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Da Costa

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Modern Surgery - Chapter 34. Bandages

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XXXIV. BANDAGES.

A **BANDAGE** is a fibrous material which is rolled up and is then employed to retain dressings, applications, or appliances to a part, to make pressure, or to correct deformity. It may be composed of flannel, of calico, of unbleached muslin, of plain gauze, of gauze infiltrated with plaster-of-Paris or soaked in silicate of sodium, or of gauze wet with corrosive sublimate solution. Unbleached muslin, which is the best material for general use, is washed to remove the sizing, is torn into strips, and the edges are stripped of selvage. One end is folded to the extent of six inches, this is folded upon itself again and again until a firm center is formed, and over this center the bandage is rolled. In a well-rolled bandage the center cannot be pushed out of the roll. A roller bandage is divided into the initial end, which is within the roll, the body or rolled part, and the terminal end, which is free. In applying a bandage the outer surface of the terminal end is first laid upon the part.

A *cylindrical* part of the body may be covered by a *circular* bandage, each turn exactly covering the previous turns. A *conical* part may be covered by a *spiral* bandage, each turn ascending a little higher than the previous turn. As each turn of a spiral bandage is tight at its upper and loose at its lower edge, the *reverse* was devised to correct this inequality; hence a conical part should be covered by a *spiral reversed* bandage. To make a reverse, hold the roller in the right hand, start the bandage obliquely upward (do not have more than six inches of slack), place the thumb across the fresh turn, fold the bandage down without traction, and do not make traction until the turn has been carried well around the limb. A projecting point is covered with *figure-of-eight* turns. The groin, shoulder, breast, or axilla can be covered by figure-of-eight turns, each succeeding turn ascending and covering two-thirds of the previous turn and forming a figure like "the leaves on an ear of corn." Such a figure is called a "spica." In bandaging an extremity the peripheral turns should be tighter than the turns nearer the body. Never apply a tight bandage to the leg or the arm without including the foot or the hand. In firm dressings of the forearm and arm it is well to leave the ends of the fingers exposed, and use them as an index of the condition of the circulation in the part. In firm dressings of the leg and thigh leave the toes exposed.

Spiral Reversed Bandage of the Upper Extremity.—To apply this form of bandage use a roller two and a half inches wide and eight yards long. Take a circular turn about the wrist, and a second turn to hold the first; pass obliquely across the back of the hand to the extremities of the fingers; ascend the hand to the root of the thumb by several spiral turns; cover the wrist by ascending figure-of-eight turns; ascend the forearm by spiral reversed turns; cover the elbow by a figure-of-eight, and the arm by spiral reversed turns; end the bandage by two circular turns, and pin them together (Fig. 515).

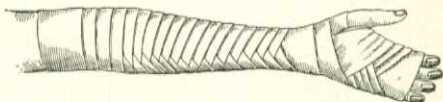


Fig. 515.—Spiral reversed bandage of the upper extremity.

Spiral Bandage of All the Fingers (Gauntlet).—The gauntlet bandage requires a roller one inch wide and three yards long. Take two circular turns around the wrist, pass obliquely across the wrist to the root of the



Fig. 516.—Gauntlet bandage.



Fig. 517.—Demi-gauntlet bandage.

thumb, and descend to its tip by spiral turns; cover in the thumb by ascending spiral turns, and return to the wrist. Cover successively each finger in the same manner, and terminate by two circular turns around the wrist (Fig. 516).

Spiral Bandage of the Palm or Dorsum of the Hand (Demi-gauntlet).—The demi-gauntlet requires a roller one inch wide and three yards long.

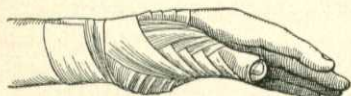


Fig. 518.—Spica of the thumb.

This bandage has only a limited value; it must not be applied tightly, as it makes much pressure at the finger-roots, but leaves the fingers free. If it is desired to cover the palm, supinate the hand; if to cover the dorsum, pronate the hand.

Take two circular turns around the wrist, sweep around the root of the thumb, and return to the point of origin. Treat each finger in the same way. End by circular turns around the wrist (Fig. 517).

Spica of the Thumb.—For this bandage use a roller one inch wide and three yards long. Start at the wrist, and reach the tip of the thumb as in applying a spiral bandage of a finger. Make a series of ascending figure-of-eight turns between thumb and wrist, each ascending turn overlying two-thirds of the previous turn; terminate with a circular of the wrist (Fig. 518).

