ON

Compression
as a cure for

ANEURISM

by

Arthur McFarlington
M.R.C.S. Eng.
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with remarks on the relative merits of this method of treatment, that by the ligature.
1. "Journal des Nouvelles Discoveries" Tom. III.

2. "Aneurismæ in brachio ex inopportuna venæ sectione
'feliciter curatum."


4. "Disertatio de arboris cranialis vulneris periclœcissionem
'feliciter sanata."


6. "De reversione aneurysmatibus &c. in Laskhi collectione.

* "Tract. de Méd. et Chirurg. Post." Vol. XI.
Direct pressure on an aneurismal swelling, being almost naturally suggested as a means of contracting the extension of the disease, by the pressure of the fluid from within, was employed at a very early period by the older surgeons. When it was found that the operations then resorted to for the cure of aneurism were so unsuccessful, Boudelot & Rapp, in 1661, were the first who tried this plan of treatment, followed by Bommel in 1685, Carpentier in 1723, Bridel in 1741, Vallantance in 1755, Chastanier in 1792.

These surgeons related several cases that they effected in this way, but the method being uncertain in its results, it was dangerous, from causing irritation & inflammation of the sac, it gradually fell into disuse.

The French surgeons next introduced a modification of the same plan, viz., laying open the sac, turning out its contents, & applying the pressure directly over the edge of the orifice. This rather barbarous mode of treatment was, however, entirely set aside, & compression in aneurism was altogether discontinued after the great step made in 1785 by John Hunter in the treatment of this disease.

It was revived in 1810 by Bellatier & Ancher, who first employed pressure upon the artery above the
the use, instead of upon the aneurism itself.

Various attempts were made, for some years, methodically to treat aneurisms in this way, although
some cases were effected, the pain attending the process,
the difficulty of persuading patients to submit to it,
the slowness to efficiency of the instruments im-
ployed, the prejudice entertained in favor of the
ligature. The opposition of such eminent men as
Dr. Ashley Cooper, Miss Guthrie, J. Cooper,
Richardson & Bégue, may account for the
laziness of its general adoption.

So the dick School of Medicine, in 1842,
however, is pre-eminently due the credit of having
revised, mainly contributed to the perfection
of the treatment of aneurism by compression,
to the scientific elucidation of the principle on
this mode of cure is founded, to the perfecting
of the mechanical means requisite for its successful
application. Since this time, no other operation
has been tried for Anurism in Dublin; it has
undergone test of the rigid list of criticisms &
practical experience (the only list that ever determines
the value of any practical suggestion), it may
now be said, some others, to be almost generally practiced.
I propose, in this paper, to consider briefly: 1st. the manner in which Nature brings about the cure of an aneurism. 2nd. The method of the application of pressure, the instruments used, etc. Concluding with some few remarks on the relative merits of compressing the ligature.

It is familiarly known that the disturbance experienced by the blood contained in an aneurismatic sac, is occasioned, first, by the action of the heart, throwing a wave of blood into it. Then by the reaction of the sac. This covers, returning a part of this back again into the circulation. It is known by experience that this explosion of disturbance is partly sufficient to prevent coagulation completely, for a portion of the contents of almost every sac is more or less solidified. Again, the reaction of the covering of the aneurism, depends on their elasticity—a dead force, which requires to be acted on before it comes into operation, therefore must bear a relation to the pulse that produces it; so that, if by any means, the power with which the blood is thrown into the sac can be reduced, the power by which it is returned must be reduced also; this is much will the fluid undergo.
Experience less disturbance, the placed in a condition favorable to coagulation. Then, in proportion as the contents of the sac become solid, will the impulse it receives, of course, its resiliency be weakened, an effect we see in the feeble and undecided pulsation of old aneurisms. Then it happens that the coagulation of each portion of the blood increasing the facility of the remainder to assume a similar condition, the entire comes at last to be solidified.

Unfortunately such a condition is not likely to be obtained without artificial interference: on the contrary, either the original cause that produced the aneurism, or the irritation occasioned by the presence of the disease itself, generally tends to excite the circulation, if from any accidental cause, a contrary effect is produced, the activity diminished. The depression alone continues a sufficient length of time to accomplish the desired end.

Seeing then that nature is generally inadequate to the performance of these conditions, let us inquire into the means we possess of affording her assistance, to their probable efficacy.

There are of two kinds - the medical and the mechanical.
We read that the place of treatment follows
by Valckenaer, viz. restricting patients to 5 oz. of solid,
10 oz. of fluids in 24 hours, was occasionally able
sufficient to effect the cure of aneurisms of large
size. Now this is regarded as a most important
preparation for; Vessels, to compressions. The success
of this treatment depends greatly upon a continual
attention to a number of minor circumstances, it
though trivial in themselves, become of importance
when taken as a whole. In adopting any con-
stitutional treatment, the first most essential point
to be attended to, is to keep the patient perfectly
quiet in bed, or confined to the horizontal position.
Free from all mental or convulsive excitement.
The next principal object to be held in view are,
to lessen the force of the heart's impulse, so as to
diminish the eccentric pressure upon the arterial
cords: so to modify the condition of the blood, as
to improve its plasticity, I dispose it to the deposit
of its jelline. In carrying out these indications,
it must be remembered that there are two very
opposite conditions of the system we may have to
meet, the plethoric vitreous state occurring

[Signature]
in young subjects, with great excitability of the heat, throbbing of the arteries generally. 

2. That condition of system in which there is feeble pulse, quiet heart, a cachetic state of health, a tendency to anemia, occurring principally in elderly people.

It is perfectly clear that the same plan of treatment cannot indeed in these opposite conditions, therefore the constitutional means must be modified according to the state in which the patient is.

In the first condition, the principles on which the treatment is conducted are essentially the same as those of Valerian’s plan, but somewhat modified according to the circumstances of the case. The diet must be carefully regulated, consisting chiefly of farinaceous food, with only a small quantity of meat, very little liquid, in total absence of all stimulants.

Dr. Bellingham has adopted a regimen which appears to be very suitable, viz.:

2 oz. of bread, 2 oz. butter for breakfast.
2 oz. — 1 oz. meat for dinner.
2 oz. — — butter for supper.
Milk and water jugged in small quantities thru the day.
Hydrica purgatives, &c.
Richard's Science + Art of Surgery

(*) "Clinical Lectures" in Lancet
as act above, remove obstruction in the portal &
renal systems, should be occasionally administered.
Small bleeding with the view of diminishing the
hardness & incompressibility of the pulse, may
sometimes be advantageously adopted, but care
must be taken that the patient is a favorable
subject for the abstraction of blood. Digitalis &
other drugs, if act upon the heart, have been advised,
but I think the foregoing would be sufficient in
the great majority of cases without these.

