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on

Inguinal Hernia.

by

Robert Jolly
I purpose in the following treatise, to consider:

1st. Causes of Hernia.
2nd. General diagnosis of hernia.
3rd. The special diagnosis of inguinal hernia, from other diseases simulating it, and its treatment.
Causes of Hernia.

The causes of this complaint may be referred in general to two divisions, according as they appear to operate by increasing the pressure on the viscera, or by diminishing the resistance of the abdominal parieties. The former may be ranked, as occasional or exciting, the latter as predisposing cause of the complaint.

With regard to the exciting causes. The chief cause of this kind is the powerful action of the abdominal muscles and diaphragm on the viscera, which is generally induced by lifting of heavy weights &c, an action which strongly exerts the abdominal muscles at the time. The body is bent in this position, the lower part of the abdomen is not contracted to the same degree as the upper, the viscera are forced downwards by inspiration, and compressed by the abdominal muscles above, whilst the openings of the groin are relaxed by the posture of the abdomen, and in individuals who have suffered
under bad structures, or habitual constipation, the possible action of the abdominal muscles in expelling the contents of the visceras, may often produce a hernia.

Amongst the predisposing causes may be mentioned debility, by occasioning relaxation of fibre, hence, if a person debilitated by fever or any other disease, returns to a habit of violent exercise, before his strength is fully re-established, a swelling of the groin may occur, which proves to be a hernia, or a penetrating wound of the abdominal parieties, may be considered as strongly predisposing to the disease.

There are other causes of the disease that principally affect the vissera, in which the abdominal muscles may be said to be passive. Thus the vissera may become too large for the cavity of the abdomen in extreme degrees of obesity, which loads the omentum and mesentery with fat, and more especially if it comes on very rapidly, will seldom fail to produce the disease.
External pressure may also bring on the disad-
it is thus that hernia is brought on by
wearing tight articles of dress, which pinch
up the abdomen, and do not leave room
for the variations that occur in the size
of the viscera after taking food, and in
mechanics, who are in the habit of using
the implements of trade against their
abdomen, bring on the disease by pressing
the viscera to the inguinal region.

The great numerical disproportion between
right and left ruptures, does not depend
on any disparity in size between the aperture
of the two sides, but must be referred
to the employment of the right side in
those offices of life, which require the
most powerful exertion. When we employ
the right arm in lifting a weight, dragging
or any other effort, we incline the chest
towards the left, so as to curve the trunk,
and stretch the right abdominal muscles,
the inferior surface of the diaphragm (which
in the erect attitude looks downwards and
forwards), is now inclined towards the right,
so as to push the viscera when it acts downwards towards the right Iliac fossa; and thus to increase the distending force, whence, from the stretched state of the muscles, the power of resistance is already diminished.

General Diagnosis of Hernia.

The general diagnosing hernia requires the greatest attention the surgeon can bestow. Every swelling which is observed at any part of the places, were hernia usually appears, and which has arisen suddenly or after any exertion, excites the suspicion of its being a hernia. There can be no doubt of the nature of the disease, if the tumour is not always of the same size, and becomes smaller when the patient is in the horizontal posture, and if it becomes large and tense when the patient stands erect; if it is diminished by the pressure of the hand, and regains its former size as soon as the pressure is removed, if the swelling becomes tense when the patient coughs, so that an impulse is communicated to the hand of the examiner, and when the patient
after the occurrence of the swelling, is occasionally affected with colic, nausea, vomiting, and constipation, however, all these symptoms are not present in every hernia, nor in every state of the disease.

If the tumour is small, deep seated, and has arisen slowly, or if it is irreducible, and complicated with other tumours, it contains much fluid, especially in fat persons, the diagnosis is more difficult, and the nature of the case, can only be ascertained by attention to the existing symptoms or previous course.

It is sometimes possible for the surgeon to distinguish what viscera are contained in the hernia (this discrimination, however, is sometimes difficult, and even impossible, when the hernia is old, large, and viny tense, when it is formed by intestine, the tumour is smooth, elastic, and of a rounded form, on reducing it, the surgeon is sensible of a gurgling noise, is on the other hand it is formed of omentum, the diagnosis is more difficult, and more liable to be confounded with other tumours, it is more frequent in fat persons, and the tumour increases more
slowly, it is of an oblong shape, and has a
doughy unequal feel, and is in general more
difficult of reduction.