Selva's Thumb Bandage (Fig. 519).—Lay the terminal end of the bandage on the outer side of the second phalanx of the thumb, near the base of the phalanx. Carry it over the palmar side of the pulp of the last phalanx to the inner side of the second phalanx. The surgeon holds this turn in place with his left thumb and index finger. The roller is returned in a recurrent manner to its place of origin, overlaps the preceding turn, and is placed as much as possible on the dorsum. The roller is carried over the dorsum

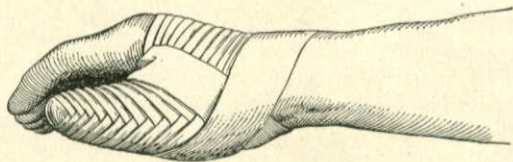


Fig. 519.—Selva's thumb-bandage applied.

of the terminal phalanx and is turned around the tip, the loop crossing over the center of the nail. Figure-of-eight turns are now made over the dorsum of the hand, over the palm, and returning to the terminal phalanx, and an ascending spica is made.*

Spiral Reversed Bandage of the Lower Extremity.—Take a roller two and a half inches wide and seven yards long, and make two circular turns just above the malleoli, and an oblique turn across the dorsum of the foot to the metatarsophalangeal articulation; make a circular turn, and cover the foot with ascending spiral reversed turns; return to the ankle by a figure-of-eight; ascend the leg by spiral reverses; cover the knee by a figure-of-eight, and the thigh by spiral reverses; terminate by two circular turns (Fig. 520).

Bandage of the Foot Covering the Heel (American Bandage of the Foot).—Take a roller two and a half inches wide and seven yards long. The bandage is begun as is a spiral reversed bandage of the lower extremity. After the foot is well covered by ascending spiral reversed turns



Fig. 520.—Spiral reversed bandage of the lower extremity.

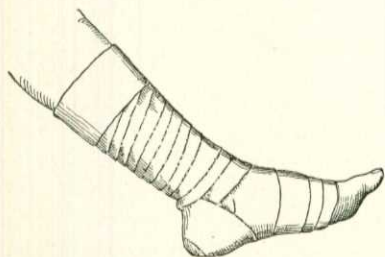


Fig. 521.—Method of covering the heel.

carry the bandage directly around the point of the heel and return to the instep; from this point carry it around the back of the ankle, down the side of the heel, under the heel, up to the instep, around the ankle in the opposite direction, down the opposite side of the heel, and under the heel and up to the instep; take the roller to above the malleoli, and end by a circular turn (Fig. 521).

Bandage of the Foot Not Covering the Heel (French Method).—Take a roller two and a half inches wide and six yards long. Make a spiral reversed bandage of the foot and a figure-of-eight of the ankle-joint (Fig. 522).

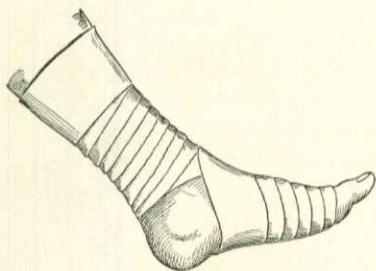


Fig. 522.—Figure-of-eight bandage of the ankle.



Fig. 523.—Spica of the instep.

Spiral Bandage of the Foot Covering the Heel (Ribbail's Bandage; Spica of the Instep).—Take a roller two and a half inches wide and six yards

* Medical News, Sept. 28, 1895.

long. Apply as a spiral reversed bandage of the lower extremity until the metatarsus is well covered. Carry the bandage, parallel with the margin of the foot (the inner or outer margin, according as to whether it is the left foot or the right), around the posterior aspect of the heel, along the opposite margin of the foot to cross the original turn at the median line of the dorsum. Make a number of these ascending turns, each turn covering in three-fourths of the previous turn; terminate by circular turns above the ankle (Fig. 523).

Crossed Bandage of Both Eyes (Figure-of-eight of Both Eyes).—Take a roller two inches wide and six yards long. Make a circular turn around the forehead from right to left, a second turn to hold the first, a turn downward over the left eye, under the left ear, around the back of the neck, and upward under the right ear and over the right eye; repeat these turns, and terminate by a circular turn of the forehead (Fig. 524).

Barton's Bandage (Figure-of-eight of the Jaw and Occiput).—Take a roller two inches wide and five yards long. Place the initial extremity of the bandage behind theinion; pass over the right parietal bone, across the



Fig. 524.—Crossed figure-of-eight bandage of both eyes.



