The term Aneurism derived from the Greek Aneurisma, literally means a dilatation, it is now used to signify a throbbing tumour, formed in consequence of some lesion done to an arterial vessel. It contains blood partly fluid and partly solid, surrounded by a cyst which may be constituted in various ways. According to the formation of this cyst aneurisms have been divided into true or those in which the cyst is formed by one or more of the arterial tunics, and false or those in which all the coats of the artery having given way, the cyst is formed by condensation of the surrounding cellular tissue. The former is usually of spontaneous or the latter of traumatic origin.

Spontaneous or true aneurism was formerly supposed to be the result of dilatation of all the coats of the artery; Barca however declared that this was the exception rather than the rule, and showed that while the external coat, readily permitted of dilatation, the internal in consequence...
of its natural brittleness, could not undergo even a small amount of expansion without tearing; and further that the internal and middle coats were usually in a diseased and altered condition, their extensibility properties were still more diminished while their liability to rupture was increased.

Dilation of all the coats does occur however, but seldom attains any great natural bulk, the artery rather undergoing a longitudinal fusiform enlargement for a greater or less distance, than forming a distinct tumour. It most frequently takes place in the Aorta, Pulmonary, and Femoral arteries, and may involve the vessel for a considerable distance. The internal and middle coats, are more usually ruptured, while the external cellular coat, unable, alone, to resist the weight of blood, expands into a sac, which subsequently becomes incorporated with the surrounding tissues. The blood now removed from the direct circulation partly evaporates, and fibrin is
deposited in thin layers on the interior of the sac, tending both to give it strength and to diminish the size of the cavity. In time this fibrin becomes detached and may come closely to resemble the serous coats of an artery. In consequence of previous disease the coats of an artery are usually incorporated for some distance in the immediate neighbourhood of an aneurism. This modifies to a considerable extent, the direction and form of the aneurism. When this has not taken place, the blood then separates the middle coat into its two constituent layers, or the middle coat having entirely ruptured, it lumens between it and the external, giving rise to a variety of aneurism termed Dissecting, a form which is rarely found in any artery but the Aorta. On the other hand the sac is formed independently of the arterial linings, an aperture is at once made through the vessel, and blood is extravasated into the surrounding tissue, this becomes condensed, and together with coagula from the blood, forms a clot.
first weak but soon strengthened by in-
corporation with the surrounding tissues.
If the wounded vessel be of considerable
size, and the cellular tissue particularly
loose, no condensation can take place, and
a Diffuse Aneurism is formed, or death
at once takes place from loss of blood, or
more slowly, from asphyxiated nutrition in
the part, giving rise to inflammation or
gangrene. Fake Aneurism is sometimes of
Secondary formation, by the bursting of
of a true aneurism and the Subsequent
formation of a cyst external to the first
Tumour. It has been supposed that fake
aneurism may be formed by the opening
of an artery into an abscess. This probably
never occurs as long as an abscess is un-
opened and equally supported. The idea has
probably arisen from the fact that inient-
haemorrhage has frequently followed, soon
after the discharge of abscesses situated
over large arteries. Fake aneurism may be
formed in connexion with any artery, but
most frequently is so, with the smaller and
more exposed vessels. Their shape is more
inaccurate than that of true aneurism; they also contain a larger amount of stagnated blood, which imparts to them a feeling of greater consistence and firmness.

Causes—By far the most frequent predisposing cause of aneurism is the atheromatous degeneration. This takes place on the inner surface of the internal coat, and the altered membrane ultimately gets washed away, leaving an ulcer, the middle coat softens and undergoes a fatty degeneration, and consequently it not only yields more readily to the pressure of the blood, but its vital property of elasticity being destroyed when once extended, it does not again resume its normal position and restore the vessel to its proper calibre. This degeneration occurs for the most part in the middle-aged, and this together with the fact that at this period of life the muscular system is yet unimpaired, and often taxed to its utmost powers, accounts for the more frequent occurrence of aneurism in later than in earlier years.
It is interesting to note the bearing of sex on the frequency of aneurism, males being much more frequently affected than females, in a proportion of thirteen to one, probably in consequence of their more violent occupations, and their more frequent exposure to the exciting causes of arterial disease. Exceptions occur in the case of some arteries as the Carotids, aneurism of this vessel is nearly as frequent in the female as in the male.

