1889

Inguinal Hernia

Samuel Little
Remarks on Inguinal Hernia

By

Samuel Little M.D. E.

Extraordinary Member of the Royal Medical Society

Resident Physician, Royal Infirmary, etc.

Edinburgh, April 1859.
The subject which I have selected as an inaugural Thesis to present to the University of Edinburgh, is one the importance of which to the practical surgeon, can scarcely be over-estimated.

Anurias, cancer, or urinary calculi are diseases which give time both for patient & surgeon to consult as to when & by whom the operation will be performed but in Hermin the surgeon must be ready to act at a moment's notice, his knowledge of the anatomy of the parts must be perfect, and on his skill, the life of the patient will depend, and although doubtless, it is a subject with which
most members of our profession are familiar, I would still hope to be able to record some points worth of notice, and that the time devoted to their consideration will not be lost. The term hernia is derived from the Greek word, ἕρνια, a branch from its protruding and properly means the protrusion of any viscera from its natural cavity such as in malformation of the bones of the head, we may have hernia cerebri, but the term is generally restricted to surgeons to protrusions of the abdominal visceræ, and the disease seldom therefore occurs except where the viscera of the abdomen are weakened or altered as in the male to admit the passage of the spermatic cord, and in the female the round ligament of the uterus or where the seminal vessels pass to the thigh beneath Poupart's ligament, but hernia have been known to appear also at the umbilicus (which is not an infrequent form of rupture) at the sciatic notch, obturator
Foramen in the vagina, perineum, and at promiscuous portions of the abdominal wall.

A hernia always consists of a sac and its contents—the sac is formed by that portion of peritoneum opposite the aperture at which the hernia protrudes—it consists of a neck and a body, the neck except in old herniae is generally narrowed and short, being a kind of constriction of the sac, the body varies greatly in size; it may be round, oval, or elongated, and its size may vary from that of a marble to a tumour as large as a pregnant uterus—in some cases the sac consists only of a portion of peritoneum, as in hernia of the ovum and bladder, very rare. In other, there may be a double sac, the contents of the sac also vary considerably, cases being on record in which the liver, kidney, stomach, kidney, intestines, ovaries have been found in hernial sacs. Generally speaking, however, it is the
small intestine which is prolonged, and
most frequently the ileum. This is called
entrecelles, if omentum alone constitute
the content, it is termed epiplocele,
and when omentum and intestine together
entrecelles.

The causes of rupture have been
divided into the exciting, and the
pre-disposing; among the exciting are
all violent actions of the abdominal
muscles, as vomiting, straining at
stool, or passing water through a tight
striction, the presence of a gravid
utero, forcing the intestines upwards.

All violent efforts such as lifting
or carrying heavy weights, are perhaps
the most frequent causes. The inhabi-
tants of mountainous countries, especially
in Switzerland, are said to be very
liable to rupture, from the numerous
calls on them for great exertion and
activity, they are also said to be
much more frequent in France, than
in this country, from the great activity.
of the French people; for these reasons the labouring classes of the community are much more liable to the disease, riding on horseback especially without stirrups is another cause, and in females the wearing of tightly laced stays by pressing downwards the abdominal viscera, or in men, the practice of wearing tight belts from a false notion of strengthening the back produce very much to rupture; among the predisposing causes, relaxation is perhaps the most common, since the great frequency of hernia in old persons, all debilitating diseases such as fever, & where the patient becomes much emaciated after being corpulent, will tend to rupture; thus Mr. Lawrence relates the case of a French emigrant, who being reduced to a state of emaciation from the privations he had endured had a hernia in each groin; a naturally greater size of the openings at which the hernia protruded, in another cause — a combination of some of these causes...
will be extremely liable to produce rupture, 
thus if an old person, or one tall and 
delicate, makes any violent exertion, 
he will be very apt to have a rupture.

Of all the different forms of rupture, I 
think it will be generally acknowledged 
that the first and certainly the most 
important is Inguinal Hernia, to this 
form alone I propose to direct attention; 
most authors agree in subdividing it 
into four different kinds viz. 1. Oblique, 
2. Direct. 3. Conjugitate. 4. Infantility. 
when a Hernia occupies the inguinal 
channel without protruding through the 
external abdominal ring, it is termed 
Incomplete. — I have thought it better 
to confine this paper to the two first 
forms Oblique and Direct.

