majority of cases it would be inadvisable to attempt to give any food by the mouth as we will find that there is no desire for food by the patient on account of its liability to increase the severity of the symptoms so that very often we are not able to persuade the patient to take food & the vomiting is so persistent that it is often expelled from the stomach as soon as it enters it. The chances of the food being absorbed either by the stomach or intestine are very small indeed.

In Volvulus & some of the forms of Intussusception which are low down in the bowel we might have food retained in the stomach —

This to the Rectum by means of Nutrient Enemata that we hope to be able to feed our patient & support his strength although if the cause continue to act without our being able to relieve it we cannot hope to combat with the exhausting forces. Whereby we may be able to prolong the time of life & thus

give us more time for treatment -

There are certain cases so acute that it is not necessary to devote any attention to the feeding of the patient.

In cases of Acute Volvulus & in Intussusception which protrude into or through the Rectum - it is a matter of great difficulty if not impossibility to feed the patient by enemata but in such cases as mentioned before we will have a better chance of having liquid food retained by the Stomach

In all cases it will be found advisable to allow the patient Ice to suck. to relieve the distress of thirst. but on no account should it be allowed ad lib -

Grisolle speaks with commendation of cold drinks & cold enemata in calming irritation & spasm & possibly of aiding the passage of gas -

After operative measures have been employed or by some other means the cause has ceased to act the feeding of the patient should be carefully regulated & looked after especially in those cases where we may have a recurrence of the attack. Liquid food in small quantities should be given until danger is passed -

Medicine

In the majority of cases our object in giving medicine is not the hope of removing the cause - but rather to allay the excessive suffering of the patient -

In the class of cases we are dealing with the prescribing drugs practically resolves itself into the giving of Sedatives of which Opium is the best - its employment will be discussed afterwards more in detail & we will now pass on & notice briefly the other kinds of Medicine which have from time to time been recommended but which have proved useless & in many cases disastrous for the patient.

Aperients

Very rarely is it that we come across an example of Acute Intestinal Obstruction where these remedies are required nay rather are they not contra-indicated & yet how often is it that the whole list of purgatives have been administered each succeeding dose surpassing in strength that which preceded it & thus increasing the severity of the symptoms in a very marked manner.

Aperients act by increasing the -

peristaltic action of the bowels. Is it at all advantageous in a case of Strangulation or Intussusception to increase the peristaltic action of the bowel - should not our object be to diminish this action & prevent further involvement of the bowels -

Amongst the various forms we are dealing with the only cases in which aperients could possibly be of service are those in which we have obstruction due to Foreign Bodies & especially referring to Gall-stones. Here it is possible to understand that the exhibition of 10-20 grs of Calomel might have a good influence & cause the stone or Stones to pass along the Intestinal Canal & have it expelled - but rarely could we look for such an issue -

Metallic Mercury was introduced on the supposition that by its mere weight it would in some cases relieve the Symptoms, it was given chiefly in cases of supposed Volvulus its action was to overturn the bowel

Other obsolete remedies only require mentioning - Shot for the same purpose as Mercury: Tobacco injections Strong coffee, ergot Nux Vomica - they are never used -

Having now gone through the above list it is now our duty to consider Opium & other drugs which belong to the same class -

At the onset I may say that Opium will concern us chiefly as it is the sheet-anchor in treatment -

How & in what form is it best administered -

Undoubtedly the best way is by the Subcutaneous Injection. the amount depending upon the severity of the symptoms. there is very often a remarkable tolerance of the drug - commencing with 3-5 m. & gradually increasing the dose if the nature of the case demands it

It has frequently been administered in the form of the pill but if there is persistent vomiting it is not admissible

The Suppository has sometimes been employed.

Sir George McLeod in the British Medical Journal strongly recommends. Dovers Powder. for a child -

How does Opium produce its effects -

(1) As an Anodyne -

Is not pain one of the most prominent features. & is it not pitiable to see the excruciating suffering which racks the poor patients often with

little or no intermission & is it not our first feeling that we are compelled to do something to reduce it if possible even though we would prefer not to it for diagnostic purposes yet it will afford him relief for the time being. remove the anxious careworn looking face to something like its original expression; it invigorates the faculties of the patient & produces a state of repose.

Opium has an effect upon Shock. it diminishes its severity & in many cases it prevents death when given soon enough.

Opium acts by dilating the capillaries of the skin. allowing the blood to course more freely through them, the pulse under its influence becomes more rapid & stronger the temperature rises & the tongue often becomes moist.

In the same manner it acts upon the Kidneys & causes an increase in the amount of urine.