Fig. 525.—Barton's bandage or figure-of-eight of the jaw.

vertex, down the left side in front of the ear, under the chin, up the right side in front of the ear, across the vertex, and across the left parietal bone to the point of origin. A turn is now taken forward along the right side of the jaw to the chin, and backward along the left side of the jaw from the chin to the nape of the neck; repeat these turns, and pin the points of junction (Fig. 525). In Barton's bandage the ear lies in an uncovered triangle. The bandage may be finished by circular turns around the forehead. Barton's bandage is used for fracture of the lower jaw.

Borsch's eye-bandage is convenient and useful (Fig. 526). A narrow bandage is laid along the head and permitted to hang down the face in front of the sound eye. A circular bandage is applied around both eyes and over the narrow bandage (A). The narrow strip is lifted and pinned, and the sound eye is thus uncovered. Of course, the posterior end of A should first be pinned to the circular turn.

Gibson's Bandage.—Take a roller two inches wide and six yards long. Make three vertical turns around the head and the jaw in front of the ear;

reverse the bandage above the level of the ear, and carry it horizontally around the forehead and head three times; drop the bandage to the nape of the neck, and take three turns around the neck and jaw; terminate by taking from the nape of the neck a half turn upward, carrying the bandage forward to the forehead, and pinning it over the neck and over the forehead.

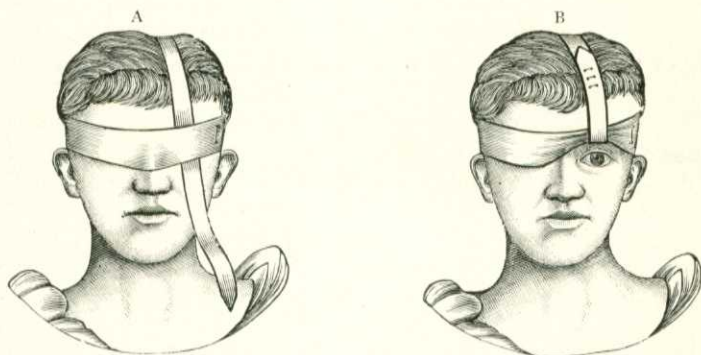


Fig. 526.—Borsch's eye-bandage: A, First step; B, second step.

Pin each point of junction (Fig. 527). Gibson's bandage is used for fracture of the lower jaw.

Crossed Bandage of the Angle of the Jaw (Oblique Bandage of the Jaw).—Take a roller two inches wide and six yards long. Make a circular turn around the forehead toward the affected side, and a second turn to hold the first; take the turn to the back of the neck; carry it forward on the sound side, under the ear and chin; now make a series of turns around the head and jaw, in front of the ear on the injured side, but back of the ear



Fig. 527.—Gibson's bandage.



Fig. 528.—Oblique or crossed bandage of the angle of the jaw.

on the sound side: these turns successively *advance* on the injured side only; terminate by going backward under the ear of the sound side to the nape of the neck, and then by taking two circular turns around the forehead (Fig. 528). This bandage is used for fractures of the ramus of the jaw and for holding dressings upon the face and the cranium.

Spica of the Groin (Figure-of-eight of the Thigh and Pelvis).—For one groin the roller is three inches wide and seven yards long; for both groins, three inches wide and ten yards long. Take two circular turns, from right to left, around the waist, then down over the front of the right groin, around the back of the thigh, up over the front of the right groin, around the waist, down over the front of the left groin, round the back of the thigh, up over the left groin, and around the waist. The map being thus laid out, the

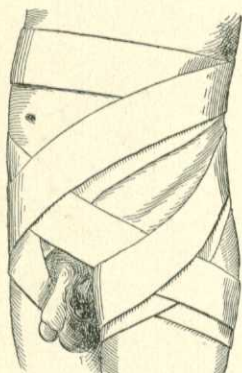


Fig. 529.—Spica of the groin.

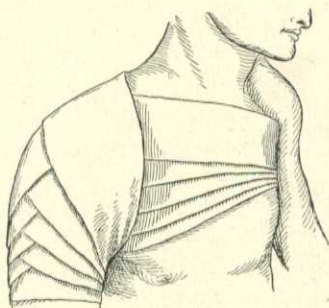


Fig. 530.—Spica of the shoulder.

turns are continued and ascended, each turn overlying one-third of the previous turn, and the bandage is completed by a circular turn around the waist (Fig. 529). Pin the crossed pieces.