Well as regards the anatomy of Oblique 
Inguinal Hernia, it takes the course of 
The spermatic cord, which enters from 
the abdomen midway between the spine 
of the ilium, and the symphysis pubis, 
the opening at which it emerges, is 
situated in the fascia transversalis,
about three quarters of an inch above Poupart's ligament, and is called the internal abdominal ring, and it may be well to observe that it is not a distinct opening unless made so by the knife of the operator, as its edges are prolonged on the front, & lost on its

enone — the inguinal canal commences then at the internal abdominal ring, & leads obliquely forwards, downwards, & inwards to the external abdominal ring which is an opening of triangular form in the tendon of the external oblique muscle. The base is at the pubes, and the sides are termed the pillars of the ring, one of which is superior, internal, & anterior, & the other, or Poupart's ligament is inferior, external, & posterior. Some fibres pass across the ring which have received the name of intercolumnar bands, or inter-

columnar fascia, which in cases of old hernia are found to be of great strength. The canal is bounded anteriorly by the tendon of the external oblique, posteriorly by the

eminent tendon of the internal obliques, &
Transversalis muscles, inferiory by Poupart's ligament, superiorly, the space is occupied by the fleshy margin of the transversalis muscle.

The coverings of an obturator inguinal hernia after it has passed through the canal will be from within outward: first the peritoneum, second cellular structure in front of the peritoneum, third the internal inguinal ligament or internal spermatic fascia, or fascia propria, fourth the internal oblique muscle and generally intimately united to it, is the intercolli muscular fascia supporting the tumour, and attaching it to the external ring, lastly the superficial fascia and the integument — A direct inguinal hernia passes through the conjoint tendon & then through the external ring without traversing the canal, & its coverings will be, first the peritoneum, second cellular structure adhering to it, third a fascia propria of its own formed by the tendon of the transversalis, the fascia transversalis, fourth the intercolli muscular or external spermatic fascia, last, the superficial fascia and the integument, the coverings wanting in this
Hernia, which are present in the oblique are the cremaster muscle and internal spermatic fascia. In oblique hernia the spermatic cord lies behind the intestine, but in the direct form the constituents of the cord are partly to the front, partly to the outer side of the gut. As regards the diagnosis between these two forms, the direct is usually much smaller & more rounded, has a wider neck & the pulse in the canal is wonting, but in a long standing case the distinction can scarcely be made, because the weight of the tumour drags down the internal ring opposite the external; one of the most important points in the anatomy of inguinal hernia is the situation of the deferent artery—it is placed between the internal & external abdominal rings, nearer the internal than the external. In oblique hernia it lies internal to the neck of the sac, in direct hernia it lies external to the neck of the sac. Sir A. Cooper’s rule is always to cut directly upwards and there will be no danger of wounding the artery, Indeed in the words of Dr. Guthrie, it has been more an
Anatomy & Surgery of Inguinal & Femoral Hernia, Guthrie, London, 1839, page 9
Anatomical Burgers than anything else; the only remaining point to notice in the anatomy of this form of rupture, in the seat of structure, structure is first caused in order of pregnancy at the margin of the external ring, by its own margin; secondly at the internal ring by its external margin, sharp & superficial, formed by the fascia transversalis; thirdly, the neck of the sac, fourthly by the margins of the internal oblique and transversalis muscles, fifthly, an aperture in the omentum; lastly, it may be caused by a hernia of lymph embracing the intestine. — The above brief outline of the anatomy of the parts concerned in inguinal hernia, appears to be the nearest approximation to the truth which can be arrived at. As to the very conflicting statements met with in the works of Scalp, Cloquet, Lawrence, & Dr. E. Cooper — on this subject, Mr. Guthrie after quoting the statements of each of these authors, says: "The reader cannot fail to be surprised at the great difference which exists between these different versions of the same thing; and that, a plain matter of fact, not of ima-
-content reads as follows:

- junction, and a student in anatomy & surgery, on trying to reconcile them by an actual examination of the parts, will find great difficulties in making his dissection correspond with any of the descriptions which have been inserted, & he will be led to conclude, either that the descriptions are not sufficiently clear & distinct if not in some respects faulty or that there is so great a variety in the formation of these parts, as to render any one account of them inapplicable to the great to number."

- This form of rupture is much more frequent in the male than the female sex, although I do not think it is so very rare in the female as some suppose, & I may observe that in most of the cases of which I have read & seen, the operation for strangulated inguinal hernia in the female, has been fatal.