Calcaneous degeneration is sometimes and more especially in the case of the smaller arteries a predisposing cause of aneurism: it destroys the elasticity of the vessel & converting it into a rigid tube, quite incapable of dilatation. The obstruction thus offered to the blood by throwing increased weight on the part immediately preceding, may cause it to dilate to a greater or less degree.

The larger arteries undergo some degree of dilatation before they are affected by the calcaneous degeneration, so that the blood passes through them with tolerable ease.

This is not the case with the smaller vessels.
consequently, we find that aneurism dependent on exsudative degeneration is more frequent in small than in large vessels. Climate is said to have an important influence on the frequency of aneurism, it can only be so, however, in as far as it affects the habits of a people; consequently we find aneurism most frequent in cold climates where the population are employed in active and laborious occupations.

The proximate causes of aneurism are violent and sudden exertion, knife penetrating wounds, perforating ulcer, and even fits of passion.

Symptoms. The characteristic symptom of aneurism are the pulsating nature of the tumour, its diminution in size when compressed, and its immediate return to its original dimensions on removal of the compressing agent. These symptoms are more or less apparent according to the severity and age of the tumour. A recently formed circumcised aneurism, has a more or less rounded form in self and readily admits of com-
- pressure. On palpation a distinct pulsation or rather pulsating distention can be felt synchronous or nearly so with the ventricles. It is caused by the blood filling and distending the aneurismal sac and ought to be carefully distinguished from the heaving sometimes communicated to structures lying over arteries. This may be readily done by endeavouring to raise the tumour and separate it from the artery. If it be aneurismal the pulsation will still continue, while in the case of a tumour situated over an artery it will entirely disappear. By pressure on the cardiac portion of the artery aneurismal pulsation will cease, and the tumour itself be readily diminished in size, as soon as the pressure is removed, the blood rushes into the sac and a peculiar thrill is felt termed, Pauvresment, which is very characteristic. The reverse takes place when pressure is made on the distal side, both pulsation and size are increased while compressibility is much diminished. These symptoms become
gradually less distinct and may be entirely absent in old aneurisms.
In consequence of the gradual thickening of the sac, by deposition of coagula from
the blood, the aneurism loses its elasticity
and becomes firm and incompressible, no
regular distention can take place, and
pulsation becomes indistinct and masked.
In diffuse aneurism, the tumour is ir-
regular and hard; pulsation is ill-
defined or absent and pressure makes little
or no alteration in the bulk of the tumour.
Various changes are produced in neighbouring
parts and give rise to symptoms which
though by no means pathognomonic, yet
are often very important as accessory
means of diagnosis, such as a disturbed
and variable condition of superficial veins
with oedema from partial or complete
obliteration of the veins which accompany
the arterio- The temperature of the affected
limb is usually considerably lower than
that of the corresponding member.
Weakness of the pulses beyond the tumour
is frequently observed, as a consequence of
diminished flow through the diseased vessel; this is compensated for, by the increase in size of the vessels which carry on the collateral circulation. Palsy, palsies, of parts, with pain both at the seat of the tumour, and at parts corresponding to the terminations of nerves, is the result of pressure on the neighbouring trunks and is often a source of much pain to the patient. These symptoms, though sufficiently characteristic may be closely simulated under various circumstances, by tumours, both fluid and solid, having no more intimate connexion with a blood-vessel than mere pressure, or again they may be entirely absent in the case of aneurism; itself thus giving rise to doubt and perplexity as to the true nature of the tumour. By attention to the history, the nature of the pulsation and the effect of pressure on the artery, both on the cardiac and distal aspects, of the tumour, with careful manipulation of the tumour itself, these difficulties may generally be avoided and an accurate