In the second class of cases, the above plan
of treatment is altogether inadmissible & contra-
indicated. In this feebler haemodynamic state of system,
the blood is deficient in siphone, the system unable
to make activity; our efforts must therefore be directed
to improving the plasticity of the blood, regulating
the heart's activity. Complete rest must be enjoined.

Some of the preparations of iron administered,
nourishing articles of diet taken (especially if a
thy nature), should the system be much disturbed
or much pain remain, the occasional employment
of spirits will be attended by the best results.

Regarding constitutional treatment, Mr.
Holmes says - "A patient, the subject of aneurism,
"Treatment of Anuremia by Compression"
by Dr. Bellingham. Dublin.
is usually otherwise in good health. On being at once confined to bed, if he is permitted to yet drink as before, a feverish state of the system will be produced. Stronger pressure will be necessary to check the pulsations of the aneurism. Whereas if we diminish the amount of solid food, limit the patient to a small quantity of liquid as possible, the blood will be diminished in amount without being deteriorated, the blood vessels will be less dilated, the heart's action will become less forcible. Hence, a less amount of pressure will consequently be required to produce the same effect, and can be borne for a longer time without inconvenience.”

Dr. Bellingham lays great stress upon the preparatory treatment. He says “although in many cases compression has proved effectual without almost any preparatory treatment being adopted, still I am of opinion that it ought to constitute a prominent item in the treatment, tending as it most certainly does, to diminish the pain of the compressing instruments occasion, as well as to shorten the period required for their employment.”

The patient then, being in some succourance brought under control by the constitutional
* Vide the following

Sir Astley Cooper's Surgical Lectures

Lithius on "Anuricium"

Hodgson's treatise on "Anuricium"

J. Cooper's "First Lines of Surgery"

Sollie's "Lectures on Surgery"

Lawrenci "Lectures on Surgery"
means just mentioned, is now fitted to undergo the
2d Local mechanical treatment or Compression.

In the early trials of Compression, the principle
was not understood; the method was acted upon
under an erroneous theory. It was supposed that,
for a cure to be effected, the circulation thru the
artery must be entirely arrested; that inflammation
should be set up; adhesions take place between
the side of the vessel at the point compressed; 
that the consolidation of the aneurism was dependent
upon the obstruction of the vessel. We see this in
the works of writers, whose opinions on a question
of this kind, packed the highest. * These very
erroneous views respecting the mode of operation
of Compression, consequently led to very forcible
pressure being exercised to excite the necessary
inflammation, occasioning such pitiful pain and
suffering, that the patient could seldom bear it long
enough to effect a cure, & sloughing of the skin
very commonly resulted. It can thus be readily
understood why the practice fell into disrepute,
why patients refused to submit to it, Surgeons were
unwilling to adopt this treatment in preference to the
operation of placing a ligature upon the artery, &c.

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treatment was again returned to, maintained its ground, not because of its simplicity or safety, but because it alone produced effects consonant with the pathological doctrine of the day.

In recent years, however, by extensive pathological research, its close attention to Examination of those cases in which ligation had been applied or a spontaneous cure had been effected, it has been proved that it is not indispensably necessary that the whole impulse of the heart should be removed from the blood within an aneurysmal sac, but that a diminution of it, maintained for a given time, will be sufficient for the cure of the disease. The principles upon which an aneurysm is cured, when the artery leading to it is compressed, are precisely the same as those upon which a spontaneous cure takes place, or when a ligation is applied — viz. by checking the previous momentum of the blood causing the blood to pass more slowly thru the vessel, thus impede it in the tumor, leading to the deposit of laminated fibrine by its entanglement in the juxta of the sac, the consequent consolidation of this. Coincident with this, there takes place an enlargement of the collateral branches. This appears
to have been remarked by the older surgeons, as one of the objects for which they used compression on the incision, was to cause the expanding vessels to enlarge, to carry on the circulation independent of the main artery, by which it was supposed that the risk of insufficient circulation in the limb when the ligation came to be applied would be diminished. This enlargement of course is the last thing that occurs as the result of compression; it seldom commences until the aneurysm is on the point of being cured. Dr. Bellizzi says: "When compression is applied to an artery in any part of its course, the amount of blood that passes down the limb must be diminished in proportion to the degree of pressure used, the current through the vein will at the same time be completely interrupted, a smaller amount of blood than usual consequently circulates in the parts below the site of the pressure, but quite sufficient for the nourishment of the limb. This state of things will continue until the necessity arises for the collateral vessels to become enlarged. This happens when the aneurysmal sac has become filled with fibrin, when the deposition has gone on until the artery at the seat of the lesion is completely obliterated: the anastomosing vessels by
Skeen on "Diploma Americana"
in Dubhla Quarterly Journal
which the circulation in the limb is to be maintained, then rapidly increased in size, the interruption to the circulation occurs.

In what cases is compression required?

Mr. Ingleball considers compression applicable to every ordinary circumcised aneurism in an extremity, where there is sufficient room for the application of the compressing medium at two different points above the tumour, prescribing, of course, that pressure on the trunks of the veins completely controls pulsation in the sac, thus proving that no high bifurcation exists.

Dr. Bellingham says: "Compression is advocated for cases in which the sac is so situated that pressure can be made upon the artery at its cardiac side, as well as for cases where the arterial trunks are diseased. The ligature would consequently be very likely to fail."

In patients labouring under aortic aneurism, organic disease of the kidney, or other organs; when the aneurism is complicated with heart disease, or occurs in a very broken and unhealthy constitution, if the sac remains entire, compression may safely
Clinical Lecture in Lanark
be employed, is the only treatment that can be
trusted to with any probability of success.
It has also been strongly recommended in cases of
traumatic aneurism, particularly when seated in the
brachial artery.

In what cases is compression not advisable?

Dr. Bellingham says, "Compression is not advocated
in diffuse aneurism, or where the aneurismal
sac has been allowed to attain an extremely large
size; or where the sac of a phyletic aneurism has
formed a communication with the knee-joint, or
has caused motion of the bone."