The special Diagnosis of Inguinal hernia
from other diseases, and its Treatment.

An attentive examination of the origin, progress,
and symptoms of the complaint, will enable
us to diagnose a hernia from other diseases
simulating it.

Inguinal hernia (like all other forms of hernia)
possesses the common symptoms which have
been mentioned in the general diagnoses
of hernia. The additional circumstances,
which bestow a distinctive character on this
particular form of hernia, are derived from
the situation of the swelling. The tumour is
either confined to the groin, or extends from
the abdominal ring to various distances in
the scrotum. It is first perceived in the groin
and descends gradually in front of the
spermatic cord. The testicle can be felt
below or behind the swelling, and the
spermatic cord may sometimes be traced
at the back of the tumour, the swelling
always appears to extend into the ring, and
is hence distinguished from most other affections of these parts. The rupture, however, assumes a very different appearance, when it is contained in the inguinal canal, the tumour in such a case is always very small, insomuch that the patient himself may not be aware of its existence; and the circumstance of its being covered by the aponeurosis of the obliquus externus, renders the margin undefined, and the case still more obscure; these circumstances should induce us to examine the groin very carefully, in cases were the symptoms lead to the suspicion of a hernia, and not to be contented with the patient's own account.

The diagnosis however, between femoral and inguinal hernia, is not so easy in the female as in the male, because the want of the spermatic cord in the female, and the inguinal ring being situated lower down, at the inferior margin of the abdomen, and nearer to the inferior and internal angle of the femoral arch, than in the male, may easily lead to error, and sometimes even make us suppose, that the same woman is afflicted with two distinct femoral herniae on the
same side, and under the same arch, when in fact, one of the herniae is inguinal, and the other femoral.

The diseases simulating inguinal hernia are:

1st Varicocle.

This is a very common complaint, it occurs most frequently upon the left side, in consequence of the termination of the left spermatic vein, at right angles with the esmigent. In the incipient state no difficulty occurs in the diagnosis, but, when the tumour occupies the whole scrotum, it is then more obscure, a little attention however, will enable the surgeon easily to distinguish the two diseases, in the first place, on enquiry into the history of the case from its commencement, will elucidate the question; from such enquiry, it will generally be learnt, that the swelling commenced from below, on manipulating the tumour, the dilated veins can be distinctly felt rolling under the fingers, like cords or earthworms, and the peculiar sensation felt by the patient when the tumour is pressed on, will leave scarcely a doubt of the disease being a varicocle, the increase and diminution of the
swelling happen quite differently from what they do in a hernia. varicocele under the circumstances above specified not only enlarges very slowly, but whilst it is increasing or subsiding, nothing can be felt descending a ascending through the abdominal ring, if the surgeon's finger be kept upon that opening, or if the patient is placed in a horizontal posture, and the swelling emptied by pressure, if the surgeon makes firm pressure upon the abdominal ring, the tumour will not return if of a hernial nature, so long as the pressure is continued, but in the case of a varicocele the swelling will appear again with increased size, on account of the return of blood into the abdomen being prevented by pressure. Lastly, in addition to these marks of discrimination, the various symptoms of hernia are here absent.

2nd. Hydrocele of the Tunica Vaginalis.

This complaint has generally the appearance of a smooth, soft, long, or pyramidal swelling, it has a softish feel, attended with fluctuation, and cannot be diminished either by pressure,
or by making the patient lie down in the horizontal posture, nor can it be pushed into the cavity of the abdomen, by any artifice of the surgeon. No impulse can be distinguished in it when the patient coughs, and if a candle be placed behind the tumour, it will be found to have a somewhat transparent appearance; the testicle usually occupies the back of the cavity, about its middle. Nearest the lower than the upper part, and it seldom can be felt distinctly. In a congenital rupture, the testicle cannot be distinguished (until after the hernia is reduced), as it is enclosed in the same bag with the protruded visceræ, here however, the continuation of the swelling into the ring, the variations in the size of the tumour, according to the position of the patient's body, its origin from above, and the impulse occasioned by coughing, will point out the existence of a protrusion.