diagnosis attained. Strange as it may appear, aneurism has been frequently mistaken for rheumatism, and even when the tumour has attained a considerable size the error is most frequently made when the tumour is still small and unaccompanied by the usual signs of aneurism. Mr. C. L. Bell relates the case of a man whom he had treated for popliteal aneurism of one leg, and who some time after his dismissal returned complaining of pain and uneasiness in the corresponding member, which he ascribed to rheumatism from exposure to cold and wet. On careful examination no tumour could be seen or felt, the patient was then dismissed and told to return in a few days, which he did, and then an aneurism as large as a Turkey's egg could be distinctly felt at the bend of the leg. Such a case as this might readily have been treated as a case of rheumatism, more especially as the patient gave a very clear history of exposure to cold and wet the most frequent exciting cause of rheumatism. This case was successfully treated by compression, and
dismissed perfectly well, he returned again shortly after complaining of similar pains in the thigh which were followed in the same manner as before by the development of an aneurismal tumour. The pain during the formation of aneurism is said to be distinguished from that of rheumatism by its having a double character, being both lancinating and intermittent, as well as continuous aching and burning. The rheumatic pains are seldom referred to one part alone but are generally spoken of as affecting several, they are usually accompanied by more or less constitutional disturbance and with a disordered state of the various secretions. That the occurrence of persistent pain in the neighbourhood of large bloodvessels is often a symptom of the formation of aneurism ought always to be remembered and should induce the surgeon to make a careful examination. By so doing he will gain his patient's confidence and preserve his own reputation.
Terminations. An aneurism, when uninterfered with by the surgeon and allowed to take its own course, either undergoes a spontaneous cure or as most frequently happens continues to enlarge, until by its bulk it fatally interferes with important functions, or until the sac, not receiving sufficient support, gives way, and fatal haemorrhage ensues. Spontaneous cure may take place in several ways: (1) By the gradual consolidation of the tumour from the deposition of fibrin in concentric layers. When an aneurism forms on an artery, certain changes take place, both on its distal and cardiac aspects, which predispose to the occurrence of spontaneous cure. Immediately on the distal side the artery so that its capacity becomes less and the amount of blood carried through it is diminished, at the same time branches which arise from the artery above the tumour enlarge and carry an increased amount of blood, thus establishing what is called the collateral circulation by means of which the proper supply to the
Unit is continued while the impulse is very materially removed from the sac and the chances of its further enlargement assured. The passage of the blood through the main vessel is by no means entirely arrested and fortunately, so for in such a case the blood in the sac would simply coagulate and leave a body having no vital connection with living tissue and which if it were not absorbed could only give rise to violent inflammation without any beneficial effect whatever. The deposition of fibrine may sometimes be sufficient merely to fill up the sac, assuming on its internal surface an appearance very like the natural lining membrane of an artery. Complete occlusion of the arterial canal generally follows, the tumour is absorbed, and the artery is converted into a small impermeable ligamentous cord. The contraction of the artery on the distal side, may be a natural consequence of the obstruction offered to the blood by the presence of the tumour, or may be the result of pressure on the artery from the peculiar form of the aneurism—(2) From obliteration of the artery on the opposite side, either in consequence of a development
of the aneurism in that direction, or by the pressure of clots from the sudden diffusion of an aneurism. As can readily be imagined this is of rare occurrence and indeed has been questioned, but that it has happened is proved by pathological specimens preserved in museums.

(3) From sloughing of the sac and dilatation of the artery for some distance on either side. This is seriously attended with much danger of loss of blood or long continued exhausting suppuration, but if the artery be healthy it may become occluded by inflammatory deposit and haemorrhage be prevented.