- Let us now consider the symptoms and diagnosis of reducible inguinal hernia. We usually find a swelling either confined to the groin or extending a greater or less distance into the scrotum, if an oblique hernia, it
has appeared gradually, and the patient generally experiences a feeling of weakness and sometimes of pain in it. - When the patient is in the erect posture, it can generally be returned by careful and continued pressure, but when he is made to lie down, the tumour either goes off of itself, or with very slight pressure, the grating sound accompanying its reduction, is usually well marked. The aperistaltic cord, except in very old cases, can be traced behind the swelling, on grasping the tumour at the external abdominal ring, and desiring the patient to cough. A distinct and unusual impulse will be felt - if it be an incomplete to hernia the case will be much more obscure, there being probably only a fulness in the canal, which is not even suspected by the patient, in the direct form the swelling will be found between the pillars of the external ring on the superior and anterior surface of the pubes, it has a more rounded form than the oblique, has the cord to its inner side and is usually of comparatively small size in addition to these symptoms, the patient
Lectures on Surgery, Sir A. Cooper
Eighth edition 1835
usually experiences difficulty in walking, amounting sometimes to lameness. His bowels are often constipated, and the general health disturbed.

The diagnosis of hernia may sometimes be difficult — a reducible inguinal hernia may be confounded before it descends into the pelvis with, I Varicose or, but the diagnosis may be made in this manner pointed out by Sir A. Cooper — "Tell the patient to lie down, raise the testicles and empty the veins, then press firmly on the abdominal ring, keep your finger firmly there, and raise the patient from the recumbent posture, and the swelling will return, then in this easy way may you distinguish varicose from hernia."

2. Hydronephrosis of the cord, here the slow and imperfect removal of the tumour on pressure, absence of impulse on coughing, and fluctuation at the lower part of the water tumour should make the distinction, 3. Where the testis is still lodged in the canal, in this case the absence of impulse on coughing, the peculiar thickening sensation of the patient excited by pressure of the tumour, and the
Absence of the organ from the peritoneum will easily effect the diagnosis. 1. Hydrocele of the hernial inguinal in a child, in which the swelling goes up gradually on pressure, but the swelling gradually comes down again with a very different feel from that of a hernia, and its transparency by transmitted light will usually suffice to make the distinction.

5. Chronic Ulcers which has descended from the abdomen, which will be reducible on pressure, but immediately comes down again, and has a distinct impulse communicated on coughing, but the previous history of the case, the general symptoms of the patient, absence of the tender feeling of a hernia, & grunting in reduction with the fluctuating feel of the ulcers should effect the diagnosis, which in a case of this kind is extremely difficult; when the hernia has descended to the periton it may be confounded with hydrocele, or the hydrocele & hernia may coexist, in the case of hydrocele the history of the case whether the swelling commenced above or below, if the tumor be transparent by the test of a lighted taper,
absence of the impulse on coughing, or gurgling in attempts at reposition, generally make the diagnosis easy, when the hernia is reducible. The latter will generally be found in front of the former, or there may be two distinct swellings, an upper and a lower one. Now come to the treatment of reducible inguinal hernia, on this subject to use the emphatic words of Sir A. Cochrane, the person who has a hernia and does not wear a truss is never for a moment safe, and the danger is greater in proportion to the smallness of size of the rupture: the smaller it is, the more necessary is it for the patient to wear a truss. There are two kinds of trusses: the elastic and the non-elastic, with regard to the latter no dependence whatever can be placed on them, so, that they may be banished from our notice. When we consider the very large proportion of the community, who are the subjects of rupture, & who are prevented almost solely from undergoing a dangerous operation by wearing a perfectly constructed truss, it must obviously be a matter
of the utmost importance, to pay particular attention to the construction, use, and mode of application of trusses. Elastic trusses are generally made of steel; some high authorities among the French surgeons have preferred a mixture of malleable iron and steel, but it is generally the latter which is used in this country— the most important part of the instrument then will consist of a long flat piece of well-tempered steel, which is riveted on an iron plate. This is the spring of the truss, and can be made proportionately strong or weak as a greater or less degree of compression is required, if it be a large old rupture, or the patient requires to take violent exercise, or follows a laborious occupation the strong spring will be required; the plate is furnished with a cushion of convex form called the pad, and care should be taken that this is not made too convex in the middle, else by not exercising an equal pressure throughout, it may cause injury on the cord, or suffer some of the parts to protrude; the spring is covered with some soft material, and ends in a
leather straights perforated with holes to fasten on the anterior surface of the plate, in some instances another strait will be necessary, which by being passed round the affected thigh, will prevent the pad slipping up. The straights should always be affixed when the patient is in the recumbent posture. After the protruded parts have been carefully reduced the straights may be known to fit by the following test laid down by Mr. Griess.: "The patient should be made to sit down on the edge of a chair, and then extending his legs, opening them widely, and bending his body forwards, cough several times; if the hernia do not slip down after this trial, behind the pad, we may be sure that the straights is an efficient one, and will keep the rupture up under all ordinary circumstances." — The patient should then be instructed as to the necessity of keeping the straights constantly on (he may perhaps be allowed to lay it off at night) and also instructed in the manner of its application a kong of flat worn beneath the pad, is useful to prevent any
excoriation of the skin, and injury to the parts by perspiration. — The effects of the truss not only by keeping up the protruded parts, avoid the risk of strangulation, but gives the patient the chance of a radical cure, especially in young persons, and of this we have a good example in the case of Sir A. Cooper, who when a medical student was himself the subject of hernia, & was completely cured by wearing a truss for thirty years. —