3d. Hydrocele of the spermatic cord.
This is the disease which is most liable to be confounded with an inguinal hernia, and it is sometimes with difficulty distinguished.
from it, the cylindrical and somewhat pyramidal form of both these tumours, the unnatural dilatation which both of them produce in the inguinal ring, the consistence and the sensibility being nearly equal in both, and the similar difficulty which the surgeon experiences in their replacement, are all circumstances which render the diagnosis obscure. Cott believed that he had found a proper, and distinctive characterising, disintegrated hydrocele of the spermatic cord, from the hernia, viz. that the hernia returned into the abdomen, remains there as long as the patient keeps in the recumbent posture, and does not make any exertion; while, on the contrary, disintegrated hydrocele of the cord pushes beyond the inguinal ring, re-appears when the replacement is scarcely effected, although the patient remains recumbent without coughing, or making any effort to rise, if this occurs in some cases, it certainly, does not prove true in all. But the chief points of difference, are, the completeness in reduction of the hernia, the clearness of the cord after reduction, and the impulse
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given upon coughing, in the hydrocele pulsation is generally distinct, the fluid is found to be reducible within the abdomen, not into the cavity, but probably passing along the spermatic cord in its areolar tissue, and when it has passed beyond the abdominal ring, forming a distinct tumour in the abdominal varieties.

4th. Encysted hydrocele of the spermatic cord.

Infants and young persons are much more subject to this disease than adults, and it is much less commonly met with than hydrocele of the tunica vaginalis; it most frequently occupies the middle part of the cord, between the testicle and a grain, and is generally of an oblong shape, and perfectly circumscribed. It occasions no pain, and the upper part of the cord is usually very distinguishable but if it be situated nearer the abdominal ring, unto which it admits of being pushed, the diagnosis is more obscure. It may however be distinguished from a hernia, by the facility with which the vessels of the cord can be felt, when the tumour descends again, if the
fingers are pressed in between it and the ring, and besides, the tumour can never be wholly reduced within the abdomen, a certain degree of tense fullness always remaining in the upper part of the canal.

5th  Haematoccele.

Hernia is known from an haematoccele by the latter being usually the result of a blow, and by the ecchymosis which at first accompanies it, by its not extending to the inguinal canal, by its not dilating on coughing, by the bowels being undisturbed, and by its not returning into the abdomen.

6th  Vascular swellings.

When the tumour is small it may be mistaken for a hernia, if the tumour has appeared suddenly, after a violent effort, if it increases in consequence of exertion, and diminishes or disappears on pressure, or in the recumbent posture, if an impulse be felt when the patient coughs, and intestinal affections have been caused by it, the case most probably is a hernia. on the other hand, if the tumour is
an enlarged gland, it swells imperceptibly and gradually; it is unvariable in its size, and causes no disturbance to the alimentary canal, and the existence of symptoms which usually attend a hernia (strangulated) will remove any doubt that the surgeon might entertain on the subject, and if these symptoms do not yield to the usual remedies, will authorize him in operating, although the examination of the tumour should not satisfy this mind, that the tumour is a hernia, no great inconvenience can arise from cutting down upon an enlarged gland, while the patient is not in any way endangered, by putting off the operation in a case of a strangulated hernia.

**7th.** Safe descent of the Testicle.

The absence of the testis from the scrotum, together with the peculiar sensation excited by pressing the tumour, sufficiently discriminate the case of a testicle on its descent. When however, this organ is placed in the groin, it may, in some cases, be pushed partially into the inguinal canal and afterwards descend. The application of a
Truss would probably occasion such pain, as to discover the nature of the case, even if the absence of the part from the scrotum had not been perceived.

8. Hernia humoralis.

In the hernia humoralis the pain in the testicle, its enlargement, the hardness state of the epididymis and the generally preceding gonorrhoea or injury, are circumstances fully elucidating the diagnosis. Nothing in fact but great want of attention, can cause a hernia to be confounded with an enlargement of the testis. This latter is sufficiently distinguishable, not only by absence of symptoms characterizing hernia, but also by the form of the gland, its weight, the pain, and that peculiar, and intolerable sensation always produced by pressure on that organ.