(4) By occlusion of the aperture of communication by a clot. This very seldom takes place so effectually as to cause a permanent cure; but the fact that it has taken place has induced Mr. Ferguson to attempt a cure by manipulation of the tumour so as to detach a clot which it is hoped will either obliterate the mouth of the sac or occlude the artery at a somewhat lower point. This operation should not be freely attempted it is undoubtedly one of danger and difficulty, for the chances are that the
amount of force and manipulation required to dilate the bulb will produce rupture of the sac, or if this does not take place at once it is not unlikely to take place afterwards at that portion of the sac which has been deprived of its strengthening fibrin.

Treatment—The treatment of aneurism by pressure is as old as the time of Galen, but no detailed accounts of any case are recorded till towards the end of the Seventeenth Century, when Tulpius and Piletus are said to have cured several cases by the use of bandages and styptic plasters. The instruments seem to have been used till the year 1680, when the Abbé Bouchodet, who suffered from an aneurism at the bend of the elbow, devised a compress for his own use. It consisted of a piece of wood grooved on its under surface and fitted with straps to retain it in position. This instrument he called a pontoon, from its resemblance to a bridge, and intended at first to compress the tumour, and at the same time to preserve the patency of the vessel, which was meant to occupy the position of the groove. He continued to wear this instrument for a twelve months by which time the tumour was gone.
Various improvements were made on this instrument and many new ones devised all having more or less the effect in view of compressing the aneurism, with the least possible pressure on the limb. Guattani however still continued to use the bandage which he applied from the extremity of the limb upwards, with or without compreses and often with remarkable success.

The treatment by compression was at first considered applicable only to cases of traumatic origin and was never tried except in aneurism of the brachial, which at this time was particularly frequent from accidents in venesection, till Heister proposed that aneurism of the popliteal might be treated in a similar manner. Guattani acted on this suggestion and with great success. The fatality, being considerably less than when the vein was opened and the artery tied. Thus of twenty cases of popliteal aneurism which he treated, three underwent a spontaneous cure; eleven were treated by compression of these five recovered and six failed. Six were operated on, of these one recovered and five died. The pressure was always applied to the tumour itself, by so doing it was supposed that the aneurism was emptied, that the ruptured edges of the artery were approximated, and became united. It was never supposed that the artery...
was obliterated, in fact they had no knowledge of
the collateral circulation and believed that when after
pressure on an aneurism, pulsation returned in an
artery, in which it could not be felt before compre-ssion
it was due to a re-establishment of the continuity
of the arterial canal. Such being the views held
as to the manner in which cure was effected, they
endeavoured by all possible means to avoid occlusion
of the vessel and hence the gauze in Rouelle’s Temps.
After Hunter in the year 1785, proposed the ligation
of arteries at some point between the aneurism and
the heart. The treatment by pressure fell for a
long time into the background, but in consequence
of the great mortality of the method by ligation
it was again taken into consideration and
the Hunterian principle applied to it, the pressure
being no longer made on the aneurism, but on the artery.
The theory on which pressure was now applied, was, that
if the artery was strongly compressed, so as to bring its
opposite sides into contact, such an amount of
inflammation would be produced, that union would
take place, and the artery become obliterated.

With this object in view, an excessive amount of
pressure was exercised over the artery, lordly cough-
ing of the textures followed, and the whole treatment
was such a source of discomfort and misery to the patient that it could not be persevered in.