Opium has a decided effect upon the Intestine & Involved Bowel. it acts by its inhibitory power over the nerves thus diminishing the abnormal peristaltic action of the bowels. & thus preventing further involvement of the bowel if it does not in some cases relieve it altogether.

We can thoroughly understand its Value ~~in~~ in this manner when we consider the progress of an Intussusception

This is a matter of great difficulty to say where Opium ever actually relieves the involved bowel, but it does seem feasible to suppose that if given very early in a case of either Strangulation or Intussusception by inhibiting the peristaltic action of the bowel - it allows the bowel to release itself & there is every reason to suppose it could to so provided too much had not become involved -

Opium has often a decided effect upon Vomiting diminishing its Severity & frequency -

The great objection to the administration of Opium is that if you have not satisfied yourself as to the cause it so masks the Symptoms. That renders what is very often an difficult matter much more puzzling & though acting as a temporary benefit to the patient it may by misleading the Surgeon ruin any prospect of a complete recovery by Operation or otherwise

Belladonna has been combined with Opium & it has also been used alone but it cannot be compared with Opium as to its effects -

it has been administered in the form of the 1/2 pt Pills. internally & as the Liniment & Extract externally over the Abdomen -

Both Belladonna & Opium have been given with Calomel but it difficult to understand for what purpose the latter was given -

Atrophia so strongly recommended by Fleming of Birmingham has no received much support -

Before passing on to the Subject of Encysted just a few words about Leeches. They have been applied over the abdomen but there efficacy is very doubtful. If used they should be used in such numbers as to produce a decided effect. but it is very important that we should husband the patients strength

The only time when we are justified in their use is when peritonitis has set in - & the same remark may be applied to Ice over the Abdomen -

Let us now consider shortly what I have termed Minor Operative Measures -

Treatment by Enemata - is in many cases very commendable - it has been resorted to in many cases & during the last few years there have been many advocates for it -

In what class of cases is the Enemata serviceable But before discussing this question I may state that the objects of the enema is twofold the major object is to reduce the dislocation of the bowel & the minor is to empty the distended Colon -

From what was said in speaking of the Enema in regard to Diagnosis it will be evident that its use can only be permitted in cases where the Obstruction is in the Colon - so that it can be of no value in the great majority of cases of Strangulation by bands & Internal Hernias - in a curative sense.

In Volvulus the enemata are useful & cannot be recommended but it is when we come to Intussusception that we derive great benefits from its use -

Where the obstruction is due to Foreign Bodies then it is of no use - unless the body be in the colon & then it is possible for the enema to dislodge it & allow it to pass away -

How is the Enema to be used -

When we have Intussception in a child an ordinary Higginson's Syringe is all that is required but in an adult it is not of sufficient strength & great benefits will be derived by the use of the Syphon apparatus -

In using the Syringe large quantities of fluid must be injected with a certain amount of force - retained in the Rectum & Colon - for as long a period as possible -

Two cases present during the treatment of a case of what we diagnosed ileo-caecal Intussception we had previously administered Opium & as it was in a child we employed the ordinary Syringe having the child in the Lateral abdominal position we retained the warm water in the Rectum for 20 minutes - & had the satisfaction of seeing a great improvement in the patients symptoms which after a second injection entirely disappeared

In all cases I think it would be advisable to adopt the Syphon - as you can by that means obtain a continuous regular force which you can regulate at will

Warm water is undoubtedly the best fluid to use for the purpose - sometimes turpentine may be added - I use with house the enema for the purpose of evacuating the contents of the Stomach then. Soap & water will answer our purpose sufficiently well -

Insufflation - of air of hydrogen gas - is an innovation which has been used for the same purpose - as the Enema -

Dr. Eastes in the British Medical Journal - of 1876 - advocates its use strongly in Intussusception he says" - If Intussusception be diagnosed and an anaesthetic given and insufflation tried as the most successful treatment known -" From the report of several of his cases he seems to have been very successful in the use of Insufflation -

But Mr Erwin in his Work - states that Insufflation has been tried & failed & after resorting to the enema it has been successful -

The Enema as being more easily obtained & managed is I think preferable & will answer the purpose equally as well -

A new method on a similar principle has been adopted by Wm Rivington who in the Lancet of June 7th 1890 treated two cases of Intussusception by means of Wm Barnes' Midwifery Bags - In one was the case of a child where the enema & insufflation had proved futile & where the empty bag was introduced into the Rectum & retained. being removed twice a day to allow the escape of liquid motions this method proved effectual after a fortnights trial.

Electricity & Massage cannot be of any service in Acute Intestinal Obstruction the latter is rather contra-indicated.