Treatment of Reducible Inguinal hernia

This form of hernia is not attended with any troublesome or bad symptoms, and is capable of easy and immediate reduction. Here, the first indication is to reduce the
protruded parts, without delay, and to prevent them descending again, by the application of a suitable truss, which should be immediately applied, and worn without remission; care being taken especially if the patient be an infant, to keep the parts upon which it presses regularly washed, in order to prevent chafing of the parts. The truss ought to fit properly, for one which does not press enough, is worse than none at all; it occasions loss of time, presses too much on an improper part, gives pain and trouble, by producing inflammation and swelling of the spermatic cord, and sometimes of the testicle.

Some individuals find the pressure of the truss extremely disagreeable at first, although it is no more than the case requires. They may wear a very weak instrument for an hour or two daily, increasing the length of time of each application, until habit shall have rendered its constant use supportable.

Wearing a truss not only keeps the viscera within the abdominal cavity, and thereby protects the ruptured person from all the dangers which the existence of his complaint would otherwise expose him; but is continued for a
sufficient length of time, even affords a prospect of a radical cure; and in proportion as the patient is younger, may we more reasonably expect a radical cure from the use of the limes, we may indeed speak with confidence on this point, in the rupture of children, although cases sometimes take place in adults, they are not however of common occurrence, and are not at all to be expected in old subjects. The constant pressure of the part of the uterus, keeps the neck of the sac empty and thus favours the commencement and progress of these natural processes, which after the replacement of the viscera, tend to prevent recurrence of the complaint, viz. spontaneous reduction, or gradual contraction, with obliteration of its neck, a body, and agglutination of its sides, or sometimes trusses when skilfully employed, are excised, without pain, a slow inflammation, which terminates in the desirable object, or obliterations the mouth of the peritoneal process and thus effecting a radical cure.

It should be borne in mind however, that the wearing of a truss, is by no means a certain preventative of strangulation, although it considerably lessens the risk of this serious
occurrence. To the working man the truss is an expensive instrument; under the continual of his daily work, it is liable to get out of order, to break, and to be a constant source of expense and annoyance. The soon to him of an operation conducted in a public hospital, or elsewhere, would free him from these troubles, would indeed be great. With the more affluent, the consideration of expense is unimportant; the leisure they can bestow to obtain a perfectly fitting instrument, of a construction best suited to their individual case, the absence of all necessity for violent bodily exertion, will in all probability induce most of this class of persons to be satisfied with the palliative means afforded by the truss. These considerations however, have led to an attempt of an entire cure, which should include, not only a return of the protruded parts, but also a security against any fresh descent.

The operations devised by the ancients for this purpose, consisted in applying to the skin, opposite to the ring, Chrestic (which was Sulphuric Acid), so as to form a small eschar, and when this separated, if the sac were not sufficiently exposed
its application was renewed, until it was destroyed.

Others proposed, that after exposing the sac, it should be elevated, in order to carry the actual cantery to the very bone, so as to produce an exultration, a more firm canter was thus expected, as the crateric would adhere to the bone.

Other operators having passed a needle and ligature through the skin and under the sac, placed a piece of wood between the two ends, then tied them, and drew the knots closer and closer, until the included parts had perished, and as the spermatic cord was intercepted, and the testic useless, that organ was removed.

The Puncture cure, was one of the most promising plans; it consisted in passing a gold wire under the neck of the hernial sac, close to the abdominal ring, and then tying that part of the sac, so as to render it impervious by the adhesive inflammation thus excited. The various operations now described, for the Radicle cure of hernia, must have been attended with danger enough, even if they had been performed by the most skilful surgeons; but they were generally performed by ignorant quacks, who, moving about from place to place, after receiving their fee, left the
patient to their fate.

In 1829, M. Belmas suggested the scheme of introducing into the upper part of the hernial sac, a little bladder or pouch, made of goutteaters skin, and filled with air, the plastic matter (belme) which was soon rejected, penetrated the material of which the little bladder was composed, and became, in some measure combined with it, the whole is alleged to acquire organization, and to contract adhesions to the ring and most of the sac, so as to constitute a barrier against the descent of the viscer.