Under these circumstances, cures were so seldom effected that surgeons took every opportunity of discrediting the treatment. The only surgeon who seemed to think that pressure was at all worthy of consideration was Boyen. He took an entirely different view, as to the way in which pressure effected the cure of aneurism, which he states in the following manner:

"In occasion adhesion between the opposed surfaces of an artery, the pressure must not only be sufficient to prevent the passage of the blood, but to cause in-
fammation of the arterial tunic. Such an amount of pressure would soon become insupportable, and we should be compelled to abandon it before the amount of inflammation necessary to produce such a result was obtained. It is probable that it is not by determining adhesion between the sinuities of the vessel at the point, that compression acts in bringing about the cure, but by preventing the blood from arriving at the aneurismal sac with sufficient force to force through it, and by favouring the regulation of the blood which it contains and thus determining the obliteration of the artery at the point where it is diseased."
The opinion of Rogers now quoted is with some modification, the view which is now held as to the manner in which pressure affects the cure of aneurism. It is not however by favouring coagulation in the usual meaning of the term but by a slow and gradual deposit of fibrin in successive layers till the sac becomes filled and converted into a hard and solid tumour. In fact it is really an imitation of the mode in which nature sometimes effects a spontaneous cure, may more the process once begun by pressure is often conducted by nature, for example many cases are on record where the pressure has been so disagreeable to the patient that he has refused to continue it and has applied himself to his usual avocation, with the tumour pulsating as strongly as before, and yet after a time the pulsation has ceased, and the tumour become hard and incompressible, notwithstanding the discontinuance of the pressure. Again in many instances recovery has taken place when the pressure in consequence of the sensibility of the patient, has only been applied at intervals, another fact in favour of the gradual deposit of fibrin, and against the idea of coagulated blood. The first mention appearances of the tumour, whether after a spontaneous cure or after the treatment by compression are the same, both presenting a from that mass of
Gibbins arranged in a concentric manner. From these facts it appears that the employment of such an amount of prepare as to anest entirely, the flow of blood to the tumour, is not only unnecessary but in- jurious, in as much as, by so doing, the very means of cure are removed. It is essential for the deposition of Gibbins that a continual stream of blood be maintained and the slower the stream and the smaller the quantity of blood, the more rapidly will it take place. Hence the object in treatment by compaction should be only to apply such a degree of prepare as will diminish not anest the flow of blood. When the tumour has become completely filled, the artery at the seat of rupture becomes obliterated, and quite impervious in the neighbourhood, and the circulation is directed into other channels, absorption of the tumour commences and the artery is converted into an impervious band.

If the prepare is removed when a cure is about to be effected, the tumour is known to have diminished in size, to pulsate less strongly than formerly, and this is appreciated by both patient and surgeon. The walls of the sac are firmer and better defined and very often the pulsation of an arterial branch is felt over the tumour. This is particularly well marked in peplitic aneurism, and indeed is stated to be constant.
In this situation three vessels are usually observed, one which passes over the tumour and gives rise to the beating, just referred to, a second which nearly occupies the position of the internal articular, and a third which passes close to the head of the fibula. The occurrence of a general feeling of uneasiness, in very often premonitory of ease, more marked in some cases than in others and probably dependent to a considerable extent on the health and strength of the patient. A feeling of burning in the tumour with sharp lancinating pain in the course of the nerves, soon follow, and is supposed to be from the enlargement of the collateral circulation, and especially from the increased size of some branch closely connected with a nervous trunk. These symptoms are of short duration and terminate soon after the cessation of pulsation in the tumour. The time occupied in the treat-
ment is very variable, a few hours have proved sufficient while sometimes weeks or even months have passed before consolidation has taken place. The shortest case on record is one in which the pulsation ceased after the use of the instrument for seven hours and a half. Mr. Hutchinson, gives nineteen days as the average of twenty-six cases of pepticulitis and general aneurisms treated by
pressure in the London Hospitals. Much depends upon
the patient himself, many patients are so irritable
that even a very moderate amount of pressure
cannot be tolerated and especially at first, it is
better therefore to begin with a very slight pressure
in many cases the patient will become accustomed to
the irritation and allow it to be gradually increased.
It is not necessary that pressure be continually
maintained, as we have already seen that when fibrin
has once been deposited there is a great tendency to
a continuance of the process, and that many cases
have taken place after treatment had to all appear-
ance failed. A patient may be more irritable at
one time than at another, this is obviously dependent
on constitutional derangement, and hence it is of
much importance that the general health be carefully
regulated and a proper state of the secretions be
maintained. It frequently happens that the patient
experiences no uneasiness during the day, but as
soon as he goes asleep, becomes irritable and irritable,
the condition may often be overcome by removing the
pressure till he falls asleep, as soon however as he is
unconscious, it may be again continued without fear
of disturbing him. The age and size of the tumour
have great influence on the rapidity of cure, as a
general rule the older and larger the aneurism the more tedious will be the treatment. the converse is also true. the size and position of the aperture of communication is also important, if it is large and readily permits of the entrance and exit of the blood, little time will be given for the deposition of the fibrin. the sacculated form of aneurism has usually a small rounded opening and consequently the blood is delayed for sometime in the sac, a condition evidently much more favorable for the formation of fibrous deposit than where the opening is larger and the circulation only slightly delayed. Dr. Bellingham, who has paid great attention to this subject, thinks that the position of the orifice and aneurism with respect to neighbouring parts, have great influence on the rapidity of cure. Thus in the case of the popliteal if the aneurism is formed on the anterior or posterior aspects of the artery, the resistance offered by the back of the knee joint in the one case and by the dense resistant fascia on the other, will prevent the enlargement of the sac to any great extent, and the tumour will be a certain degree, from its position, itself an obstruction.
to the passage of blood in the artery, and thus a cure will be readily effected when additional compressing means are employed. If the tumour is formed on either of the lateral aspects of the artery, the same resistance is not offered to its enlargement, and the entrance of blood into the sac is not so readily impeded.