Spica of the Shoulder.—Take a roller two and a half inches wide and seven yards long. Make a circular turn and several spiral reversed turns around the upper arm; then, coming from behind forward, carry the bandage over the shoulder, across the front of the chest, through the opposite arm-pit, and return across the back to the shoulder. Make successive and advancing turns (Fig. 530).

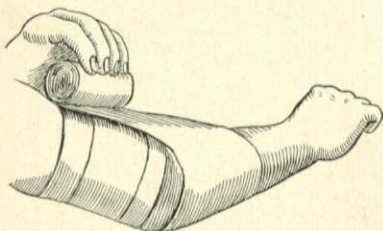


Fig. 531.—Figure-of-eight bandage of the elbow.

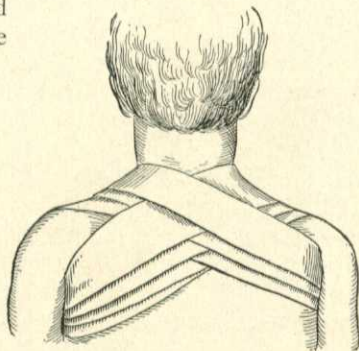


Fig. 532.—Posterior figure-of-eight of both shoulders.

Figure-of-eight bandages of the elbow, both shoulders (posterior figure-of-eight), the neck and axilla are shown in Figs. 531, 532, and 533. A figure-of-eight of the breast is shown in Fig. 538.

Velpeau's Bandage.—Take a roller two and a half inches wide and

ten yards long. Place the palm of the hand of the injured side upon the shoulder of the sound side, interposing cotton between the arm and the side. Start the bandage at the axilla of the sound side posteriorly, carry it across the back to the shoulder of the injured side, down the front of the arm and under the arm just above the elbow, returning to the point of origin; repeat this turn, but, on reaching the axilla the second time, cross the back and pass around the chest, including the arm; keep on with these turns,

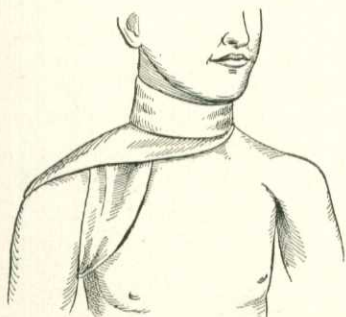


Fig. 533.—Figure-of-eight of neck and axilla.



Fig. 534.—Velpéau's bandage.

each alternate turn going over the injured clavicle, each alternate turn encircling the arm and the body, the first turns advancing and the second turns ascending (Fig. 534). Pin the crossed pieces. This bandage is used for fracture of the clavicle.

Desault's Apparatus.—This apparatus consists of three rollers, a pad, and a sling. Each roller is two and a half inches wide and seven yards long.

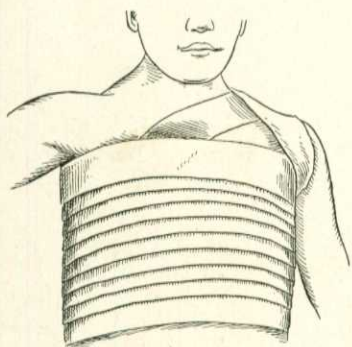


Fig. 535.—Desault's bandage, first roller.



Fig. 536.—Desault's bandage, second roller.

The pad, which is wedge-shaped, is inserted into the axilla with the base up. The *first roller* is used to hold the pad (Fig. 535). The *second roller* binds the arm to the side over the pad. This pad is a fulcrum, the shoulder is the weight, the arm is the lever, and the second roller of Desault corrects the inward deformity of a fractured clavicle (Fig. 536). The *third roller* corrects the downward and forward displacement. It starts in the axilla of the sound side anteriorly, crosses the chest to the shoulder of the injured

side, runs down the back of the arm, around the elbow, and crosses the chest to the point of origin, forming the anterior triangle; it is now carried through the axilla of the sound side to the back, crosses the back to the shoulder of the injured side, runs down the front of the arm, around the elbow, and across the back to the axilla of the sound side, forming the posterior triangle (Fig. 537). The formula for the Desault bandage is: start in the axilla of the sound side anteriorly, run from the axilla to the shoulder, from the shoulder to the elbow, from the elbow to the axilla, and pass to the back; from the axilla to the shoulder, from the shoulder to the elbow, from the elbow to the axilla, and pass to the front. Pin the crossed pieces and hang the hand in a sling (Fig. 537).

