

## Skin Grafting

The use of skin grafts has been relegated too long to the special field of plastic surgery and has been looked upon as a highly technical procedure, the indications for which have been restricted to the unusual case. Skin grafting is simply a procedure and is not a field of surgery in itself any more than dissection or ligation or the application of dressings is a specialty. Skin grafts are more often used in some branches of surgery than in others but there is no field in which it does not at some time come into consideration. The indication for the use of skin is to correct surface defects, and whether these defects are made by trauma disease of the surgeon, whether they are made to correct deformities or fill up defects, whether the defect would eventually heal without use of a skin graft, still does not alter the indication.

For purposes of discussion the indications for the use of grafts may be broken down into a number of sub-categories.

### A. Treatment of defects produced by injury.

Raw surfaces which cannot be closed by suture of the skin should be covered with a graft provided the conditions for primary closure obtain. This is usually a very simple procedure and slightly more complicated than application of a dressing. Even small defects heal more rapidly with less danger of infection and contracture, and certainly large defects heal much more quickly and with less danger of infection if so covered. A wound is thus changed from an open to a closed one and primary healing may be attained without the otherwise attendant dangers of infection, and contracture. And at great saving of time and expense and eventual functional loss.

The type of graft used depends upon the base made by the injury.

Soft tissues, subcutaneous, fat, muscle.

Graft of intermediate thickness.

Bones joints tendons, nerves, great vessels.

Pedunculated flap, pocket graft.

### B. Treatment of granulating areas.

e.g. abrasions, burns, following skin slough, ulcers following carbuncle, varicose ulcer, etc.

Intermediate thickness graft indicated in almost all cases.

In rare case the expert and more often the neophyte will have to resort to the pinch or small deep graft. (Free fullthickness and pedunculated flaps are not used in these cases because of the danger of infection from the granulating surface.)

C. Freshly dissected areas. Here the type of graft will depend upon the base of the defect, the area to be covered, and the condition for which the dissection has been made.

#### 1. Base of defect.

A. Soft tissues- here a graft of intermediate thickness is most generally useful since any size may be gotten, the graft has fair to good cosmetic appearance and if made thick enough will withstand friction quite well. But in certain conditions



a free full thickness graft is advisable. In other cases pinch grafts will be needed while in others a pedunculated flap is indicated. ( See below)

B. Base is bone, tendons, nerves, joints, in which cases a pedunculated flap is required since free grafts either cannot be made to attach to such surfaces or if they do attach they are unsatisfactory either because of adhesions, inability to withstand friction.

## 2. Area to be covered.

A. Area is exposed to view and cosmetic appearance is of importance. Such areas as the face and hands often require a free full thickness graft. They are the best appearing of all grafts, but are difficult to use and care for. In any cases the intermediate thickness graft will do almost if not just as well.

B. Area to be covered is exposed to friction, e.g. palms of hands and soles of feet. Here the free full thickness graft is very excellent, it can be made to cover very large defects and will withstand friction. It requires very careful handling, must be raised with extreme care, and applied with greatest accuracy. Here also the intermediate thickness graft is often a good substitute providing it is cut evenly and at about the thickness of the free full ~~th~~ thickness graft. The pedunculated flap will stand friction and can be made a certain take but it is difficult to obtain one of the required thickness.

C. The area will be exposed to weight bearing. In these cases a pedunculated flap is the only one which can be considered at all. Even with this graft direct weight bearing is seldom possible for such areas as the heel and measures should be taken to relieve the flap of as much direct pressure bearing as possible otherwise even the flap will break down.

## 3. Condition for which the excision has been made.

A. Removal of scar to relieve contracture. Here the ~~type~~ type of graft will depend on the surface to be covered q.v. above.

B. Raw surface the result of defect which requires filling up of a cavity as well as closure of a defect in the skin. Here a pedunculated flap will be ~~required~~ required since fat must be transplanted.

C. To prepare a bed for nerve, tendon or bone repair. This situation arises when the site of proposed repair lies in dense scar and the overlying skin is contracted scar. In these cases

a pedunculated flap must be used. It should be transferred some time before the proposed deeper repair so that it is well healed and without reaction.