Puncture of the Intestine -

We have previously referred to Puncture as connected with Diagnosis & we must now look upon it as a means of Treatment.

It can scarcely be looked upon as a Curative measure although there are some cases recorded where after puncturing that there has been no return of the acute symptoms notably a case in the Dublin Journal of Medical Science reported by Dr Martin of Portlaw where after using O'Beirnes tube &, evacuata without succes. he punctured the distended bowels - in two places - followed by escape of much flatus - Relief was almost immediate & the symptoms were not renewed -

The patients presented all the symptoms of Acute Obstruction -

Dr Bryant in a very interesting article in the Medical Times & Gazette, says " I confess my liking for the idea from a Surgical point of view it is scientifically correct & I see nothing to prevent it having the desired effect "

But Mr Treves. says " It cannot be said that this is a very scientific operation - nor one that can

ther adopted with any precision or carried out with any definite purpose"

Undoubtedly as a palliative measure it often affords instant relief to the patient as my examples have shown - but only in very rare cases. Can we hope for any more -

The method of performing it is very simple. It consists in inserting a fine trochar & canula into some coil of bowel & allowing the contents to escape! It will often be found necessary to puncture in more places than one. The operation may have to be repeated -

In what cases is it applicable -

(1) If we have much distension & Laparatomy is decided upon. Then it may be advisable to puncture & relieve the distended bowel to prevent the troublesome escape of intestines through the Abdominal incision

(2) As a palliative measure in cases where the distension is very great & threatens to terminate the life of the patient by interfering with Respiration -

(3) As a curative measure - it has been successful in cases of Acute Twisting of the Bowels & it is possible to understand how it might be of service in the very early stages of Strangulation by Bands or Internal Hernias

Theoretically we could believe that puncturing the distended bowel in Volvulus might allow the intestine to untwist itself - but I have been unable to find an authentic record of where it has happened practically -

The advantages gained by its use are.

(1) It relieves the pressure upon the diaphragm & allows of free respiration.

(2) It will often diminish pain & Vomiting

(3) It allows of Laparotomy & other allied operations being performed with greater ease -

The Objections to its use are.

(1) The uncertainty of the bowel punctured & the result -

(2) It may increase the pain & other symptoms

(3) It may be followed by extravasation & peritonitis

Major Operations -

Treatment by operation is one of the most important measures that we can employ & one that is rapidly superceding medicinal treatment. It now occupies a very conspicious position in relation to treatment & no doubt it will continue to hold the chief place - as in many instances it is the only rational treatment that presents itself - Failures often will occur after its employment - as they do in any other similar operations but as we acquire more experience in recognizing the proper time to operate we will find that there will be fewer failures & more successes. The great drawback to its success in the past has been that not until every other available method of treatment has been applied, the patients has been so reduced that it is only a matter of a few hours before death must ensue - That various complications have arisen which prevent the operation being successful, that an operation of any kind has been thought of -

But as our methods of diagnosis become clearer & we consider the subject of operation earlier in the course of the disease before it has become hampered by any complication so will the successes become greater in number & the failures fewer -

Statistics at the present time show that the rate of mortality is about 60 per cent of the cases operated upon - but unfortunately they only treat of recorded cases & many unsuccessful cases are unrecorded so that -

probably the death rate is much higher, yet when we consider how very small is the chance of Spontaneous Cure - ought this high rate of mortality to debar us from giving the patient the benefit of what in many cases is his only hope

But whilst endeavouring to prove the advantages of Operating, it must be borne in mind that we must not enter into one rashly. It would be well to impress upon the minds of the patients & his friends that you are in no wise operating with the certainty of success but if you try to explain to him the reasons you wish to operate. he will in many instances be quite as ready as you to grasp at the Last Straw even though it be in vain -

Then what are the Operations to be employed -

Laparotomy -
Colotomy
Enterotomy -
Enterectomy or Colectomy -

Laparatomy. In dealing with the Subject of Diagnosis I have referred to the enormous benefits to be derived from it now we will refer to it in Relation to Treatment -

Although in many cases it is all that is necessary yet we often find that it must be followed by some other operation. It is the preliminary Stage to all the other Operations -

Method of Performing the Operation –

In all cases a sufficient incision is to be made in the median line between the umbilicus & pubis – in the first instance it should be small, only enough to allow the hand to be introduced this is done to prevent the escape of distended coils. The hand is introduced & directed towards the Caecum in the first place – if it be empty then it teaches us that the obstruction is higher up than if on the other hand we find the caecum distended then we know the cause is in the colon. If the caecum be empty then we must examine carefully for empty loops of bowel – if we succeed in finding one then we diligently trace it up until we arrive at the seat of the obstruction we gently draw it to the abdominal opening –