Various means have been proposed of effecting a radical cure of hernia by means of the application of sutures, ligatures, faradics, &c., but all of them are highly dangerous, & most of them objectionable, although they have been tried & advocated by some of the continental surgeons, but the means usually relied on, is the pressure of a well-made truss, & this can only be expected to succeed in young cases, it acts by causing contraction & obliteration of the sac, the contraction usually begins at the neck and goes on gradually, the sac becoming atrophied, and contracting ad-
Desiring to the parts around, the pressure also exercises a beneficial action on the opening or rigging by causing a gradual constriction of it, but to effect this the patient should not be allowed to lay off the truss even at night as a fit of coughing might cause a protrusion of the hernia and he must do to his cure from the last time the hernia was down.

The advance of modern surgery obliges me here to notice a method for the radical cure of inguinal hernia, which has recently proved most successful, viz. the operation of invaginating a portion of the skin of the groin or scrotum, by thus excluding the abdominal peritoneum. I have not space here to enter into a description of the operation, but it is fully detailed in the 97th vol. of the Medical-Chirurgical Transactions by Mr. Spencer Wells, also in an admirable paper in the Dublin Hospital Gazette for June 1858 by Dr. Fleming of the Richmond Hospital; but we in Edinburgh have a stronger opinion still in its favour, for Mr. Dyne in a clinical lecture delivered on
Monday, 14 July last, stated that as soon as a favourable case presented itself, he should certainly perform the operation for the radical cure of the "first surgeon of the age" makes such a statement, we may conclude that the operation will soon become general — Prof. Miller in lecturing on Hernia in the University on 17 March last did not seem to approve of the operation, but admitted that it might be tried especially in the better ranks of life, in making this admission the learned Professor acknowledges to some extent the excellence of the operation.

We now come to the subject of irreducible hernia, a hernia may be irreducible either from its quantity, from the omentum having contracted adhesions to the interior of the sac, from a membranous band crossing the sac, or from the thickening of the muscular and omentum from an accumulation of fat, or the neck of the sac being contracted and the lower part expanded may also prevent a rupture being reduced; an irreducible hernia is a source of extreme
annoyance & inconvenience to the patient, from its liability to increase in quantity and the life of the patient is constantly in danger from the risk of receiving a sudden blow or fall which may either cause the tumour to burst, or bring on an attack of inflammation. Very little can be done for this form of the disease, if the swelling will admit of a truss being worn one with a very light spring and a hollow pad will be required, and if it occasions much pain, it must be discontinued; if the size of the hernia will not admit of a truss being worn a suspensory bandage must be substituted which the patient should never lay off. - Sir A. Cooper relates the case of a gentleman whose hernia became irreducible from travelling in the night mail from Edinburgh to London and being treated by the constant application of ice to the tumour and the maintenance of the recumbent posture, it was at length enabled to be reduced. It has been proposed to confine to the patient
to bed for some time, apply ice to the tumour continually & exhibit calomel & tarter emetic to promote absorption of the abscess, by these means render the hernia reducible, this plan has been in many instances found successful — an irreducible hernia may be attached with inflammation giving rise to symptoms of strangulation, but the want of tension in the tumour, the fact of inflammation having commenced in the body of the sac, constipation not being complete to and vomiting is present, it is not stereotaceous but merely the contents of the stomach, will prevent it being mistaken for strangulation — the treatment consists in the application of leeches to the tumour with the exhibition of calomel & opium, antiphlogistic diet and the treatment applicable to general peritonitis — it may also become obstructed by feces or other matter in this case purgatives & enemata should be administered, the patient kept under chloroform and the tapir tried, which in these cases will generally succeed, if not the
operation must be had recourse to.