Dr.ifax does not advise it in cases: "where there
is no distinct sac, which are rapidly extending in
size: where the disease has been allowed to run
on unchecked: where the limb has become atrophic
swollen, the surface of the aneurism of a dusky,
grayish red color."

Mr. Holmes, of St. George's Hospital, says: "In persons of
very shattered constitution, in aneurisms lying in
contact with the knee-joint, in those not communicating
very freely with the cavity of the artery, the surgeon
should give up pressure after a short time, if no
rapid improvement results from its use."

Smith
"Surgere vide Mirum"
Dr. Witt says it is contraindicated, "When the integuments are inflamed, or the limb much swollen, or the aneurism diffused: Likewise in cases where are very rapidly increasing, for there is always a danger of the humors setting, or of the limb below becoming mortified."

The arteries, above all others, in anterior is most common after the femoral in the popliteal, and next in frequency are the femoral, tibial, and fourth ring is easy of access, are the cases generally selected for compression. In those cases in which the aneurism is situated in the arteries of the lower extremities, below the middle of the thigh: in aneurisms occurring in the vicinity of the hand, as in the brachial, carotid, subclavian arteries, it is quite inapplicable. With regard to axillary aneurism, Dr. Bellingham says, "Compression has not yet been employed in cases of axillary aneurism, although it is probably not beyond its reach. I have no doubt that some of the instruments which have been invented for checking the circulation in the subclavian artery, in amputation at the shoulder-joint, may be modified so as to be used to compress the vessel in case of axillary aneurism." I have however found
"Cancelet for 1805"
provided a case of aillary aneurism cured by compressing at the distal side : the tumour embraced nearly the whole length of the vessel from the subclavian to the beginning of the brachial : pressure was applied at a point where no branch was given off, kept up for 7 weeks : pulsation disappeared on the 10th day. Antimony & Digitalis were given to reduce the pulse.

Some of the success we have attended the recent employment of compression, when contracted with the results of earlier trials, may fairly be attributed to the use of more perfect instruments than were formerly in the hands of the Profession. It would be useless to describe the great variety of instruments we have at different times been used in compression, some of them awkward clumsy, others more or less ingenious. We are given in Dr. Bellingham's work. suffice it just to refer to the more modern mechanical means now in general use.

The most essential points in an instrument for compression are that it should admit of being readily applied: that its principle should be so simple as to be easily understood by the patient: and
and that it should affect the object intended with as little inconvenience as possible to the patient. 

The simple and safe weight.

It is made of lead, cast in a conical shape, retained in place by a wide leather socklet made to fit it, the broad end being upwards. The narrow end pressing on the curved symphysis as it crosses the horizontal ramus of the pubis. This weight seems to be of advantage when the patient becomes tired of the compressing instruments, would be glad of this change, it checks the pulsation with little distress to him, no counter-pressure being required, it is often as effective as the direct pressure.

It may also be useful when the compressing apparatus is out of order. From circumstances, it may be impossible to have it immediately repaired, or a new one obtained. The disadvantages are, that the weight is easily displaced on any change in the patient's position, and must cannot be continued when he falls asleep, as it requires the assistance of his hands to maintain it in its place.

I have been informed that this weight is still much used in the continental hospitals, but suspended from the ceiling or top of the bed by a line running.
over a pulley, so that the patient can with very little trouble, raise or lower it at pleasure. See that the \textit{Quiek Surgeons} also still use it at times, suspended from the candle over the patient's body, by a wire — an improvement on the last method.

2nd. Ligature-hose and tourniquet.

This has been used with admirable effect, some of the cases reported having been cured with it alone. But it is somewhat difficult to regulate the pressure with this instrument, as it is so powerful. It has generally given place to the more rigorous instruments of the present day: — it is however still used, particularly by Mr. Fergusson, about the middle of the thigh, along with another compressor.

3rd. The pelvic circular thigh compressor of Dr. Cade.

These are the instruments most in favor among the \textit{Quiek Surgeons}, now generally used in most hospitals. They have the advantage of being readily applied, giving but little inconvenience to the patient, as they extend over a large surface there is no counter-pressure: — they also substitute an elastic force derived from vulcanised India rubber bands for the unyielding pressure of the tourniquet, thus accommodating themselves better.
to the limb, being less likely to produce injurious compression...

Notwithstanding the improvements we have taken place in the construction of compressing instruments, the ingenuity we have displayed in the invention of new more perfect forms, it is almost impossible in the majority of cases to adopt any apparatus to a limb, & the patient will bear for many hours consecutively, if the pressure is sufficiently strong to diminish materially the current through the main artery. This object can, however, be attained in another way: viz., by applying two compressing instruments upon separate parts of the limb, one of which is tightened, the other not. By thus alternating the pressure, we produce the same effect as if constant compression was maintained at one point, the patient is enabled to keep it up for a much longer period than is possible under other circumstances.

Method of application of the instruments...

As a good deal depends upon the intelligence & docility of the patient, we should, as it were, make
make a confidant of him; explain to him that the success of the operation depends more upon himself than upon the surgeon. If he is in a fit state to assist, our efforts will be almost in vain: he should be taught the object with which the compressing force is applied, the manner of using it, and the time of removing it, he will often find an occupation, remembrance in doing so. Having induced the patient to exercise forbearance and anxious and careful watching, it should nevertheless be our part to keep up a strict supervision, take notice of the slightest neglect or inattention on the part of the patient.

It may appear at first sight trivial to make much of such matters as these, we have been strongly incited on by the Irish surgeons, but experience forcibly points out the necessity of attending to them.

The patient should be put into a comfortable bed, with four well secured pillows and mattress, so that his position be not changed. The limbs should be laid comfortably on soft pillows and a pad on the tumour. The skin at the part prefixed should be shaved, if necessary, the will treated with hair-powder, fine chalk, flour.
oxide of zinc, or other absorbing powders—some recommend the skin to be protected by a layer of thick soap plaster: others interpose a piece of smooth kid-skin between the pad and integument. The application of a thick coating of collodion has been suggested. A large pillow should be bound down to the foot-piece at the end of the bed, so as to serve as a point d'appui for the foot of the unaffected limb, to prevent any gliding of the body from its original position. The case comfort of the patient, while recumbent, are moreover materially aided, by a large cradle being thrown over the body, so that the weight of the bed-clothes may be taken off the patient, the care manipulates the instruments with freedom & facility. Some surgeons recommend that the limb should be bandaged from the toe upwards as far as possible, but Dr. Bellingham says on this point: "the advantages derived from bandaging are not very apparent, while its disadvantages are sufficiently evident. The vein, owing to its close connection with the artery, must be con-
"Dublin Quarterly Journal"
possible to avoid it). It is obvious therefore that the venous blood must return in a great measure by the superficial vein; but if the current through these vessels is impeded or interrupted by a bandage or roller, congestion, edema, swelling of the limb can hardly fail to follow.