Since 1838, Professor Witschi of Bonn, has performed an operation, which now bears his name, and which was introduced into this country in 1854 by Mr. Spencer Wells. The instrument used by him is an elongated cylinder of wood, with a movable concave curve. The cylinder is perforated longitudinally to convey a needle, which emerges from an opening near its extremity. The cover is supported by an upright stem, projecting from the upper surface of the cylinder, near its handle, it is made to approximate the cylinder by means of a screw, and is perforated near its extremity to
receive the needle, after the latter has passed through the cylinder. The operation is performed in the following manner. The forefinger is placed in the scrotum, about the centre of the tumour formed by the hernial sac, it is then directed through the external ring into the inguinal canal, pushing before it the scrotum, and the hernial sac and its coverings. The next step of the operation is to substitute the cylinder for the finger, this must be done with great care, and the surgeon should assure himself that the cylindrical plug has passed through the external ring, into the inguinal canal, and that it and the invaginated structures is completely fill the canal, that no intestine can protrude. The needle previously placed in the cylinder, so as to reach the orifice near its point, (but not to project beyond it) is now thrust through the invaginated structures, and the abdominal wall, this fixes the cylinder in its place, and the cover is now adjusted, and by turning the screw, is made to press the tissues between it and the cylinder evenly, and with moderate force. The sharp
point of the needle is then removed, and replaced by the blunt knot.

The plan proposed by Mr. John Wood of King's College, London, is to make an incision with a tenotomy knife, in the skin of the scrotum, then to invaginate the fascia and sac on the finger, and pass a strong curved needle through the conjoined tendon, close to the internal ring, and the skin being drawn up somewhat, the needle is made to perforate it, and is then threaded, when it is withdrawn and guided by the finger, which pushes back the spermatic cord, behind the external pillar, and made to perforate Tausciart's ligament, and to appear externally at the former puncture, by moving the skin towards that point. A loop of thread is left there, and the needle withdrawn, and again made to perforate the internal pillar. These ligatures are drawn tightly towards each other, and the crossed threads are tied on a boywood pad, placed over the external ring in the direction of its long diameter. The effect of this is to bring the two pillars and the sides of the canal into opposition.
When operative procedure is undertaken for the
Radicle cure of hernia, I am inclined to recommend
a more simple, and more effectual method
devised by Professor Syme, in preference to the
more complicated proceedings of Wulzer and
Mr. Wood, all that is here required is an
elongated body of some kind, such as a piece
of wood, a piece of rectum bougie, or even a
tallow or wax candle, with a hole drilled
through one end of it, the remainder of the
apparatus consists of a strong needle and
thread. The following is the mode of
application. The thread having been passed
through the hole in the end of the body chosen,
the needle is threaded with one end of the string,
and laid with its concavity resting on the
forefinger of the left hand, which is then
passed up along the cord within the external
ring, the needle is then turned round, so as
to bring its point upwards, and passed with
an inclination to the left, through the
tissues, and brought out on the surface of
the abdomen; the other end of the thread is
passed through the peristities in the same
manner, only that this time the inclination
of the needle is to the right, the two threads are then pulled tight enough to draw the body up the canal which has however, been previously smeared with Carthamides ointment, to irritate the skin and favour the formation of adhesions. The two ends of the thread are then tied together, and to prevent any chance of their cutting through the skin too fast, a bit of elastic tongue is placed below them, and this is the whole process.

I have the following notes on my case book of a patient successfully treated by Professor Syme, viz. the Royal Infirmary by the above method.

X. B. 1861. Seaman, was admitted January 30th, 1861.

Two years ago whilst lifting a heavy weight, he felt something give way in his left groin, and on the following morning noticed a swelling there. The swelling has been gradually getting larger, and descending further even since. Patient is constantly employed at hard work, and feels great inconvenience from it. Health robust.
On Admission, there was a left inguinal hernia, which descended into scrotum, it was about the size of one's fist, and very easily reduced. The uterine ring and inguinal canal could readily admit two fingers, allowing of most free ascent and descent of the hernia.

February 1st. Mr. Syme performed his operation for the Pedicle cure (namely), the skin of the canal being invaginated, a thick tube was passed into the canal, and fastened there by means of two strings passing through the abdominal wall, and then tied on a piece of elastic catheter. The bougie having been previously smeared with Cantharides ointment.