Let us now consider the symptoms and diagnosis of strangulated hernia. In a strangulated rupture, the tumour will be found to be tense and painful, the pain greatly increased on pressure or handling, it cannot be returned into the cavity of the abdomen, the bounds are constituted neither faces or status passing for aneurysm, vomiting sets in at first consisting of the contents of the stomach, afterwards stercoraceous from inverted peristaltic action extending as low down as the contracted part of the gut, after the strangulation has lasted some time, the pulse becomes small & rapid, the expression of the countenance low & sunken, tenderness spreads over from the abdomen, from the inflammation in the sac extending to the adjacent peritoneum, a blush of redness is visible in the integuments covering the tumour, the colour of the breath becomes gangrenous, mortification sets in followed by rapid prostration, delirium and death. — The diagnosis of strangulated hernia in a matter of some
importance, the hernial sac may suffer from an attack of inflammation, but constipation in this case is not complete, and very little, if any vomiting, the intestine may become obstructed as has already been spoken of, or a more important cases is when the patient suffers an attack of ileus from any other cause. This happened lately in the case of a medical student in Dublin who had an inguinal rupture for which he had worn a truss, but lest it off, when the hernia descended and became irreducible. At the same time, symptoms of strangulation set in, under the circumstances it was not considered advisable to operate, the patient died. On examination a band of lymph was found constraining the ileum high up in the abdomen. The rupture was only irreducible from its size, in persons of great obesity a small hernia may sometimes become strangulated and escape the notice of the surgeon.

We have now arrived at what may justly be considered the most important branch of this
subject viz. the treatment of strangulated hernia which consists in the reduction of the constricted gut or the division of the structure—there are two means by which these objects may be accomplished, first by a peculiar kind of pressure exercised under peculiar circumstances, on the tumour & technically termed the tapir, and secondly by making an incision on the tumour searching for the cause of obstruction & removing it by the knife. Upon the surgeon is first called to a patient labouring under strangulated hernia after making a careful examination of the parts, if he find that the tumour is not exceedingly tense or painful or if there are no symptoms of acute inflammation in the tumour or in the abdomen, he should proceed to make trial of the tapir in the following manner: the thigh should be flexed on the abdomen, the right hand spread over the tumour, & the neck of the sac at the abdominal ring grasped with the left, gentle pressure should then be kept up by a kind of grinding motion of the finger & thumb until a leakage is obtained, for a small portion of the contents of the sac into the abdomen,
which will generally be known by a gurgling in the tumour, when its reduction is most cases soon follows, this plan may be tried for about fifteen minutes, when if it does not succeed, other means must be resorted to, one of which formerly advocated, is now much and perhaps justly neglected, that is blood letting which not only facilitates the employment of the tapir but will prove a powerful check to the purulent inflammation, which is too often apt to follow in the event of the operation being found necessary, if the tumour is found to be very tense and painful, the tapir should not be employed, until cold baths have been applied by means of a bladder of ice, or the freezing mixture of Sir J. Lopez consisting of equal parts of nitrate of ammonia and nitrate of potash to a pint of water, this will in many cases be found of very great service, the tobacco smoke though not so much used now as formerly is a powerful aid to the tapir, as also injections of hot gruel or salt which are useful by clearing the rectum, but many of these means are now superseded by the discovery of the most powerful agent which we
Hopes for relieving the muscles, viz., chloroform, which when the taper has failed with the aid of other means, should at once be employed, and if it then fail, the operation should not be delayed.

I do not by any means wish to advocate a prolonged employment of the taper, which is most injurious by bruising the tender and inflamed gut against the edge of the abdominal ring. After it has been fairly tried by one surgeon, it is perhaps better that it should not be used by another, more especially since in modern times, the effect of chloroform has been found so beneficial, and few surgeons have ever regretted performing the operation too early, however much they may have done to in performing it too late and this is perhaps the chief reason that there is a greater fatality from the operation in hospital practice on account of so much time being lost in the employment of the taper before the patient seeks admission. After the bowel has been reduced, it is not to be supposed that the patient is perfectly safe; the taper may be followed by a sharp
attack of peritonitis, which may require blood letting, coloclysis, and the usual anti-choliotic treatment, and the symptoms of strangulation will not be likely to disappear altogether, until evacuations have been procured. For this purpose, this is best accomplished by mild purgatives and enemata; — it may happen that a small portion of bowel may remain strangulated after reduction, which will render the operation necessary.

