

AN  
INAUGURAL DISSERTATION

ON

*The Roller Bandage*

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## Bandage, its uses and ab

The use of the Bandage, is to keep remedies, dressings, and compresses, in their proper place. To compress blood vessels, so as to restrain hemorrhage, to remedy deformities by holding their parts in proper relation, to unite parts in which there is solution of continuity, and especially to prevent such parts from moving out of apposition.

The application of Bandage is one of the most important branches in Surgery, and for this reason a great deal has been said about it. Numerous authors have written upon it, and almost every one has invented some new Bandage. There is a separate Bandage, for almost every part

of the Hummer system, and for a great many parts, numbers have been invented, each claiming to be the best, and most applicable, by its several defenders. Therefore for me to attempt to give all of them, and their different faults, and merits, would require an essay far beyond the length of what I intend this to be.

I shall for this reason, only present such as I conceive to be the most important. Such as the Roller, the ~~PS~~, The Eighteen Tailed Bandage, and the Nodose Bandage. The use and application of the last named Bandage, is by far the simplest of them all. I saw it applied by Prof Coe on the first day of September

1856, in the case of a man who had the Temporal Artery cut.

It is a double headed roller, made of a piece of cloth about four yards long, and about two inches broad.

The middle is placed, upon a compress, laid on the bleeding artery, and the reverse two or three times, so as to make a knot over the compress.

It is employed for the stoppage of hemorrhage, or securing the compress after Arteriotomy is performed.

The T. Bandage is used for covering parts of the abdomen, and back, and especially the Scrotum, Præputium, and parts about the anus. If the breast or belly be wounded, we make the transverse piece which encircles the body very broad, and having split the

tail part into two pieces, we carry one on each side of the neck, and pass it to the opposite part of the circular Bandage, so as to form a suspensory for the latter, and keep it in ~~its~~ place.

If the groin or private parts be wounded then the tail part becomes the most important part of the Bandage.

Then the transverse piece, which is to encircle the pelvis is smaller while the tail is made very broad.

Eighteen Tailed Bandage, is one of the most complicated. This is used for fracture of the leg, and thigh.

It consists of a longitudinal portion of a common roller, and a sufficient number of transverse pieces, to cover the requisite parts.

Each of the cross pieces are to be proportioned in length, to the circumference of the part, to which they are to be applied. After fixing the long part of <sup>the</sup> Bandage, then arrange the pieces across it, in sufficient numbers as to cover the limb requiring the Bandage. Each piece must be long enough, to extend about two inches beyond the opposite end. The tails being arranged across the roller, are to <sup>be</sup> stitched in their positions by a needle and thread.

When the Bandage is used for the leg a piece of the long roller is to extend beyond the cross pieces, and come under the sole of the foot, and then applied over the inner ankle, directly the the Bandage has been placed under the limb.

The Surgeon, then commencing with the lower one, covers it, with the next, and so on, untill he comes to the last, which he fastens with a pin. Its greatest recommendation is the ease, ~~and~~ with which it can be undone, and the parts examined, not causing the slightest pain, or inconvenience to the patient.

The Roller Bandage, consists of one long strip of cloth, of an indefinite length, and generally from one and a half to three inches in width. It is when well applied one of the most usefull remedies in Surgery. Limited and of infinite use, in all kinds of Surgical diseases, so much so, that it was said by Mr John Bell, to be the universal

remedy are Surgery.

Supplying the place at times, of almost every other Bandage, whether of the head, face, or limbs. In cuts with the knife, in gun shot wounds, in old sores, or in broken bones, it applies to each and all alike, with advantage. In applying the Bandage, care must be taken, that it be put on sufficient tight, to accomplish the point in view, without doing harm in any other way. If it is not sufficiently tight to give the part proper support, it is useless, and if applied with sufficient force to stop the circulation, it produces inflammation, and mortification. For this reason its advantages are so often denied. The Surgeon putting it on improperly, soon makes



a very innocent sore, against the  
wound form. In all such cases, the  
Surgeon, of course shifts the blame  
from himself, to the Bandage.