February 5th. There is a little redness round the sac, no complaints of little or no pain, tube remains in good position, has had made freely opened.

February 11th. The stitches were cut today, the tube removed, and the invaginated tissues were not at all disturbed in their relations, a firm compress was applied over canal and invaginated portion.

February 25th. Since period of last date, the compress has been kept constantly applied.
the canal and invaginated portion. Patient was out of bed today for a short time, and there was no tendency of the hernia to descend again.

March 11th Patient was dismissed cured.

The advantages of this mode of operating are, its simplicity, its causing little or no suffering, its effectually closing the hernial sac, and the comparative freedom from dangerous and disagreeable consequences, which are liable to accompany other operations.

**Treatment of Inreducible Inguinal Hernia**

Patients with irreducible inguinal hernia are exposed to various dangers and inconveniences as for instance, to strangulation of the protruded part, to laceration of the intestine by accidental blows; to ulceration of it when any pointed or hard body has been swallowed, to dropsey of the hernial sac, and to suffer from constipation, flatulence, indigestion, etc.

All that can be done in the way of treatment is to apply a bag twice or the size of the tumour,
which, by affording a constant pressure, will check the increase of the hernia. Such sufferers ought also to be particularly attentive to the office of the intestinal canal, to see that they do not by any irregularity of diet, disorder it, and they should be careful to keep themselves from being constive.

But if the hernia be mere tumour only, its increase and the subsequent descent of the intestine may be safely prevented by a spring tress. There is however, so much difficulty, in these instances, in determining the precise nature of the hernia, and in deciding whether or not some small convolutions of intestine may be descended, that the spring tress should only be applied after careful examination; and the spring itself weak, it should be instantly thrown aside if it produces any pain, or interrupts the junction of the bowels.
The treatment of strangulated inguinal hernia (like all other forms of strangulated hernia), varies according to the nature of the case. The surgeon endeavours to discover the nature and cause of the strangulation, to liberate the parts from stricture, and to replace them in their natural situation. It is a general, but ought not to be an invariable rule, to attempt reduction immediately, when we first see a strangulated hernia, inflammation, tension, or pain, either in the parts, or in the abdomen, may make it advisable for us in the first instance to use the warm bath, or apply cold locally. The inflamed and very sensible state of the parts, makes it necessary for us to proceed gently and cautiously, to avoid forcible compression and rough handling, which would not only aggravate the patient's sufferings, but by increasing the inflammation, greatly augment his danger. The probability of success will be greater in proportion to the size of the opening, hence, small tumours are
the most difficult of reduction, as they are always attended with the closest structure, the probability of replacement is also materially influenced by the duration of the complaint; it is much less in the latter than in the earlier stages of the stranguination, from the inflammatory disease which arises in the prolapsed parts. When the rupture becomes very painful, we are no longer justified in continuing attempts at reduction by the hand, a sufficient pressure cannot now be endured, and the force, which is employed only tends to increase the inflammation and accelerate the approach of gangrene.

In applying the Tais we must endeavour to enlarge as much as possible the cavity of the abdomen, and to relax the abdominal muscles, and apertures, and to place the patient in such a position as to make the hernia the most elevated part of the body. It is well to see that the bladder is empty, also that no bandage, belt, or other outward constriction is affecting the abdomen, and that during the operation to avoid holding his breath or crying out, by which
the abdominal muscles are drawn together, and the diaphragm forced downwards, and consequently the size of the cavity diminished.

The posture in which the patient ought to be placed not only during the tasis, but during the whole continuance of the strangulation, is as follows. He is to be laid on his back in the supine posture, and the head and shoulders well supported with pillows, so that the head may be bent a little forwards. He must not sit erect or raise himself up, in general on any change of posture he ought to be quite passive, as every exertion tends to cause a contraction of the muscles, and consequent diminution of the abdominal cavity.

In ordinary cases, the Surgeon performs the tasis in the following manner. He grasps the hernia with one hand, so that its bottom rests in the hollow of the hand, and the fingers are spread out singly all around. He then raises it up, and presses it towards the ring, and with the fingers of the other hand tries to make it return, beginning with the part which has most recently protruded. He ought to remember, that
the success of the tapis depends greatly on the diminution of the bulk of the protruded parts, and he ought to endeavour to effect that by pressing the air back into the abdomen. The pressure is to be directed from below upwards, and at the same time from within outwards.