Site of pressure

With regard to the point of application of pressure, the researches of Dr. O'Ferrall tend to show the superiority of pressure at the groin over that applied in other situations for the cure of popliteal aneurism. He says: "In considering the anatomy of the part, it appears very probable, that when compression is made high up, the urine may be avoided, while such an excretion would be quite impossible lower down, where the vein slips behind the artery. Most of necessity receive its share of the pressure."

The possibility of avoiding the urine, while compressing the artery at the groin by the finger, may be ascertained by making the experiment with care. It is obvious to the least reflection, that superficial pressure at the groin cannot be made
in the direction of a line dropped perpendicularly to a line in the horizontal position. It must be made in a direction upward, backward, in order to compress the artery against the pubic. And as the angle at which the force is to be directed will change with every new subject at different times, it becomes necessary to devise a means of altering the inclination according to circumstances.

Dr. Bellingham, however, seems to think it would be rather difficult to follow this advice. He says, "The vein, being connected to the artery by strong cellular membranes, and by the sheath which arises from the fascia transversalis to the fascia iliacae, between the two vessels, upon the inner side of the vein, by which distension of the sheath is prevented, must share in the compression. In all the dissections which I have made, the connection between the two vessels was so close that it would have been utterly impossible to compress the artery without interrupting the current through the vein."

On reference to numerous works on Anatomy and...
and Surgical Anatomy, I find the close relation of the two vessels particularly mentioned. It certainly appears to me that, although the artery may be compressed without the vein by very delicate and careful manipulation, yet when a pad came to be applied of sufficient narrowness to effect this, even though retained in situ by strips of adhesive plaster, it would be apt to slip off, if not from the natural tenacity of the vessel, on the slightest movement on the part of the patient.

Immediately below Consperti ligament, viz., between it and the point at which the taphia join the femoral vein, the artery is superficially placed, admits of being partly compressed here. From a little below Consperti ligament to the commencement of the middle third of the thigh, the femoral artery is unfavorably situated for compression: but in the middle third and down to the point at which the artery enters the opening between the tendons of the tibia and vastus internus muscle, it is favorably situated.

Dr. Bellingshaw says "although many patients can proceed in the groin without..."
inconvenience, in others the lymphatic glands situated here become swollen painful, or the limb becomes numbed. Admitting this it is obvious to be intermittent. The majority of patients appear to bear pressure better at the lower part than at the groin.

It is not necessary to repeat what I have already said respecting the degree of pressure that should be used, but it may be remarked that the compression at first ought always to be slight—after a time, when tolerance of the remedy becomes established, it may be increased to the degree considered necessary, from being so great as to interrupt completely the circulation in the artery.

It would appear to be, by no means absolutely necessary, that continuous pressure should be exercised on any artery for any length of time; it may be intermittent, resumed again according to the feeling inclination of the patient...

Mr. Duhamel says: "Pressure should, if possible, be continued during sleep, but if it prevents the patient taking his natural rest, the
suggestion made by Dr. Tuffnell, of unscrewing the instrument slightly, when the patient is asleep, gently tightening it again without awakening him, may advantageously be adopted."

This however does not seem to be the opinion of most surgeons, I have myself seen a case where the cure was considerably retarded, some troublesome bleeding occurred, from the pad becoming displaced during sleep; the pressure being thus taken off the vessel, I applied at another point. When fibrous tissue begins to be deposited in the sac, the deposition will go on, although pressure be very carelessly applied. Dr. Bellingham relates two cases where the patients in some measure renewed their ordinary habits, exercised the limb without interfering with the progress of the cure.

Dr. O'Sullivan recommends as an auxiliary, momentary compression with the fingers at a point below the aneurysmal sac, just before the instant when the screw above is about to be tightened. He was led to adopt this plan from the consideration, that although the artery was firmly compressed, the current retarded,
There was really not material for a large clot in the sac. Consequently, very little addition was made to its solid content. It occurred to him that by interrupting the current for a moment by pressure below the sac, then interrupting the current from above, that the sac would be at the same time full of blood in the desired state of repose. He thinks it contributes to the speedy solidification of the sac, therefore suggests its adoption.

After the application of pressure, the effects produced on the tumour vary considerably. Rapid sudden solidification takes place in some cases; generally, however, this is a gradual process, the tumour becoming more painless solid, with less pulsation than it.

As the solidification takes place, there is usually a good deal of restlessness, a feeling of general uneasiness, of constitutional disturbance. It is best quieted by opium. As the pressure is continued, the tumour begins to harden, the anastomosing vessels enlarge with a good deal of burning pain in the limb generally. Vascular pulsations in
situations where usually none are felt. The
abnormal pulsation, in these cases, is always
found to occur in much the same situations.
The same vessels appearing similarly dilated.
Dr. Tuffnell remarks: "three arteries will be
found to be enlarged, one of which passes over the
centre of the tumour, another over the head of
the fibula, the third along the inner edge
of the fibula." He also states that "the severe
burning pain which is felt in these cases, is
owing to the artery accompanying the common
peroneal nerve being enlarged."

After complete solidification of the tumour
has taken place, the compression ought to be
continued for at least 48 hours, so as to secure
against the occurrence of a relapse. On this
point Mr. Lawrence, in one of his Clinical Lectures,
says: "Even after the consolidation of the sac
is perfected, the instruments should be still
kept on till we may suppose the fibrous
deposit in the sac has extended itself into the
base of the artery: if not, since on removing the
pressure, the heart acts with all its primitive
force on the aneurism, the fibro in this way
may
may be washed away again by the onward current of the blood."