Contusions, whether accompanied  
by a wound of the integuments,  
or otherwise, are characterised by  
an injury done to the small  
vessels, with an escape of their  
contents into the surrounding  
cellular substance, whereby swelling,  
and inflammation of the adjacent  
soft parts are induced.

Swelling, pain, inflammation, and  
suppuration, constitute states of  
a part contused, provided the  
necessary means are not resorted  
to in time to interrupt the chain  
of action.

The impulsion made on the part where violence is done, varies in degree notwithstanding the integument may not have been injured. In those cases in which the integuments have been badly lacerated, the fate of <sup>the</sup> patient will depend greatly on the force of the morbid impulsion. When reaction is destroyed, death of the part, if not of the patient will ensue, while in other cases as not unfrequently happens, the principle of reaction, not being properly controlled, transcends the bounds of living action, and mortification comes on. In such cases it is the duty of the practitioner to interpose, and by lessening the reaction, to restore the parts to health. Although nothing can be done for those parts, where the restorative

energies are destroyed, by the violence of the impaction, yet much can be done for the comfort and safety of the patient, by the skill, and care of the Surgeon. It has frequently happened after violent contusions, that the patient has been lost by profuse morbid secretions. These can always be moderated in a great degree, and in many cases speedily cured by the proper adjustment of pressure. No one who has witnessed the powerful agency of the Bandage, in Surgical diseases, can doubt its immense influence on suppurating, and granulating surfaces.

Professor Dudley, says that under the ordinary treatment we are taught to anticipate danger, as well from Tetanus as mortification, in wounds of a lacerated and contused description, while fistulous

abscesses are known to harass the patient and embarrass the Surgeon, who has hitherto proposed no plan for speedily curing these cases. He was called to see a boy who had his thigh dreadfully lacerated in the machinery of a horse mill; three fourths of the muscles being divided, and the bone fractured. The limb was removed, the operation consisting in a section of the undivided muscles. The stump being properly dressed with a Bandage, healed by the first intention. The muscles which had been torn asunder by the wheel, presenting, no more difficulty in the process of reunion, than those which had been cut by the Knife. Its effects on inflammation are instantaneous, while all unnatural enlargement is speedily reduced by the absorbents.

By presenting a mechanical obstacle, to the influx of blood, the Bandage exerts an immediate effect, upon that system, on the action of which, inflammation depends. Thus exerting, an equal influence on the two most important systems engaged in the modification of health and disease, the Bandage claims a place superior to all other remedies, whose tendencies are directed to the circulatory system. It presents to the medical community, for all those cases of contusions where difficulty, and danger is to be apprehended from excessive reaction, a preventive to excessive morbid action, in all cases where it can be applied. It is also of no less benefit, in those where all power of reaction is destroyed.

Its use in those cases where the principle of reaction is destroyed and the part killed; by preventing all tumefaction, and inflammation, during the process of suppuration, and absorption is strikingly manifest. In sloughing limbs from contused wounds, the Bandage by preventing swelling of the parts; by lessening the amount of blood flowing through vessels already inactive, and by retaining their divided ends in a state of quietness and in a condition suitable for reunion cannot but place the wound in the most favorable condition for healing. In all contused and lacerated wounds, as well in those where the injury done is confined to the interior organization, as in those where the

integuments are involved, the beneficial results of the Bandage, are equally certain. It is admitted by all that the danger and injury, when the power of reaction is destroyed, consists in the subsequent inflammation.

The writings of all practitioners, who have been engaged in extensive practice, and noticed the subject at all goes to prove the danger to be apprehended from mortification, when inflammation runs high in contused and lacerated wounds. Any remedy then which can secure parts thus injured, against engorgement, and swelling, accompanied by inflammation, must be considered of greatest importance.