A more likely explanation seems to be that the greater pain experienced in the former case, from pressure on such important and sensitive parts as the knee-joint and nerves, will cause the sufferer to seek relief at an earlier period when the sac is still small, and a smaller amount of fibrin being required to consolidate it, less time will be required for its deposition. The treatment is usually most protracted in cases of true form aneurism, because the blood can hardly be placed under conditions favourable for the rapid deposition of fibrine; but if time and attention be given to it, the tumour may be seen very gradually to become harder and firmer, and less troublesome to the patient. In such cases it has been proposed to apply a suitable instrument and permit the patient to pursue his usual avocation. Cases are not
wanting, where this has been attended with the most happy results. At all events by such a mode of treatment the tendency of the aneurism to enlargement is arrested and time and opportunity are given for the deposition of tissue, thereby strengthening the wall and placing the case in a much more favourable light as regards ultimate prognosis, both as to the termination of the tumour and the safety of the patient; questions which will be amenable by asked by the patient and which may be hopefully answered by the surgeon.

The efficiency of the instrument and its suitability to the part employed also modify the rapidity of cure. It is very important that discretion of application should be combined with comfort and with this object many ingenious instruments have been devised; as a general rule the simplest are the best.

When the artery is so situated that it can be pressed against some solid substance, pressure may be readily effected by the simple application of a weight over the vessel. As no counterpressure is required, it gives less uneasiness to the patient than the instruments commonly used.
It can unfortunately be employed only in one situation, where the femoral artery passes the pubis. It is very efficient, but is very liable to be displaced and cannot be conveniently used when the patient is asleep. Mr. Carter has constructed an apparatus by which it can easily be retained in position. The weight should be conical, and fitted with a pad at the apex to prevent irritation. It is generally made of lead, and varies in weight from 7 to 12 oz.

A very simple instrument and one which is generally applicable is Chet's tourniquet, more generally called the Clamp; this was invented by a carpenter who was himself the subject of repeated aneurism, and who found that this instrument gave him less pain than any other which he employed. It consists of a semicircle of iron, with a large pad for counterpressure, and a smaller one provided with a screw, by which any amount of force may be brought to bear upon the artery. This instrument is cheap and so simple that it may be easily managed by the patient.