As regards the operation, there are two modes of performing it, one, the usual method, by opening the sac, searching for the structure, and dividing it wherever it may be found; the other, by dividing the structure outside the sac without opening it; — in performing the first, the patient being placed on a table of the usual height, the hair shorn off the abdomen, a superficial incision is made along the neck of the tumour, by which the integuments and superficial fascia are divided; the cellular substance and covering of the tumour are then to be successively divided by the knife with the aid of the dissecting forceps, — an old tumour...

it will be difficult to recognize the different structure so that the surgeon must exercise great care in approaching the sac, an small vessel that is divided had better be tied as the bleeding interfuses with a correct view of the part — when the sac is reached which will be known by its vascular appearance & tense feeling, the vessels having generally an arborescent appearance, a small portion should be rubbed cautiously between the finger and thumb to make sure that no intestine is contained, this portion is then pricked with the forceps, and an opening made in it, by cutting with the knife held in a horizontal direction, a quantity of fluid in most cases then escapes, if there be a large quantity of fluid it may render the sac so tense that it cannot be opened in the manner described, in this case a puncture must be made by means of a fine hook & the fluid allowed to escape, the sac is then to be laid open to the extent of the original incision, & then comes the most difficult and dangerous part of the operation viz. the division of the structure.
the finger must be pushed up into the canal, and the seat or cause of structure ascertained. If it be not situated at the external ring, but at the neck of the sac as not uncommonly happens, the Renniai knife blunt except at the point is cautiously pushed up on the finger, the nail inserted beneath the structure & this divided to the extent of 1/8 or 1/16 of an inch, care being taken not to divide more than is necessary. If a director be used it must be inserted fully under the structure — whether it be divided on the nail or on a director, the barrel should be protected from injury, by the finger of an assistant, drawing it down and keeping it out of the way of the knife. Mr. Guthrie recommends the canal to be slit up to its whole length rather than that the structure should be divided in the dark, when the structure is situated at the external ring it can usually be divided without difficulty, only the surgeon must press his finger up into the abdomen to see that everything is clear after the barrel has been readjust, and that there is no structure at
the internal ring, or the neck of the sac, it may happen that after the division of the stenosis, the intestine may still be prevented from going up, by adhering to the omentum, in such case the bowel must be drawn well down, and the adhesions either divided with a director or probe-pointed sutures, or dissected carefully with knife and forceps; — after the stenosis has been divided, the next question for the consideration of the surgeon is the replacement of the parts, the intestine must be returned first, by grasping a small portion and insinuating it gradually between the finger and thumb into the abdomen, and so on, until all is reduced, but no force should be used, it being always preferable to enlarge the incision; — before the bowel is reduced it will be necessary to make a careful examination, especially if the stenosis has lasted a long time, or there be any suspicion of gangrene, to see that the intestine has not mortified, in which case it cannot be returned, some experience may
The requisites in order to determine whether or not the intestine be in a fit state to return, most commonly when the parts inside become gangrenous, the integuments and coverings also become gangrenous, when it will be the duty of the surgeon if he see the case in time, to make a free incision down to the gut, open it, and allow the feces to escape, but in case the gangrene be only discovered when the hernial sac is opened, the treatment will depend on the extent of surface involved if there are only one or two spots mortified, the plan which most authors recommend is to return the intestine, leave those spots towards the mouth of the wound when the result will be a fascial fistula, which may continue for some time before the intestinal contents resume their proper course — experience has proved that it is quite unnecessary to place a ligature on the mesentery in order to keep the mortified gut at the wound, the inflammation always causes sufficient lymph to be thrown out, and it immediately contracts
adhesion to the parts around, — when a large portion of intestine has become gangrenous or the whole circumference of the tube, the surgeon must complete what nature has begun by making a free incision in the gut, & allowing the fæces to escape, when the patient will experience immediate relief. (The division of the stricture is in most cases of this kind unnecessary unless it is found that it impedes the discharge of the fæces.) The incised bowel or the two ends of a portion have been removed must then be left in the wound, when an artificial anus is formed, extravasation of fæces into the peritoneal cavity being prevented by the gut contracting adhesions to the abdominal wall at the wound — it is not infrequent that the intestine may have been so much injured by the length of time or degree of tightness to which it has been subjected, as to lead to the belief that it will not regain its vitality. — the usual rule in such cases
is to return the bowel, its natural situation giving it the best chance of recovery, and in the event of its sloughing, we may rest satisfied that it will remain at the wound, but this is a point on which there is much difference of opinion. Some authors recommending that the bowel should not be reduced in any case a cautious prognosis should be given as a large number of such cases from partial alesorlation or ecchymosis of the bowel should not be mistaken for gangrene the gut may vary in colour from chocolate to dark black & yet be returned with safety. Largely when having returned a portion of bowel as black as shadow with griefs, gangrene will generally be known by the postural and collapsed state of the protruded part, its fetor & the general symptoms of the patient - the dislocated part retains its bright, polished appearance & tubular form, and there is not the offensive odour of gan
grene but in all suspicious cases it will be well to close the wound as recommended by other authors, only closing it partially.
and supporting the parts very lightly, with a
pad of sponge enveloped in lint, & retaining
this by one or two turns of a bandage,
so as to give the patient the chance of
a cure by an artificial if the intestine
yields way.—few diseases render a patient
more loathsome to himself or his friends,
than that of the feces passing through
an opening in the groin, when only a small
portion passes through, and the principal part
by the anus, it is termed a fecal fistula.
When a true artificial anus exists, by which
the whole of the intestinal contents are
discharged, if it exist high up in the bowel
as in the jejunum, by interfering with nutrition
the patient will probably die of insuitation,
the treatment of artificial anus seems
to come within the scope of this paper, but
I may remark that it is possible to obtain
a permanent cure by the use of an instrument
called Dujouyer's Intestome The modus opera-
di of which is detailed by Prof. Miller at
Page 332 of his Practice of Surgery.
After the bowel has been reduced, the next
Principles of Surgery, Syme, last edition, page 301
question for the consideration of the surgeon comes to be the treatment of the omentum, when it is small in quantity of healthy in appearance, the rule is to return it, as it serves by plugging up the aperture to prevent the protrusion of the parts again, but if its quantity be large or its appearance unhealthy, as it generally is in old ruptures, being hypertrophied & congested, it must not be reduced, neither is it to be reduced when gangrenous, the practice in all these cases is to cut off the diseased part, and as there are generally a considerable number of vessels divided, they must be taken up and tied separately. The ends of the ligatures being left hanging out of the wound. As regards the second mode of operating viz. without opening the sac, I cannot do better than give to the admirable opinion of Dr. Syme concerning it: "The late Mr. Astley Cooper & Mr. Luke of London have endeavored to lessen the danger of the operation, by dividing the construction without opening the sac, - the advantage attributed to the procedure from
leaving the serous membrane entire, seem more than counterbalanced by the risk of wounding the intestine in dividing the structure, the evils which may result from returning the strangulated part in an improper condition, and the mischief that may arise from abortive attempts to effect reduction when it is impeded by adhesion or other obstacles within the sac. — In the whole I am inclined to think, that as a general rule, it is better to open the sac; and that the procedure in question should be restricted to the treatment of large hernial protrusions, especially in unhealthy hospitals, where a disposition to inflammation of the serous membrane may be inferred from the frequency of pyrexia and phlebitis. —