In order that the pressure may have the desired effect, it must at first be very moderate, gradually increased, and continued for a considerable time. If the pressure is first strong and then relaxed, the hernia becomes so tender, that the patient cannot afterwards bear it to be touched, and violent pressure imperfectly used, has frequently occasioned a laceration of the protruded parts; it likewise does no good, as the bowels are pushed against the ring, in such a manner that they pass over each other in folds, and cannot be pressed through the ring.

There are some cases however, where the tapis is quite useless or even hurtful. Old herniae which have been kept up by a tapis, when they come down and become strangulated, are not easily returned by the tapis. The neck of the hernial sac is generally contracted and
undulated. It is also hurtful when inflammation comes on, as every pressure, however slight, increases the inflammation and the danger of gangrene, and also wherever there is reason to suspect that gangrene has already taken place, the tape must be distended from, as it would be dangerous if it succeeded, or its success might even prove fatal.

The surgeon is not warranted in relying on the tape as his chief method of accomplishing reduction, he should not waste in unavailing efforts of this kind, that time which ought to be devoted to the prosecution of more vigorous means, when he cannot reduce a rupture at one fair trial, he has less and less chance of effecting this object in the subsequent progress of the case, unless he can produce an alteration in the state of the tumour by other means.

Various remedies have been proposed, which ought immediately to be resorted to

1st Bloodletting. The use of bloodletting in strangulated hernia has been very freely, and warmly recommended by the most celebrated modern surgeons. Mr. Cottle in this country, was a most strenuous advocate for bloodletting.
Yet the authority of this great surgeon has not gained universal assent.

The degree, in which any particular mode of treatment contributes to relieve the contents of a strangulated hernia from structure, is the fair criterion by which its merits should be estimated. Bloodletting according to this rule, will not lead us to place that confidence in its powers, to which the strong recommendation of Pott, and others would have entitled it. Bloodletting cannot enlarge the opening through which the hernial contents have descended; it cannot diminish the bulk of the protruded parts, nor has it the power of exciting any action of the viscera, which might extricate them from the structure; yet, if it were found actually beneficial in practice, these theoretical objections might be justly disregarded; but it has now gradually fallen into disuse, from the experience of its frequent inefficacy. A means of such powerful operation as bloodletting, useless, can hardly escape the suspicion of being injurious; and such no doubt, it must be,
when resorted to in all cases of strangulated hernia. It is advisable in but a few cases, if the patient is young, robust, plethoric, the hernia small and recent, the abdomen tense and painful, and the strangulation from the beginning attended with inflammatory symptoms, in such a case of checking inflammation, it keeps the disorder stationary, and is therefore attended with no loss of time; and, for the same reason, it promotes the success of the operation, should that be afterwards required.

2nd. The warm-Bath. If there be time, this
is one of the best means of assisting the topic, it is used with views partly analogous to those, which guide the practitioners in the employment of venesection, it is obviously, however, more generally applicable, it induces a state of faintness and relaxation, under which reduction may be attempted with advantage. The weakness produced by the warm-bath is temporary, and is not attended with any subsequent debility, when used it should be at a temperature not less than 100°, or even as hot as the
patient can bear it, and he should be kept in it until he is in the act of fainting, when the attempts at reduction may be renewed, it may fail, but the opportunity by the bath is not yet over, let the patient be laid in bed, and in a short time he will be found deluged in perspiration, with a muscular system even more prostate than before; and then the attempt at reduction by the tapis is most likely to succeed. When however, the strangulation is completely formed, the warm bath offers but a slight chance of producing the return of the bowel.

8th. Antimony. Is often talked of as a remedy in strangulated hernia, it is very inferior to the warm bath, as its effects cannot be controlled. Great nausea and vomiting are often induced by it; it is obvious that the efforts made in vomiting may be more detrimental than the debilitating nature of the remedy can be beneficial, and its effects do not cease, but keep up irritation and vomiting, even after the reduction by operation.