Prof Dudley says, the advocate of the Bandage, entertains no doubt

about the termination of any case however extensive the injury, wherein the recuperative powers of nature, are not destroyed, provided pressure can be properly applied to the injured parts. Mutilations of the most shocking character, contusions and lacerations invading extensively the natural structure of the parts, have been known to heal, as kindly, and to excite as little commotion in the system, under the regulations of a well adjusted Bandage, as though the injury was made by a clean cutting instrument. She gives the case of a little girl, twelve years of age, who while playing in a horse mill was caught by the knee between the large wheel, and the wall of the building. She was carried around



where the approximation, was so close as to stop the machinery, propelled by four horses. After remaining in this situation from five to ten minutes, she was released. He was called on immediately, and found on examination the integuments cellular substance, and most of the fascias protecting the muscles, and tendons in the hand, for eight inches up and down the limb, and four inches round, were removed.

The tendons of the biceps, semitendinosus and semimembranosus, were bare for four inches, and the head, and upper part of the gastrocnemius, for a still greater distance. Most of the bursa scraped off, leaving the tendons ragged and bare. The head of the fibula, denuded.

A small portion of the integuments were rolled up, like a cord, and left on the outer portion of the wound.

The Bandage was immediately applied, from the toes to the hip, to prevent swelling and inflammation, and to keep the limb extended. The limb was nearly divested of sensibility, when the Bandage was applied.

The dressings were removed on the fifth day for the first time, when the integuments which were killed, came away, leaving a suppurating surface without inflammation or swelling. On the twelfth day, and third dressing, by the process of sloughing, the whole of the lacerated fascia came away, leaving the surface of the wound healthy, and suppurating.

The flexor tendons were so extensively exposed that it was feared that they might slough, especially the biceps, the whole of which was exposed. All fears on that head however were soon dissipated by the appearance of granulations on all the tendinous surface. The frightfull extent of the wound, the great loss of soft parts, and the contusion resulting from pressure, that suspended for a number of minutes, the motion of machinery, drawn by four horses, furnished ample apology for the cutting off of the limb. Nor is it probable that it could have been preserved by any other treatment than that adopted. Thus the influence of the Bandage, upon the,

ly, and morbid condition of the blood, <sup>vep</sup> is proved to be of almost incalculable benefit. Patients have occasionally been known to die of inflammation of the arteries after the amputation of a limb, and there are many cases recorded of death from inflammation of the venous system, excited by the application of ligatures.

Although the symptoms which indicate these forms of disease, are more or less indistinct, yet the remedy is very apparent. The apposition of the inflamed surfaces of the vessels, by means of the Bandage, is calculated to obliterate the canal, and stop the progress of the disease. But while the Bandage may be urged in preference to all other treatment in inflammation of the blood-vessels, especial

care should be taken in determining  
the disease, to which it is best suited.  
Mr Bell says, that the influence  
of mechanical pressure, upon the  
arterial and venous systems, demands  
the greatest attention from those, who  
pursue the practice, especially, as the  
opinions of authors are so vague and  
unsatisfactory. While the Bandage  
exerts such an influence on the  
absorbents, there are conditions of the  
blood-vessels, when it has a manifest  
tendency to excite preternatural action.  
That the absorbents are excited to  
inordinate action, at the same time,  
that the Bandage impedes arterial  
circulation, is a principle ~~or~~ of great  
practical importance, and that partial  
pressure should under any circumstance

become an exciting, cause of arterial action is a fact no less wonderful, than true. Those wounds in which small blood-vessels have been divided should not be dressed until time is afforded for reaction to set in, and in every instance where the dressings are put on, without securing all the vessels by ligature, they should be put on so loosely, as not to controul the divided surfaces, or with a sufficiency of force to command the arterial action of the part. Without this precaution, a tendency to hemorrhage is excited by the dressings, and blood continues to flow, until the stimulus of pressure is removed. Partial pressure would thus destroy

a patient, whose case might otherwise have been innocent. For this reason the Surgeon should always before attempting to apply the bandage, be perfectly sure that he can apply it properly. This confidence in himself can be gained only by practice.

He should therefore practice, either on himself or some friend, and in the presence of some one, who understands how it should be applied. Having learned to apply it properly, let him try it afterwards in his practice, and if it does not come up to what we state in our thesis, then, and not till then, let him throw it aside, as one of those remedies, which like thousands of others have been tried and found of no avail, breathed upon by the pure breath of science, they have perished and decayed.