The period occupied by the treatment varies very considerably: in some part cases a few hours suffice; more commonly, days are necessary; sometimes weeks or even months must elapse before a cure results. Whether the treatment is tedious or the contrary, depends upon a variety of circumstances. The rapidity with which a cure is accomplished may be influenced in many different ways. Much, very much, will of course depend on the instrument used, the mode in which compression is applied, the situation at which pressure is made. With Baré's compressor the valuable directions that have been given by the Irish surgeons as to the manner in which to be adopted, precautions to be used, this mode of treatment is rendered easy within the scope of all. It may be observed that it is scarcely doing justice to this method to undertake it without thoroughly understanding it, being provided with a proper apparatus for carrying it out. The state of the patient's health, his irritability or insusceptibility of pain, this intelligence and...
and anxiety to co-operate in maintaining the pressure, will have still greater influence upon the rapidity or slowness, with which a cure is brought about. Some patients soon become disinclined to bear the instruments, or refuse to continue the compression; others think so lightly of their disease, mode of cure, that they cannot be prevailed on to help up the pressure. With regard to the constitution in the majority of cases fortunately the disease is purely local; the patients are perfectly healthy in other respects, but bad complications are occasionally met with in the shape of anaemia, cardiac disease, anemia, that form of shakiness terrible constipation, the result of dissipated habits, or previous ill-health — there are the cases in which we fail.

The duration of the Anaemia, the chronicity of the disease, the life and condition of the base at the commencement of treatment, will have some influence on the duration.

Another point connected with the anaemic base will doubtless greatly influence the speedy or protracted progress of the cure, as mentioned.
by Dr. Bellingham—viz. The position of the sac, trifurcating leading to it, with respect to the artery. He says:—”If the aneurysm springs from the anterior surface of the popliteal artery (i.e., the surface facing the back of the knee-joint), owing to the density of the structures here, the sac cannot enlarge much, the entrance of blood into it must be suspected in some degree owing to its position:—hence, if compression is used in such a case, the cure will probably take place quickly.”

”If the aneurysm springs from the posterior wall, or from the inner or outer side of the popliteal artery, the sac may attain a larger size than in the preceding case. The treatment of the aneurysm by compression will probably prove more tedious.”

**Digital compression**

Within the last year or two a modification of the usual method of compression has been adopted, especially on the continent—namely, the use of the fingers instead of instruments in compressing the artery. The points added
"Modai Annuals" Vol. ci

"Bull. de l'Acad. de Med. de Belg."
in favor of it are that success, when likely to be obtained, is in general rapid — it is more easily supported than mechanical compression, as the fingers can exert compression more when the skin is inflamed: — the compression is less painful as the action may be limited to the artery does not include the neighbouring vessels: — the skin also is less dried: — If it fails to produce a cure, the patient is not only in no worse condition, but it advantageously modifies the condition of the aneurism.

A paper was last year submitted to the Surgical Society of Paris by M. Vanzelette of Padua on the advantages of this mode of treatment of reporting a cure by it of two cases of prolapsed aneurism — in one case in 40 hours — the other in 14 days. A case of ovarian aneurism at the bend of the elbow, treated in this way, has been reported by Sgion Serroni of the Milan Hospital — also by M. Leveque. A cure of an aneurism of the radial artery by digital compression of the brachial — And M. Michael of the Belguam Academy of Medicine has reported some cures by it. It has been tried.
tried in some few cases in England, but I believe as yet without success, although in no way interfering with, or protracting, the subsequent treatment by mechanical compression.

I cannot see any possible objection to this method of treatment, as the principles upon which it is conducted are exactly the same in each case. The only drawback is, that the amount of patience required to be exercised by the surgeon in his assistants: perhaps our Continental brethren possess more of this desirable commodity than ourselves. As yet very few cases are on record, when a larger number are collected, it is shown that the time occupied by digital is less than that by mechanical compression, it may be more generally adopted.

Compression at the distal side of aneurisms.

When presence is made on the distal side of an aneurism, we observe an increased impulse for a few moments. If the presence is complete, suddenly lost up, this momentary irritation subsides, the aneurism pulsable with perhaps less force than before. This principle of removing the
the aneurism into a cul-de-sac, appears to act occasionally in compression at a distance.

Dr. Calkins, who has had great opportunities of observing the various phenomena that arise during the cure of aneurisms, has stated it as his conviction that many, if not all, of the rapid cures are effected by a loose clot blocking up the distal portion of the artery. Certainly we can scarcely conceive it possible that a cure which occupies 10, 30 or 40 hours, could be effected by the slow process of a deposit, layer by layer, until the sac is filled. We see also that a similar result has been obtained purposely by manipulation of the sac, a process which is too dangerous to be other than exceptional in application. From all these circumstances, therefore, it is thought we may infer the probability of digital compression being occasionally successful: it is at least worth a trial, where the position of the sac presents one using the ordinary method: if we can get a point for compression between the sac and the nearest collateral branch, I think the result of the practice may give incontagous, although indirect, to hope for
success... In the Lancet for 1854 there is recorded a case of axillary aneurysm cured by compression at the bifurcal side. The tumour extended nearly the whole length of the vessel from the subclavian to the beginning of the brachial. Pressure was applied at a point where no branch was given off. For 7 weeks pulsation disappeared on the 15th day. Antimony & Digitalis were given to reduce the pulse.

W. Edwards, of this city, also reported in the Lancet last year, a case of an aneurysm of the innominate cured by compression at the root of the neck.

Before making some remarks on the relative value of compression & ligature, it may be as well to give some statistics of the forms made of treatment. The fact that I can find are contained in Mr. Paul Broca's work "Des anévrismes et de leur traitement". He has collected all the cases reported in the journals from 1842 to 1854. They are 163 in number. In 104 cases the cure was definitive.
definitive and complete.

Of the remaining 59:
5 died: 2 from gangrene, 1 from softening of the aneurysm, 1 from ruptures, 1 from rupture of an aortic aneurysm.

In 1 case the artery gave way about the obliteration on the 25th day. It was necessary to reoperate.
In 2 cases slight pulsation remained, but it was stationary, there was no pain or inconvenience.
In 4 cases the cure was only temporary, the disease returning in between 3 & 14 months.
In 47 cases, compression was abandoned as insufficient, and from an analysis of these, it has been proved that most frequently, either the apparatus employed was defective or there was a want of perseverance or confidence on the part of the surgeon or the patient.