Mr. Carter's femoral compressor is a very useful and efficient instrument. It consists of...
A large soft padded girdle from which arises an iron rod with a horizontal bar, to which is attached a moveable pad. Connected to this pad is an elastic apparatus which gives its peculiar advantage to this instrument. This instrument is readily applied and not easily displaced, the counterpressure is also distributed over a large surface and gives little annoyance to the patient. When the patient is peculiarly sensitive it is often advantageous to employ two instruments, at different parts of the limb, one being tightened while the other is relaxed, by so doing, continual pressure may be kept up with very little inconvenience, and the treatment may be continued in many cases where it could not otherwise have been tolerated.

For the purpose of avoiding the use of these instruments a double padded compressor has been employed. It has two separate pads both provided with screws, so that one may be relaxed while the other is tightened.

By means of this single instrument two separate portions of the artery can be alternately compressed. It does not seem to act as efficiently as the two separate instruments.
Advantages — This method of treatment is much safer than that by the ligature, which however skillfully applied can never be free from danger; the fearful risks of haemorrhage, suppuration, gangrene and phlebitis, so common after ligature, are avoided, while no injury is done to any texture. The means employed for precaution are always under the control of
The surgeon and can at once be removed should any unpleasant symptoms arise, a manifest advantage over the ligature which when once applied cannot be undone, but must be left to separate by natural processes, till which time it must be a constant source of anxiety. The greater safety of compression than ligature is well shown by a comparison of the statistics of the two operations. In the 34th Vol. of the Medico-Chirurgical transc- actions, an account of thirty-two cases of femoral and popliteal aneurisms, treated by pressure, has been given by Dr. Bellingham. In twenty-six, a successful result was obtained in two amputation was performed; in one, the ligature was cut off, after pressure had failed. One died from chest disease and another from empyema, and in another pressure was stopped before a cure was effected. Thus out of the while, six failed, giving a proportion of one in five or six and two died, being in the proportion of one in sixteen. Compare, with the result of 188 cases treated by ligature, as recorded by Dr. Morris. Recovery took place in 42 cases, in 46 amputation was performed in 6.
suppurated in 10—gangrene took place in 2—Thus deaths were 1 in 4 and failures 1 in 3—Tourniquet can be employed in many cases where the ligature would not only be inapplicable but even dangerous, as for example in cases of the aneurismal diathesis, where the arterial system is generally diseased and perhaps the existence of an internal aneurism suspected, if not altogether proved. In such cases the application of a ligature to a large vessel might be attended with the gravest consequences, by throwing such a sudden and unanticipated stress upon the weakened vascular system, as to give rise to the formation of internal aneurism again in persons with vascular disease of the heart, or in those of intemperate habits, in whom surgical interference is generally contra-indicated, compression, may be safely employed. The principle and effect of compression are simpler than that of ligature. It has been already shown that pressure produces the same changes in the aneurismal sac as are observed in cases of spontaneous cure, this is also true of the ligature, but the effects on the artery are considerably different. In the case
of the ligature, the artery is obliterated, not only at the seat of the aneurism, but also at the point of ligature; it is not so in the case of spontaneous cure or in those cases treated by pressure, under these circumstances, the artery is only obliterated at the seat of the aneurism, and consequently the collateral circulation is more readily and efficiently established. Pressure is much less formidable in the eyes of the patient, and therefore, will often recommend itself to those, who, having an innate dread of surgical operations, would prefer to run the risks of a dangerous disease, rather than permit of any operative interference. The effects of compression are much more certain and likely to be permanent than those of ligature. Why this should be so, may be seen by the examination of specimens in which cases have been effected. After cure by pressure the sacc is found consolidated and the artery obliterated. This is just what takes place after the ligature in cases which have been completely successful and which usually takes place after the return of pulsation in the sacc. But in many cases pulsation ceases at once after ligature of the artery, and continues absent for some time.
at some distant period, however, it returns and
the case is as bad as before. If this pusation
had recommenced shortly after the application
of the dipature, it might have been regarded
favorably, as promising a regular deposit of film
whereas, when it returns after a considerable time
has elapsed, it is most unfortunate as it
shows, that a once evagination has formed
in the sac, that it has now become adhered,
and that blood has entered the sac, yet as
was desired, in a slow and gentle stream,
but violently, from the now full establishment
of the collateral circulation.

