

POST-OPERATIVE CARE OF THE STUMP:

1. Control pain--morphine sulphate gr. 1/6 to 1/4. *above*
2. Elevate stump on pillows and under cradle (lessens edema and oozing.)
3. Watch temperature, pulse, and the stump for bleeding.
4. Leave dressing alone for 6--10 days unless rise in temperature.
5. No drain (leave wound open if suspect an infection).
6. Snug bandage (elastic) protects end of stump with firm *even* pressure ~~throughout~~ which will control edema, oozing, close dead spaces and begins the preparation of the stump for a prosthesis.
7. If one suspects tension on the wound it is advisable to apply skin traction such as Buck's extension. Protect suture line with adhesive or collodion bridges if necessary. In guillotine amputation ~~one~~ ~~always~~ applies skin traction immediately in order to prevent retraction of the tissues from the bone.
8. Stumps below the knee are better kept in extension on a *well-padded* board splint or cast to prevent flexion contracture. ~~until stump is healed.~~
9. In thigh amputations after pain has subsided the pillows elevating the stump are removed for a time at frequent intervals daily and placed under the buttock allowing the stump to drop in hyperextension thus avoiding a flexion deformity in the hip.
10. Forearm stumps are carried in a sling after 2-3 days post-operatively. Then it is removed at short intervals to allow the elbow to be extended.
11. Arm stumps are kept in abduction to prevent adduction deformity.
12. After one week if no pain is present the joints of the arm and leg are put through complete range of motion (passive or active) provided that the condition of the wound and patient permits. (Physio-therapy may be useful.)
13. Application of plaster of Paris cast to stump is very useful. It serves to rest the stump by immobilization, it is comfortable and protective. It lessens phantom pains and prevents flexion deformity of joints proximal to point of amputation. It encourages shrinkage of the stump, aids in transportation. Immediate encasement and early removal aids in shrinkage and free joint movement.

PREPARATION OF STUMP FOR PROSTHESIS:

- a. General: Early functional use of the stump is essential in order that one may:
 1. Secure a painless stump free of bony exostosis, edema, tenderness or tender points.
 2. Strengthen and develop musculature necessary for its use.
 3. To mobilize its joints.
 4. To make the amputee ambulatory without the use of crutches and return him to society as early as possible.

The average case of amputation with primary union can be fitted in 5-6 weeks. The earlier he is fitted the better the end result.
- b. Procedure for the care of the stump:
 1. Massage: 10-20 daily treatments. This reduces the edema, begins shrinkage of the subcutaneous fat, by increasing the circulation and aiding the muscle tone. Alcohol is used to toughen the skin.

2. Bandaging: Elastic bandage ~~is used which~~ is applied to include ^{first} the end of the stump and then applying upward. This lessens the formation of edema and aids in its absorption of the p.o. edema. It shrinks the stump. This is worn all the time until the prosthesis is applied.
 3. Pressure exercises: Early pressure on the end of the bone lessens the spur formation especially when weight bearing is desired. On the 12-14 day post-operative the end of the stump must be prepared by pounding it with the palm of the hand every four hours. (Not hard enough to cause pain.) This will toughen the stump and also gain the patient's confidence. Then weight bearing is started on a soft pillow and then on a hard surface.
 4. Motion: Muscle power in the stump should be as strong as that in the good limb. Muscles and joints must be mobilized by massage and exercises.
 5. Baths: Heat--either moist or dry.
- c. Ideal stump: The ideal functioning stump from the prosthetic standpoint is one with:
1. Maximum possible length.
 2. Bone end covered with skin which is movable, snug, without a crease, redundancy or sinuses.
 3. Muscle and fascia over the end of the bone is a thin band of scar tissue which is adherent.
 4. X-ray shows bone end rounded with no disease, spur or proliferation.
 5. No pain, neuroma, or tenderness.
 6. Free range of motion.
 7. No edema, redness, or callous.
 8. Symmetrical

COMPLICATIONS:

A. Immediate

1. Operative shock is treated as described under section on shock.
2. Hemorrhage following poor technique or secondary to infection.
3. Infection: Identification of organism is necessary. Delayed tetanus may occur especially in reamputation procedures thus it is advisable to give prophylactic tetanus therapy in cases where trauma had been a initiating factor for amputation. Diphtheria bacillus infection occurs occasionally.

B. Late

1. Tender stumps:

- a. Infection, furunculosis: Relieve pressure of prosthesis and treat by heat etc. Eczema: Treat by improving hygiene or by surgical excision.
- b. Ulceration in scar may be due to infection, trauma, poor circulation, trophic, underlying bone infection. Remove cause in the treatment.
- c. Neuromas may need resection or injection with alcohol.
- d. Poor circulation--edematous stump, cold, blue, poor fitting artificial limb are often found. Reamputation may be necessary.
- e. Sensitive scar may have to be resected or a plastic may be necessary.
- f. Bone spurs often result from shredded periosteum, infection or poor technique in sawing of bone.

- g. Osteomyelitis which includes periostitis, osteitis are treated according to principles of treatment of infection in any bone: adequate drainage, rest and supportive measures.
 - h. Neuritis may be relieved by removing the cause which is usually infection.
2. Contractures result from improper post-operative care of the stump. The best treatment is prevention by early physiotherapy, massage, active and passive exercise. After contractures have set in then any form of treatment may be unsuccessful even when operation is attempted, because all tissues around the joint including the capsule are involved. Contractures cause a difficulty in proper fitting of a prosthesis for weight bearing. The shorter the stump the more likelihood of a contracture. Reamputation may be the only relief for the condition. Plaster casts to stump may avoid this complication.
 3. Scars may be improperly placed or of poor texture that may be painful, ulcerate or be adherent. Often it may be necessary to revise the scar to remove pressure points, or repair by some plastic procedure to improve their texture.
 4. Jerking stumps are seen in nervous individuals and often in cases that have tender nerve endings. Excision of these nerve endings may relieve the condition. Phantom limb may be very annoying and psychotherapy is often very useful but not always the underlying cause.

REHABILITATION OF THE AMPUTE:

It is of extreme importance that the patient with an amputated extremity be treated mentally as well as physically. They are conscious of their disability and must be aided in their readjustment to society. They must be encouraged and accepted as individuals who will be able to return to society in spite of their handicap and perform wage-earning work. Often it is wise to encourage a recent amputee, who may be discouraged, by introducing him to another amputee who is adjusted. This often corrects their depression and a new outlook on the future may be attained.