To render these statistics more complete, I have examined all the periodicals for 1855-56, 57, 74-88, and have made a table of all the cases recorded, bringing, with those of Mr. Arscott, the statistics of compression up to the present time.
<table>
<thead>
<tr>
<th>No.</th>
<th>Name of Surgeon</th>
<th>Hospital</th>
<th>Name of Disease</th>
<th>Result</th>
<th>Time survived in Years</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mr. Heath</td>
<td>Newcastle</td>
<td>Pneumonic</td>
<td>Died</td>
<td></td>
<td>Comp. for 6 weeks, expectorated, convales.</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>Cured</td>
<td>23 by</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Mr. Sale</td>
<td>Leeds</td>
<td></td>
<td>Died</td>
<td></td>
<td>Aerarium became larger, died of pneumonia</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td>Cured</td>
<td>19 by</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td>Failed</td>
<td></td>
<td>Comp. for 30 days, no success, Lap. &amp; Food, Fever</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td>Cured</td>
<td>12 by</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Mr. Cock</td>
<td>Jurys</td>
<td></td>
<td>Failed</td>
<td></td>
<td>Operation of竝operations. Amb. &amp; did successfully</td>
</tr>
<tr>
<td>8</td>
<td>Mr. Nicholls</td>
<td>University</td>
<td></td>
<td>Cured</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Mr. Ward</td>
<td>London</td>
<td></td>
<td>Cured</td>
<td>4 who joined with 96 lbs. weight, then convulsed.</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Mr. Sibbs</td>
<td>Liverpool</td>
<td></td>
<td>Cured</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Mr. Stanley</td>
<td>St. Bartholomew</td>
<td></td>
<td>Failed</td>
<td></td>
<td>Man replaced the instrument, Lap. &amp; lap. unsuccessful</td>
</tr>
<tr>
<td>12</td>
<td>Dr. Bennett</td>
<td>Bradford</td>
<td></td>
<td>Failed</td>
<td></td>
<td>Operation alternated, Lap. &amp; lap. unsuccessful.</td>
</tr>
<tr>
<td>13</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Aerarium got larger, Lap. &amp; lap. unsuccessful.</td>
</tr>
<tr>
<td>14</td>
<td>Mr. Belsey</td>
<td>St. George</td>
<td></td>
<td></td>
<td></td>
<td>Palatine ceased, had began again, Lap. &amp; lap. unsuccessful.</td>
</tr>
<tr>
<td>15</td>
<td>Mr. B. Nash</td>
<td>Tynwald</td>
<td></td>
<td>Cured</td>
<td>8 by</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Mr. Shaw</td>
<td>Durham</td>
<td></td>
<td>Cured</td>
<td>8 by</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Mr. Squire</td>
<td>Brown</td>
<td></td>
<td>Cured</td>
<td>28 by</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td></td>
<td></td>
<td></td>
<td>Died</td>
<td></td>
<td>Comp. failed, conv. fell, died of pneumonia.</td>
</tr>
<tr>
<td>19</td>
<td>Mr. Whipple</td>
<td></td>
<td></td>
<td>Cured</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Mr. Ferguson</td>
<td>Kings</td>
<td></td>
<td>Cured</td>
<td>21 by</td>
<td>Pressure intermittant for some days.</td>
</tr>
<tr>
<td>No.</td>
<td>Name of Surgeon</td>
<td>Hospital</td>
<td>Stage</td>
<td>Disease</td>
<td>Result</td>
<td>Time to Recovery</td>
</tr>
<tr>
<td>-----</td>
<td>----------------</td>
<td>---------</td>
<td>-------</td>
<td>---------</td>
<td>--------</td>
<td>-----------------</td>
</tr>
<tr>
<td>21</td>
<td>Mr. Harvey</td>
<td>Stafford</td>
<td>Popliteal</td>
<td>Palsy</td>
<td>Cured</td>
<td>10/27</td>
</tr>
<tr>
<td>22</td>
<td>Mr. Ferguson</td>
<td>King's</td>
<td>—</td>
<td>—</td>
<td>Cured</td>
<td>12/30</td>
</tr>
<tr>
<td>23</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>Cured</td>
<td>10/27</td>
</tr>
<tr>
<td>24</td>
<td>Mr. Alford</td>
<td>Tunbridge Wells Inf.</td>
<td>—</td>
<td>—</td>
<td>Cured</td>
<td>—</td>
</tr>
<tr>
<td>25</td>
<td>Mr. Holmes</td>
<td>St. George</td>
<td>Popliteal</td>
<td>Thrombus</td>
<td>Failed</td>
<td>—</td>
</tr>
<tr>
<td>26</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>Cured</td>
<td>11/30</td>
</tr>
<tr>
<td>27</td>
<td>Mr. Dunstan</td>
<td>St. John's Chapel</td>
<td>Popliteal</td>
<td>Thrombus</td>
<td>Cured</td>
<td>13/26</td>
</tr>
<tr>
<td>28</td>
<td>Mr. Solly</td>
<td>St. Thomas Backs Hill</td>
<td>—</td>
<td>—</td>
<td>Cured</td>
<td>—</td>
</tr>
<tr>
<td>29</td>
<td>Dr. Joice</td>
<td>Cork</td>
<td>Popliteal</td>
<td>Palsy</td>
<td>Cured</td>
<td>3/6</td>
</tr>
<tr>
<td>30</td>
<td>Mr. Hale</td>
<td>Leeds</td>
<td>—</td>
<td>—</td>
<td>Cured</td>
<td>10/27</td>
</tr>
<tr>
<td>31</td>
<td>Mr. Lawrence</td>
<td>St. Bartholm</td>
<td>—</td>
<td>—</td>
<td>Cured</td>
<td>3/6</td>
</tr>
<tr>
<td>32</td>
<td>Mr. Luke</td>
<td>London</td>
<td>—</td>
<td>—</td>
<td>Died</td>
<td>—</td>
</tr>
<tr>
<td>33</td>
<td>Mr. Solh</td>
<td>Westminster</td>
<td>—</td>
<td>—</td>
<td>Failed</td>
<td>—</td>
</tr>
<tr>
<td>34</td>
<td>Mr. Paget</td>
<td>St. Bartholm</td>
<td>—</td>
<td>—</td>
<td>Cured</td>
<td>12/26</td>
</tr>
<tr>
<td>35</td>
<td>Mr. Miller</td>
<td>Winchburgh</td>
<td>—</td>
<td>—</td>
<td>Failed</td>
<td>—</td>
</tr>
<tr>
<td>36</td>
<td>Dr. Johnson</td>
<td>Montrose</td>
<td>—</td>
<td>—</td>
<td>Failed</td>
<td>—</td>
</tr>
</tbody>
</table>