4th. Purgatives. Have been recommended with the view of exciting the peristaltic action of
the intestine, and thereby extricating it from the stricture, they are in all cases of strangulated hernia most unwarrantable; they are not only inaccurate, but actually prejudicial in the inflammatory strangulation, the bowel is locked, and the locking cannot be undone by the stimulus of purging. But in the case of large old hernias, where accumulation of fecal matter, from torpor of the intestine, is the cause of strangulation, and the symptoms are of a chronic kind, the wary use of purgatives is often serviceable, in unloading the protruded bowel. Purgatives are no longer serviceable when inflammation has come on, even in those cases, where their employment was proper in the first instance.

5. Emecta have a different character when simple and bland (such as hot gruel, or salt and water), are useful, inasmuch as they clear the lower bowel, and have not the pernicious effects of purgatives, but have a mechanical tendency, to extricate by exciting traction from within, on the constricted and protruded bowel.
6 Operation. May be useful under certain circumstances, although it cannot be considered as a primary means of accomplishing our object, like the warm-bath it is not applicable in all cases, at least as an auxiliary of the basis, for in all there is not time to weight the operation of the remedy. When it is wished to try its effect in procuring reduction, it should be given in large doses, and it has the advantage of removing, for a time, the pain and sometimes usually attendant on strangulation, even though it proves ultimately inefficacious.

7 The Application of cold. This plan of treatment acquired the approbation of the most celebrated modern surgeons. It is almost powerful means of assisting the reduction of hernia, more especially in large old herniae which have become strangulated. The most simple and effectual way where it can be procured, is the application of pounded ice, tied up in a bladder and placed on the neumpe. Its effect is almost immediately to lessen the pain, to diminish the bulk caused by stasis, to contact the skin over the tumour, and by
the pressure thus produced, to promote the
return of the parts. When ice is not at hand
other sometimes proves a good substitute, when
allowed to evaporate from the surface of
the swelling. Another great advantage of
cold is that it arrests for a length of time
the progress of the symptoms, so that it
may be continued for several hours upon
the part without incurring the risk of
losing too much time. By after a
trial of two or three hours, the symptoms
become mitigated, and the tumour
lessens, the remedy may be persevered in
for some time longer, but if they continue
with unabated violence, and the tumour
resists every attempt at reduction, no
further trial should be made of the
application.

The practice which should be adopted in cases
of strangulated hernia, where the symptoms
are not very severe, is briefly this—apply
cold to the tumour, and administer a large
distending enema (3 salt and warm water
or soap and water), so as to empty the lower
bowel, and this latter, by exciting slight peristaltic action, may favour the escape of gas from the incarcerated intestine if the stricture is not very tight, and if the patient be young and robust, a bleeding from the arm will do no harm: then, when the enema has acted, and the cold been applied for a short time, put the patient under the influence of chloroform, and try reduction restoration by taps; but if the swelling be resistant, do not persist or use strong pressure, but resort at once to the operation.

On the other hand, if a patient is presented with a strangulated hernia, in whom the pain at the umbilicus, the irritability of the stomach, the anxiety of countenance, and the failing state of the pulse, symptoms marking the severity of the inflammation, and its tendency to gangrene, the operation should not be delayed, although the tumour itself may be comparatively but little painful.

With regard to the mode of performing the operation itself, I have nothing worthy
Of remark, as there is commonly a small quantity of fluid contained in the sac, and it gravitates to the lower part, to which the intestine seldom quite descends, the sac should cautiously opened on its anterior and lower part, and then sit up as high as the external ring. If the structure should not be situated there, but at the inner or superior opening, the method of proceeding depends on whether it is a recent or an old hernia. If a recent oblique hernia, and the inguinal canal little altered from its natural state, the aponeurosis of the external oblique, forming its outer boundary, should be divided in an oblique direction upwards, so as to expose the swelling near its neck, the neck of the sac may then be drawn downwards, whilst the more external parts are drawn upwards, so as to oppose the structures, when it and the neck of the sac should be divided directly upwards. In old herniae, and in those of direct descent, the openings are nearly opposed to each other, and this difficulty does not occur. The incisions in all cases should be made directly upwards, because
it more certainly obviates danger from the epigastric artery, in case of an ovari, as to the kind of hernia.