If the cause should be strangulation by a Band through which a loop has passed under – we draw carefully upon the empty portion & try to reduce it – if the band is slender we snap it with the finger nail – if the ends at the root, if it be broad – then we ligature it in two places & cut it through it

If the cause be an Internal Hernia then reducing the bowels by drawing upon the empty bowel, or if not possible enlarging the aperture, we suture the aperture to prevent a recurrence –

If the cause be an Intussusception & provided that there be no inflammation we should draw upon the lower or empty portion & thus reduce the invagination but if inflammation has occurred then some further Operation is necessary -

If the cause be Volvulus then it is no use untwisting or trying to untwist the bowel but some further operation may be deemed to be necessary.

If the cause be a foreign body - then we must draw the foreign body out of the abdomen - & extract the substance & make an artificial anus - or in favourable cases - the bowel may be united by suture -

In all cases where no cause for the obstruction be found - before closing your incision it is imperative that you should examine the internal orifices of the Eskrush Hernias. To make sure that there is no involvement of any of the bowel in them -

After your examination is finished then the incision should be sutured being careful to bring the edges of the peritoneum together by means of a deep suture - if it has been simply a Laparotomy then there is no necessity for a drainage tube but if further operation has been performed then it is advisable to introduce a drainage tube -

It is to be understood that antiseptic precautions are observed throughout -

In what class of cases is Laparotomy Applicable -

It may be used in all cases of Strangulation of the Bowel - by any of the following means with the hope of success -

(1) By peritoneal Bands -
(2) By omental Ligaments or cords.
(3) By Meckels Diverticulum
(4) By adherent appendix or Fallopian tube.
(5) Through - apertures or slits natural or otherwise
(6) Intussusception if early in the case, alone - but not until Enemata have been tried -
(7) Foreign bodies to be followed by Enterotomy -

Provided always that everything else is favourable -

The Question of the proper time to operate is a very difficult one as beset by many dangers, there is always a lurking hope that everything will come right without operation and we are very prone to keep trying other less formidable measures -

Mr Treves in the British Medical Journal of 1885 - urges that in Strangulation by Bands or through apertures Laparotomy should be performed within the first 24 hours - provided that the main points in the diagnosis are clear - but this is not often -

that it is done so soon - , still if anything is to be done it must be done early if we hope for any success -

In speaking of Intussusception it will not be found necessary to operate so early because we like Strangulation there are other simpler means which may answer the purpose quite as well - but if we have tried Opium & Restthen forcible enemata & insufflation - & have failed then the sooner we operate the better - if we hope to reduce the invagination without having resource to any other operation than Laparotomy - before inflammatory adhesion has taken place

In Volvulus - operative measures have been so successful. that - there is no hope of effecting any good by performing Laparotomy & trying to untwist the bowel so that without we are prepared to perform a Colotomy we had better no interfere, in that case we must act. as soon as we have decided upon our plan of procedure -

If we are able to recognize a foreign body then we must at once remove it - & disadvantages -

What are the contra-indications to the Operation

(1) If the patient is so weak as to be unable to bear the operation - or if we have delayed too long -

(2) When peritonitis has set in - although not entirely debarring operation - yet it most seriously

influences the results. as it tells us that the gut is seriously affected.

(3). When we are unable to relieve the patient after opening the body.

(4). Our diagnosis may have been at fault & we find no obstruction at all –

(5) When the patient is suffering from some incurable disease which of itself will shortly terminate life –

Colotomy – is applicable only to cases where the obstruction is situated in the Colon – if we are certain that our diagnosis is correct then we should perform one of the following forms –

In the Right Loin – Amussat's Operation
— Left — Callisen's —
— Right Groin. Nelaton's —
— Pillore's —
— Left Groin Littre's —

~~Of the above operations only Amussat's & Littre's operations are generally employed~~

It will be understood that Colotomies are very rarely indeed called for in cases of Strangulation by Bands or Internal Hernias - or even Obstruction by Foreign Bodies - that they may be used for Volvulus - & less often Intussusceptions of the Ileo-colic variety -

Amussats Operation consists in making an artifical anus in the Right Loin - & Littres operation consists in making the artifical anus in the Left Groin - these are the two operations with which it is necessary to be familiar with in connection with Acute Obstruction -

It is needless I think to enter here into the details of the Operations - as it is to be carried out just as it is described in the Text books - provided that our diagnosis of the nature of the case is sure - where we are uncertain. then we perform Laparotomy first with the incision in the middle line & there we make our artificial anus -