**Cases during the year 1856:**

<table>
<thead>
<tr>
<th>No.</th>
<th>Name of Surgeon</th>
<th>Hospital</th>
<th>Stage</th>
<th>Disease</th>
<th>Result</th>
<th>Time to Recovery</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>37</td>
<td>Mr. Beale</td>
<td>Swansea</td>
<td>—</td>
<td>—</td>
<td>Cured</td>
<td>24/27</td>
<td></td>
</tr>
<tr>
<td>38</td>
<td>Mr. Belham</td>
<td>Chatham</td>
<td>—</td>
<td>—</td>
<td>Cured</td>
<td>12/21</td>
<td></td>
</tr>
<tr>
<td>39</td>
<td>Mr. Solley</td>
<td>St. Thomas Backs Hill</td>
<td>—</td>
<td>—</td>
<td>Cured</td>
<td>4/18</td>
<td>Interrupted Pressure</td>
</tr>
<tr>
<td>40</td>
<td>Dr. Richardson</td>
<td>Swansea</td>
<td>Popliteal</td>
<td>—</td>
<td>Cured</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>41</td>
<td>Dr. Ephraen</td>
<td>Swansea</td>
<td>—</td>
<td>—</td>
<td>Cured</td>
<td>—</td>
<td></td>
</tr>
</tbody>
</table>
Cases during the year 1857 (continued)

<table>
<thead>
<tr>
<th>No.</th>
<th>Name of Surgeon</th>
<th>Hospital</th>
<th>Seat of Disease</th>
<th>Result</th>
<th>Time</th>
<th>Cause of Death</th>
</tr>
</thead>
<tbody>
<tr>
<td>42</td>
<td>Mr. W. Marks</td>
<td>St. Thomas Hospital</td>
<td>Died</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>43</td>
<td>Mr. Siborne</td>
<td>Derby</td>
<td></td>
<td>Cured</td>
<td>Ark</td>
<td></td>
</tr>
<tr>
<td>44</td>
<td></td>
<td></td>
<td>Anormal</td>
<td>Died</td>
<td></td>
<td></td>
</tr>
<tr>
<td>45</td>
<td>Mr. Parker</td>
<td>Birmingham Royal Infirmary</td>
<td>Cured</td>
<td>Infected</td>
<td>Death</td>
<td></td>
</tr>
<tr>
<td>46</td>
<td>Dr. Jackson</td>
<td>Sheffield Hospital</td>
<td>Cured</td>
<td>Infected</td>
<td>Pressure on Oesophagus</td>
<td></td>
</tr>
<tr>
<td>47</td>
<td>Mr. Billops</td>
<td>Juji</td>
<td></td>
<td>Cured</td>
<td>Jake</td>
<td></td>
</tr>
<tr>
<td>48</td>
<td></td>
<td></td>
<td></td>
<td>Cured</td>
<td>2 yrs</td>
<td></td>
</tr>
<tr>
<td>49</td>
<td>Mr. Brown</td>
<td>King's 10th Rg.</td>
<td>Died</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>Mr. Parkinson</td>
<td></td>
<td>Oesophagus</td>
<td>Failed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>51</td>
<td>Lachmi</td>
<td>Lungs</td>
<td></td>
<td>Died</td>
<td></td>
<td></td>
</tr>
<tr>
<td>52</td>
<td>Mr. Ditchett</td>
<td>Juji</td>
<td></td>
<td>Failed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>53</td>
<td>Mr. Ditchett</td>
<td>University</td>
<td></td>
<td>Cured</td>
<td>2 yrs</td>
<td></td>
</tr>
</tbody>
</table>

Cases during the year 1857

<table>
<thead>
<tr>
<th>No.</th>
<th>Name of Surgeon</th>
<th>Hospital</th>
<th>Seat of Disease</th>
<th>Result</th>
<th>Time</th>
<th>Cause of Death</th>
</tr>
</thead>
<tbody>
<tr>
<td>54</td>
<td>Mr. Lister</td>
<td>Liverpool Hospital</td>
<td>Died</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>55</td>
<td>Mr. Crocker</td>
<td>1st Royal</td>
<td></td>
<td>Cured</td>
<td>York</td>
<td></td>
</tr>
<tr>
<td>56</td>
<td></td>
<td></td>
<td></td>
<td>Cured</td>
<td>2 yrs</td>
<td></td>
</tr>
<tr>
<td>57</td>
<td>Mr. Ditchett</td>
<td>Juji</td>
<td></td>
<td>Failed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>58</td>
<td>Mr. Crocker</td>
<td>Dublin</td>
<td></td>
<td>Cured</td>
<td>26 hrs</td>
<td>Of m. lead weight used</td>
</tr>
<tr>
<td>59</td>
<td></td>
<td></td>
<td></td>
<td>Cured</td>
<td>24 hrs</td>
<td>Digital compression partly</td>
</tr>
</tbody>
</table>
The total number of cases in the four years amounts to 59, out of which 37 were perfect cases. There were 9 deaths - 3 from sepsis, 2 from peritonitis, 3 after amputation, 3 after ligation of the artery from modification, gangrene, etc.

There were 4 failures - in 3 of them the artery was tied successfully - in 2 amputation was resorted to the patient recovered.

In the foregoing statistics, so large an amount of success is observed, that the most calm impartial consideration is demanded for this highly important practical question, but becomes the duty of every surgeon to balance fairly the weight of argument on both sides of the question. To adjust the relative claims to superiority of the "knife" or the "compressor." Although the statistics include only 203 cases treated by Irish surgeons, amongst whom compression is notoriously successful, the above are results to which one can confidently point as promising a brilliant career for the treatment of aneurism by compression. And here I may observe, that the fact of a number of cases being treated on the same plan by different persons, distant from each other.
Miscellaneous notes.
in time, place & circumstances, ought to constitute the
most unanswerable argument in favour of the treatment
adopted. One individual may be fortunate or so
skillful as to number 100-120 of such cases in succession,
but under the other circumstances there must be some-
thing more, something connected with the remedy,
rather than with the hands that administered it.

As the mode in which the consolidation of
the auricle is brought about by compression is exactly
the same as that in which a natural or spontaneous cure
occurs, the cure is effected by simpler means than
that by the ligature, it obliterates the artery at
the seat of ligature, takes at the seat of the
auricle. It must also be evident that
compression is a safer means, because we can intro-
bine it according as we find our patient
can tolerate it, or circumstances allow; it does
not involve the slightest risk, whereas the ligature
of a large artery is always a dangerous operation.