Recurrent Bandage of the Head.—Take a roller two inches wide and six yards long. Make two circular turns horizontally around the forehead and head; when the middle of the forehead is reached, catch the bandage, take a half turn, carry the bandage to the occiput, let an assistant catch it, take a half turn, bring the roller forward to the forehead, covering a portion of the preceding turn; continue this process until the scalp is well covered;



Fig. 537.—Desault's bandage, third roller.

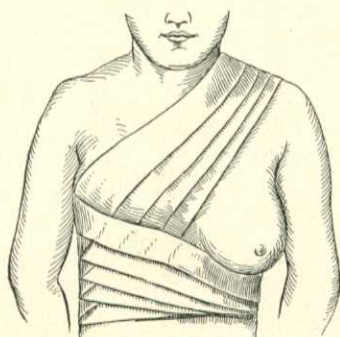


Fig. 538.—Figure-of-eight bandage of the breast.

terminate with two circular turns around the forehead and head (Fig. 539). It is often advisable to take a turn around the head and chin. Pin the crossed pieces.

Recurrent Bandage of a Stump.—Take a roller two inches wide and six yards long. Make two light circular turns around the root of the stump; make recurrent turns covering the stump as is done in covering the head; take a circular turn around the root of the stump, oblique turns to the top of the stump, circular turns around the tip, and apply an ascending spiral reversed bandage (Fig. 540).

T-Bandage of the Perineum.—Pass the transverse part around the body above the iliac crests, and pin it in front; bring one of the tails over the dressing and up between the thigh and the genitals of one side, and the other tail over the dressing and up between the thigh and the genitals of the opposite side; secure these tails to the horizontal band.

Handkerchief Bandages.—Take unbleached muslin one yard square. The muslin folded once makes an *oblong* bandage; bringing its diagonal angles together makes a *triangle* bandage; a *cravat* is formed by folding a

triangle bandage from summit to base; a *cord* is a twisted cravat. The triangle makes an admirable sling.

Fixed Dressings.—Plaster-of-Paris Bandage.—Cover the extremity with a cotton or flannel bandage or with a woolen stocking. Take a gauze roller infiltrated with plaster and place it endwise in a basin of tepid water, the water covering the plaster. When bubbles cease to arise, squeeze the bandage and apply it *without much tension*, smoothing out each turn with a moistened hand. As each bandage is taken from the basin drop a fresh one into the water. Apply four thicknesses of bandage, and finish the dressing by sprinkling dry plaster over the bandage and smoothing it with wet hands. The ordinary plaster will set in from fifteen to thirty minutes. If it is desired to have it set more rapidly, put a tablespoonful of salt in each pint of water used; if to have it set more slowly, pour stale beer into the water. The plaster bandage is removed by sawing it down the front or by moistening with dilute hydrochloric acid and then cutting through the moistened line with a strong knife. Gigli has devised a mode of application which



Fig. 539.—Recurrent bandage of the head.

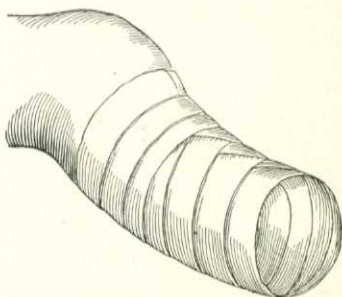


Fig. 540.—Recurrent bandage of a stump.

enables us to remove the dressing with ease. A layer of cotton is placed around the limb. A piece of parchment paper which has been wet and shaken out is placed over the cotton. A cord greased with vaselin is laid upon the paper in a position corresponding to the line we will wish to saw through the plaster. Apply the plaster bandage and see that the ends of the cord project beyond the bandage. When desiring to remove the bandage take a steel wire, make nicks on one side of it by means of a file, and attach the string to the wire. Pull the wire under the bandage. Attach each end of the wire to a wooden handle and saw through the plaster.*

Silicate of Sodium Dressing.—Protect the part as is done for a plaster bandage. Bandage the limb *loosely* with an ordinary gauze bandage, paint this bandage with silicate of sodium, apply another bandage and paint it, and so on until six layers are applied. Gauze bandages are better than ordinary bandages to take up silicate of sodium. Silicate dressings require from twelve to eighteen hours to dry, and they are removed by softening with warm water and then cutting.

* La Semaine Méd., Nov. 3, 1895.