Mr Treves in the British Medical Journal of Aug 30th 1884 recommends the following for the operative treatment of - Volvulus - To perform Laparotomy in the Median line puncture the gut & try to reduce it. if this fail to evacuate the involved gut in the Summit of the flexure - to unfold the volvulus & use the opening for the artificial anus -

Colotomy in connection with Acute Obstruction is only feasible in cases of Volvulus - as regards the proper time to operate, it is to be remembered that in this form the rapidity with which peritonitis sets in is very striking & that moreover there is a greater risk of the involved loop passing into a state of gangrene --

The disadvantages to the operation are very great

(1) The very high rate of mortality

(2) We may have considerable trouble with the accumulation of faeces between the artificial anus & the obstruction.

(3) We may find the sigmoid flexure gangrenous -

(4) We may in some of the forms of operation have great difficulty in finding the colon - even.

(5) If we perform an operation on the left side for Volvulus then the Volvulus would be unaltered & the artificial anus would have to be a permanent one -

(6). The distension may have becomes so great that all our efforts are futile in attempting to untwist the bowel -

Enterotomy - is an operation which is readily performed & offers a very fair chance of success - it has been used more frequently on the Continent than in this country as a secondary operation. if Laparotomy fails then it is commendable - It will be found necessary more often in Acute Cases than Colotomy. it is a similar operation but the first coil of distended bowel is taken & an artificial anus is formed -

It has been performed in cases of Strangulation by Bands Volvulus Intussusception & Obstruction by Foreign Bodies -

Suitable Cases for Enterotomy -

(1) In Strangulation by Bands or through Apertures where it has been found impossible to reduce the involved bowel or where it has been attached by Inflammatory adhesion to the surrounding tissue. but it is not often that we have such conditions either a simple Laparotomy or an Enterectomy is required

(2) In Intussusception where the bowel cannot be reduced by Taxis & where the invagination is so great as to prevent enterectomy being entertained - or where a considerable portion of the gut is gangrenous -

In Obstruction by Foreign Bodies - if we operate at all we must open the intestine, in very favourable cases we may be able to suture the gut where the foreign body has been taken out. the majority will require Enterotomy to be performed -

Drawbacks & Disadvantages of the Operation -

The great objection to its use is that it does not go to the root of the matter. but leaves the Strangulation just as it was. Thus applied to all but Obstruction by Foreign Bodies - it is only palliative as in the larger percentage of cases we cannot hope for the closure of the artificial anus -

Again after the operation has been completed - the involved gut may become gangrenous & cause the death of the patient - by setting up Peritonitis.

Then there is the annoyance of having a permanent fistula

It will be understood by examining the last two Operations. that in the majority of the cases in which they are required they might be dispensed with if only Laparotomy was performed earlier than it is. the bowels would not have been so involved that it could not be reduced by manipulation except Volvulus

Enterectomy or Resection & Colectomy —

In dealing with Acute Obstruction it is only necessary to speak of these operations in connection with cases where the bowel has become gangrenous so that it is chiefly Enterectomy which calls for remark —

This never a primary operation, but after we have opened the abdomen & find that simply liberating the bowel is not sufficient, that it has become gangrenous. then we must resect the damaged loop —

A very large quantity of the lesser bowel has been removed. Roberts in 1881 removed 2 yards & yet his patients recovered but it will not often be found necessary to remove so much. It is only required that you should get beyond the diseased portion —

The operation may be performed in one or two ways ~~parts~~ in the first the diseased bowel is removed & the two edges of the intestine sutured in the other the two cut ends are brought to the abdominal wound & a temporary anus formed. Be followed in a short time by the suturing the two ends together —

One of the best methods for occluding the intestine is by means of Bishop's Clamps. but other means may be used the hands of an assistant or elastic bands —

The cases in which Enterectomy is applicable are.

(1) Where the gut has become gangrenous by Strangulation.

(2) Irreducible Intussusceptions

The great danger to be looked forward to is peritonitis as the result of faecal extravasation

With this operation we arrive at the termination of the Subject.

On arriving at the conclusion I even long before that I have found that I have fallen far short of the Standard which I had set up. There are some things I might have introduced or dilated further upon. I might have given more references from writers upon the Subject. Perhaps I have made more of others things than they deserve. But the excuse I plead is much of time I have only had the Spare moments which can be derived from a wide country practice to devote to it & have sometimes had to lay it aside for weeks so. That it is not exactly what I intended it to be.

I must say it has been a source of much interest to me in studying the various ideas of different writers upon it. & comparing them with my own.