Even when done to the perfection of human skill,
has nevertheless been followed by the worst possible
results. That such is the case we find from
statistics of the practice of some of the best surgeons,
where we see that death after ligature is in the

Proposition
proportion of 1 to 4, the failures or serious accidents in the proportion of 1 to 3. Besides which, in many patients, who recovered after the ligature, various accidents, such as gangrene, suppuration, secondary hemorrhage, &c, are as the direct consequences of the treatment. Compare these figures with the results in the foregoing table, where we find deaths in the proportion only of 1 to 7 nearly, failures &c as 1 or 2%.—

a great contrast indeed, particularly when we consider that among the failures are included cases where the ligature was afterwards adopted with success.

One cannot however help being struck with the very large amount of success in the ligature, that obtained in the hands of Mr. Syme, who have I think now tried the operation acting about 26 or 27 times without bad results:—we can but attribute it to the admirable skill & precision, not judgment, with which the operation is performed by one who stands highest in the profession, but at the same time this experience does not agree with that of the operation in the hands of other very eminent surgeons, whose 26 or 27 cases, not being contracted with cases of composition...
compression by the same gentleman, are of little value in comparing the results of the two operations, except by throwing them into the general total.

Mr. Syme, in one of his Clinical Lectures, has remarked that "this procedure, ligation when properly conducted, seems to be perfectly free from danger, while it accomplishes recovery without producing any inconvenience whatever, it would surely be improper for me to try any other means of treatment, such as the application of presure, that is liable to fail soon after a long period of inaction or painful restraint.

In another Clinical Lecture he also says: "after a carefully considered examination of the subject, I have come to the conclusion that if the operation of ligation be properly performed properly with due attention to the niceties that render it safe, it is preferable. But if circumstances prevent this, compression should by all means be had recourse to. I can understand many such circumstances. For instance, a surgeon in the public service, or some remote district of the country, who has little opportunity of practising operative surgery, may feel that compression would be the safer treat-...
Notwithstanding Mr. Symí's success, this assurance that when the operation of ligature is properly conducted it is "perfectly free from danger" we know that however carefully performed it is a precarious one, that it frequently fails: that secondary hemorrhage from ulceration of the artery at the site of the ligature, or phlebitis, not unfrequently follow it; or that suppuration of the lœs, hemorrhage from it, or gangrene of the extremity, may occur.

Such results seldom attend or follow the treatment by compression, from the manner in which the lœs, the part of the artery from which it springs, are gradually filled up by fibrine. Proliferation cannot return after compression—a result which so often happens in ligature; we must therefore conclude that the former is a much more certain and permanent method of cure than the latter.

Again, the advantage of compression is, that it can be applied with nearly the same prospect of success as where the patient is perfectly healthy in cases where the coats of the arteries are so diseased that they would not stand a ligature, when such an operation would not be admissible in cases where the aneurysm is complicated with...
sclerotic or other disease of the heart — in very
shattered unhhealthy constitutions — in subject
of intemperate habits — in cases of the aneurismal
diathesis or where several aneurisms exist at the
same time, when a surgeon would very reluctantly
perform any operation.

Compression has been objected to by some
because the arteries are few in number to which
it is applicable, but we find that cases of
suprascapular, general, subclavial are considerably
the most frequent of all aneurisms, but it is just
in those that compression is most practicable. To
successful — even in internal aneurisms,
compression bids fair to effect some good —
a very excellent illustration of this is recorded
in the periodicals of 1658 by Mr. Edwards, in
which an aneurism of the innominate was
cured by pressure on the subclavial side in the
neck.

Undoubtedly the treatment of aneurism by
compression is often more tedious, but it is often
less so than that by the ligature — the average
duration in the foregoing table is below 40 days
(ie. only out of 31 cases was it above that period)
and
where it is considered that it is such a safe operation, I think this is scarcely to be weighed at all objection. Besides if the operation does not turn out favorably, amputation 0 is

Mr. Smyne objects to the extent of time patients are under treatment. Thinks that the bed, if it has been occupied for such a protracted period, might have been the means of relief to

many cases, with proportionate instruction to those studying at the Hospital. Such a very laudable philanthropic objection seems very feasible, but with all due deference to my respected teacher, I cannot think that it holds

good, as the same might apply to many operations of surgery. Cases where patients are put under preparatory treatment prior to operations: look too at the Medical Hospital, how long cases of Paralysis, Bright's disease, Paralytic - are in the wards - are we to dismiss these patients because we might be getting a greater variety. Number of cases? Certainly not, while a patient is in a Hospital, the student may always learn something - from protected

Cases
cases of compression. Especially, he might teach himself patience and perseverance - so essential in our profession; he sees the numerous little accidents and inconveniences we are apt to arise from, a great desire to accomplish a cure quickly; the means to be adopted. The bad consequences which happen, in cases of long confinement to bed: he is prepared to witness, that his best endeavours are fruitless for a long time, then often in after life his devotions must be thought of.

The greatest objection to compression is that it is so palpable, so often so very painful to the patient, that he may wish for, sometimes demand an operation in preference; we find that different persons have different degrees of sensibility to pain; one will, without murmuring, maintain pressure for a long time, whilst another will speedily begin to complain however slight the pressure. This difficulty may be a great measure be overcome by a strict adherence to those preparatory rules before mentioned, by our training the patient, the patience of our own part: if the patient can only bear at first, pressure for 5 or 10 minutes, he should not
Enforce it for a longer time, this absence of it will daily increase.

And now having given some of the leading objections to, advantages of, both methods of treatment, when the practic safety, almost absolute certainty of compression are contrasted with the petty uncertainty that attend the ligature, I think the advantage of the former is, greatly in favour of the former, I must confess myself an advocate for it:

Being an Edinburgh student, I have not had many opportunities for seeing cases of assurance treated by compression, but I have on several occasions seen them in the wards of King's College, St. Bartholomew's Hospital, and also at the Royal Portsmouth Hospital, but certainly appears to me, that a surgeon is not justified in submitting his patient to such an imminent risk of life by gangrene, ischemia, suppuration, &c. while he is able to affect a cure by much milder means which are comparatively devoid of risk. The failure of which will not render more difficult, or dangerous, the subsequent recourse to ligature.

The majority of surgeons of the present day...
day now adopt compression in preference to tying the artery, & I think that the practice must eventually become general, tying the femoral artery for popliteal aneurism will be one of the things of the past.

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