In all operations for hernia a guarded prognosis must be given, as cases seeming the most favourable will terminate to the most fatal, no violence used in the employment of the tongs, and the operation performed within eight or twelve hours after strangulation has occurred. — In other
instance the most unfavourable will often terminate happily. - He hence has operated successfully for general hernia strangulated six days. Baron Dupuytren has operated successfully on a case of inguinal hernia strangulated sixteen days, - with respect to the treatment. After the operation, the management of the wound is simple, the integuments should be brought together by two or three points of sutures, a piece of wet lint applied, pads of lint over it and the whole retained in opposition by means of a snug bandage. The dressing need not be removed for a period of from twenty-four to forty-eight hours, when the stitches may be taken out as soon as union by adhesion should by that time have taken place - it is better not to be in too great a hurry to administer purgation in case of the bowels not acting. Injections of warm water may be given and the patient kept on a very light diet, as gruel or barley-water &c.

The great danger to be apprehended in operation for hernia, is the occurrence of peritonitis,
as is aptly described by Mr. Chidzen, may be of two kinds, the active, and the latent or passive. The first being that form usually met with in a strong and healthy person. The second is that form which may be expected in the inhabitants of large towns, and in hospitals, where it must be dealt with by stimulating treatment; and the exhibition of opium, or it may be administered, being in the case quite inadmissible.