Objections — The chief objections which
have been offered to this mode of treatment
are (1) that it is less expeditious and more
annoying to the patient. It is doubtless
true that the process is often very much
prolonged and tedious, but it has not un freq-uent-
y happened that a few hours have been
sufficient for complete consolidation of the
sac. The objection is not free from this
objection, for many circumstances may arise
after the operation, not only delaying the
Closure of the wound, (and we cannot say that a
case is cured till the wound is closed,) but also
endangering the life of the patient. But placing
out of view such extreme cases, if we take the average
time required in cases treated by compression in
the Dublin Hospitals, and also the average of
fifty-four cases treated by ligature, recorded by Crisp,
we find that in the former, twenty-five days in
the average time in which complete consolidation took
place, and in the latter, eighteen days were required
for the separation of the ligature; now, allowing
a few days for the closure of the wound, we find
that there is comparatively little difference, as
regards time, between the two methods. As for
the pain of compression, it cannot be denied that
it is often very severe, in fact it is sometimes
absolutely intolerable; at the same time, much
depends on the sensibility and temper of the
patient; as well as, on the manner in which the
prepuce is applied. By applying no more
prepuce than is sufficient to obstruct the flow,
by intermittence, it for a time, or, when circum-
cstances will permit, applying, prepuce alternately
on different parts of the affected vessel, the

treatment may be continued with comparative
comfort— even in individuals of excessive sensibility— On the other hand it cannot be said that the ligature is painless, the necessity of cutting the wound always entails more or less pain, and if suppuration or erysipelas be combined the amount of actual suffering may not be far off at all short of that endured during the treatment by pressure.

(2) That the application of pressure is more frequently indefectible and dangerous than the ligature— With regard to the danger of the treatment it has already been shown to be attended by none of the dangers of the ligature. When the pressure was applied to the tumour itself, many cases were recorded of death from diffusion of the aneurism, such a result never takes place when the pressure is applied to the artery, at all events, if it does take place, it is entirely from other circumstances, and in quite in—dependent of the treatment— Erysipelas is the only danger which can at all be said to attend the use of compression, and this is of very rare occurrence— Reference to the Dublin statistics show, that compression, so far from being generally unsuccessful has been
for greater success than the ligature, and is there, in much greater favour, indeed to fortunate have been the results, that out of thirty-nine cases treated in these hospitals from the year 1842 to the year 1851, the ligature was only required in three cases. From these facts, it cannot but be supposed, that, as the instruments employed are improved and the principles and objects of treatment more thoroughly understood, still greater success will be obtained, and that compression as a means of cure will be proved to the satisfaction of all to be both effectual and safe.

3) That compression, as alters the surrounding textures, as to render the subsequent application of a ligature difficult—This effect, seems to be founded on hypothesis, rather than on fact, and results from the idea, that pressure excites inflammation in the artery, and surrounding tissues, and causes them to become adherent to each other. Examination of those cases in which death has taken place during the treatment, shows, that very little alteration is induced— Indeed from the experiments
of the face, it seems very difficult to create inflammation in an artery by external pressure even, though it be very severe. The only change he observed was thickening of the surrounding textures from infiltrated serum, in no case could inflammatory changes be induced. The pressure now employed is very slight, and the changes it produces are so trifling that they disappear in a few hours, and are never so great as to interfere with the application of a ligature when skillfully attempted.