

THE SPLINTING, BANDAGING AND CARE OF INJURED AND PARALYSED LIMBS

BY HESTER S. ANGOVE,

Sister-in-Charge, Massage Department, Guy's Hospital
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[T is essential to realise, in the application of a splint, what its function is, how it should be applied, and how the limb can be kept in the best possible condition during its period of inactivity. Much damage to the joints and soft structures could be avoided if nurses knew a little more how to adapt the splint to the condition under treatment, and how to care for the limb for which a splint is necessary.

The function of a splint in inflamed joints is to rest the limb; in the early stages of paralysis, to rest and shorten the paralysed muscles, and in the later stages, as the nerve begins to recover, to prevent deformity.

Many patients come to a masseuse for treatment suffering not only from deformity as the result of the injury or disease, but from a deformity produced by the splint. This, with a little more care and knowledge on the part of the nurse, could be prevented.

APPLICATION OF THE SPLINT

A splint must fit the contour of the limb; it must bend at the joint. The normal position of the joint is a bent one, and the padding must follow the same rule. The best example of this is the application of a cock-up splint, used in a case where the musculo-spiral nerve has been injured and drop wrist is to be prevented. Notice the hand at rest, *i.e.*, slight hyper-extension at the wrist joint, semi-flexion at the metacarpal, phalangeal and inter-phalangeal joints, the thumb opposed to the hand, the palm of the hand concave. To obtain this a splint to fit the forearm and hand must be extended at the wrist, curved with a slight convexity to fit the finger joints, and cut out or bent forward to fit the thumb. In its application to the part it must fit, and not be allowed to slip. This type of splint is best covered by felt, which should be kept clean and dry.

Three fixing straps should be used, made of webbing, with a piece of felt the width of the webbing sewn to the part which passes over the bare limb. The two straps should pass over the back of the metacarpal bones and between the thumb and fingers, and be fastened on the hand piece in front. This leaves the fingers and thumb free to move as recovery returns. If swelling occurs, place the strap slightly obliquely. If the hand is inclined to be cold, cover with a thin woollen stocking. In applying a

short cock-up, see that the piece fitting the hand does not touch the fingers when they are at right angles to the hand.

The most difficult condition a masseuse has to treat in a recovering nerve is the hyper-extension of the joints due to careless splinting, the stiffness of all the joints due to delay in passive movements before the limb is ready for massage, and the trophic condition of the skin due to too much wrapping up in cotton wool and insufficient washing, so preventing proper respiration of the skin.

CARE OF THE LIMB WHILE INACTIVE

In this type of case, splints should be removed night and morning. The limb should be washed well in warm soap and water, thoroughly dried and rubbed. If the skin is very dry, a little oil may be used; if damp, spirit is used. Each joint should be moved passively through its full range, and report should be made if there is any sign of stiffness. Stiffness is one indication for the commencement of early massage. The limb during this treatment must be kept in such a position that there is no stretching of the injured nerve or the paralysed muscle. The splint should be put to air and dry while the limb is being treated.

In infantile paralysis the function of the splint is to keep the limb at rest and maintain a normal balance as far as possible between all the muscles. The limb is kept in the anti-gravity position, *i.e.*, in a paralysis of the arm, the shoulder is abducted and rotated out, the forearm is at right angles to the upper arm, the hand in the position of rest. In the acute stage a soft pillow is sufficient to maintain the position.

Several times during the day the limb should be gently moved; putting all joints through their full range. Later a light controlling splint is used. The above rule as to the splint fitting the limb is carried out. The fixing strap should be only firm enough to prevent the limb from slipping. The muscles which waste rapidly should have no weight of any kind on them, hence much wool and bandage is contra-indicated. The warmth of the limb, which is very important, can be maintained by the use of a long woollen stocking put on next to the skin; a second one is used to cover the limb when splinted. Here, again, excessive wrapping up often increases the trophic condition of the skin. Washing is very important, and the use of oil tends to prevent atrophy and loss of heat. The pain is often exaggerated by allowing the joints to remain too long in one position.

In paralysis due to an upper motor neuron the splinting and the care of the limb is much more difficult. Owing to the spastic condition of the muscles, the splinting is mainly to overcome the spasm in certain groups

of muscles, and so prevent adaptive shortening and deformity. Any pressure from the splints or fixing straps may produce pressure sores which are difficult to heal; therefore great care is necessary in their application. The splint must fit, and the controlling or fixing strap must exert an even pressure. The strap to fix the limb must be broad and a cushion pad be inserted between it and the limb.

Care of the limb.—Night and morning washing is important. Much soap helps to keep the skin soft; rubbing maintains the circulation of the limb. Special care must be exercised on all bony points. Signs of undue redness necessitate alteration in the position of the straps or the readjustment of the splint.

SPLINTING AND CARE OF INJURED LIMBS

In these cases the function of the splint is usually to keep the limb at rest during the painful period. It must fit the contour of the part; it must protect the limb against deformity. Take, for example, the application of a back-splint with a foot-piece. The padding must allow room for the calf muscles to rest and not be pressed out of shape. The under part of the knee must be padded to prevent hyper-extension and so stretching of the posterior part of the joint capsule. The ankle must be supported, leaving the heel free. The foot-piece must extend well beyond the end of the big toe, and so prevent a flexion deformity of the big toe.

To bandage the splint in position use separate pieces of bandage. Make the cross-over of the bandage on the limb, thus preventing venous congestion. To apply, fix over dorsum of foot, round ankle, above and below knee. To keep all in position, use a many-tail. A thin layer of cotton wool only should be used.

To keep the limb clean.—If the limb may be moved, it is better to take it off the splint daily and wash it, in the same way as the other limbs. If it may not be moved, take each piece of bandage off separately. Insert some oil silk between the limb and the splint, replace the bandage as each part is completed. All injured limbs recover more quickly if the skin is kept absolutely clean. As fractures are usually ordered massage from the date of injury, surely nurses can handle the limb carefully enough to wash it, and yet the limb often comes to the masseuse in a state absolutely unfit to be touched.

Apple and pear pudding.—When making apple pudding, use two-thirds of apples and mix them with one-third of good pears. This plan is a good improvement on apples alone.