Before concluding I may put before the two following cases, which will generally be found to pressed some points of interest—

Case I. Messrs. A. B. and C. A young man who was admitted to Dr. Smith's wards on the evening of 21st May 1837, suffering from all the symptoms of severe strangulated hernia,
He had severe hiccup and vomiting, small quick pulses, and great pain and tenderness over the abdomen. On examination, a small painful swelling was felt in the left inguinal region, protruding but a short way beyond the external ring. The peritoneum contained but one testicle, that of the ruptured side not having descended. The swelling came down suddenly, for the first time two days before while engaged in digging with a spade. The vomiting had commenced soon after its descent and had continued more or less ever since. The testes had been attempted by a medical man before his admission, and the patient himself had been making frequent and severe efforts to effect reduction. He was first to bed, cold applied to the tumour, and an injection of warm water given. Mr. Pearce was summoned and immediately proceeded to open it. The operation was somewhat complicated by the presence of the adherent testicle, but the one was speedily repaired by opening a quantity of dark, purulent fluid escaped, and a small bundle of intestine along with a considerable portion ofomentum were found tightly strangulated. The bowel
was very dark in colour but not so altered as to forbid its reduction; the omentum was of dark colour and soft consistence, and seemed to have suffered from the patient’s severe efforts at reduction of the hernia, it also was reduced but not without some hesitation; the usual街区s were applied and a large ointment given, and the patient put to keep a cold wet fomentation of ether and bleeding were in vain ordered with a view of combating the peritonitis which had already begun, but the patient died 50 hours after the operation.

Case II. James Douglas, sealer, aged 37, was admitted about 9 a.m., on Sept. 18, 1857, suffering from strangulated inguinal hernia, which had come down on the morning of the 18th when at stool, and not being able to return it he applied to a surgeon who directed him to go to the Infirmary; he did not do so until the 19th, 6 o’clock after the bowel had come down. He stated that he had been operated on for strangulated inguinal hernia, about 12 years previously.
and that about five weeks after the operation, when the wound was nearly healed, symptoms of strangulation viz. vomiting, constipation, etc. set in, which lasted three weeks and at the end of that time were relieved by the discharge of feaces through the wound, this continued in small quantity for 9 months constituting a faecal fistula. The only treatment adopted being the healing of an intestinal fist to the sore, when it closed up of itself. On admission he had much pain in the tumour, frequent vomiting, scanty excretion of faeces, small rapid pulse (110) and peculiar hay fever and breath. The bowel was relieved without delay by operation, there was little putting together of the soft tumour, there might have been expected after the former operation, the texture of the affected side was absent from the peritoneum and was the only complication during the operation, being found muchstraction in the canal, after being put to bed hot bottles were placed around him, the vomiting however continued very frequent, the spine was rejected, and also a second one grain soon after — a large mustard
pains continuing in the lower part of the abdomen, she was therefore applied to the abdomen followed by hot fomentations, and ice was given by the mouth in large quantity. This greatly diminished the vomiting but the occasional rejection of a mouthful of watery fluid continued during the night. On the 20th he was ordered early in the morning a large blister over the abdomen, a poultice of tobacco and opium was rejected almost immediately, the perspirations freely, and his lips turgidity over the abdomen. At visit 21st Spencer ordered the colonel to opium pill every 3rd hour. 22nd has had three of the pills which were ordered to be discontinued, a dose of castor oil was given, which produced vomiting, but afterwards a colorizynth and hyoscyamus pill was easily retained. Perforce, another large injection of warm water was given which moved the bowels but not fully. This was followed by considerable relief. Ordered another colorizynth and hyoscyamus pill. 22nd much better, but no motion yet, ordered another pill. 23rd no pain or sickness, ordered 3/4 of the fluid extract of pomegranate, very soon after which there was copious evacuation from the bowels.
by which he was much relieved, and says he feels quite well, the wound is looking very well, and all the stitches have been taken out - from this date he progressed favourably, and the patient left the hospital about the middle of October.

With respect to these two cases, a more favourable prognosis might have been given in the first than second, whether the patient with suffusion in the first case from the employment of the nuxios so violently, before admission or from the longest ever taken being retained, or from the degree of tightness with which the brow had been constructed, it is very difficult to say, most probably there may have been a combination of all these causes.

The second case is extremely interesting, the symptoms under which the man laboured for three weeks, a considerable time after the first operation, could not have been those of strangulated hernia. The probability is that an abscess had formed which by pressure involved the gut and when it burst a fatal picture was of course the consequence.