D. Defect left by the removal of tumors. Here a free or pedunculated flap is needed, depending upon the base of the defect and other conditions noted above.



### Type of skin grafts.

General principles of the use of grafts (Koch).

A. The fate of the graft (excluding the flap) depends on the development of an adequate blood supply from the base tissues upon which it rests. The thinner the graft the more certain we are of its surviving. The better the base the more certain we are of its surviving.

B. The thinner the graft { the less adequate it covers.  
                                   { the more easily it breaks down.  
                                   { the more certain it is to contract.

C. The thicker the graft can be made the more satisfactory will be the result. Thin grafts may be used as a temporary measure to be replaced by thicker grafts or a flap when the condition has healed under the thinner temporary one.

D. Certain structures (tendons, nerves, blood vessels, bones and joints) require fat covering and in themselves form so poor a base that free grafts will not take.

E. Infection of a surface precludes the use of free full thickness grafts and of pedunculated flaps, but a graft of intermediate thickness may be used.

F. Firm even resilient pressure to keep the entire graft smoothly pressed against the base is an absolute necessity. Serum, and blood must not be allowed to accumulate and separate the graft from its source of nutrition. The flap must also be firmly supported for several weeks after transference to prevent venous congestion which is its greatest enemy. The pressure must be carefully applied, even and constant. ~~Not~~ Nothing will destroy a graft or flap so quickly in its early days as to fail to keep up the pressure.

G. Exuberant granulations should be reduced by firm pressure during the preparatory stages and at time of operation they should be shaved off down the firm greyish-yellow fibrous tissue base.

### Types of skin grafts.

#### FREE GRAFTS

Thin grafts  
 Intermediate thickness grafts  
 Full thickness grafts  
 Pinch or small deep grafts.

#### Pedunculated flaps

Simple flaps  
 Tubed flaps  
 Pocket flaps.



The free grafts (except for the pinch grafts) are designated by the thickness of the transplantation. Certain types of apparatus measure the thickness of the excised skin but this is only a relative matter, since the thickness of the skin varies from part to part and from individual to individual - a full thickness graft in a child may not be any thicker than a graft of intermediate thickness in an adult.

The thin graft is supposed to comprise the epidermis only.

The graft of intermediate thickness comprises the entire epidermis and about  $\frac{1}{2}$  of the thickness of the underlying corium.

The free full thickness graft comprises the epidermis and the entire thickness of the corium, stopping short at the lower border so as to avoid the removal of any subcutaneous fat.

The pinch graft or small deep graft ) is a conical piece of skin comprising at its center the whole thickness of the skin, rapidly thinning out to the very thin layer of epidermis at the borders.

thin

The ~~thin~~ graft and the intermediate thickness graft are excised in the same manner with a sharp knife or razor (Razor, special skin graft knife, or any long sharp knife) or with a special instrument known as the dermatome. The dermatome is not a magical instrument, it simply facilitates the removal of the skin. These grafts may be removed in any size from that of a postage stamp or less up to 15" long and 4" or more wide. Tiny grafts may be taken from any surface while the large grafts are best taken from the thighs. With the dermatome large grafts may be removed from any surface, even the chest wall.

Technic of removal of free grafts- free hand.

The skin of the donor area is washed with soap and water, rinsed and draped. The donor site is held taut and the graft shaved off with knife or razor. It is essential to keep the skin taut and stretched so that no wrinkles appear, so that the donor surface is kept flat and so that the skin at the edge of the field does not roll up and catch against the knife blade. If these faults occur the knife will cut unequally and may jump off the surface or may cut too deeply and necessitate starting all over again in a fresh area. Another essential is a sharp knife- it is useless to try to remove grafts with a dull knife.

For small grafts the surgeon may often remove them unassisted. The skin may be held taut by pressing down and pulling up with the ulnar border of the hand and the little grafts may be shaved off with a sharp dissecting blade.

For large grafts the whole donor site must be flattened and immobilized and to assist in this various contrivances are used. Flat blocks of wood 6 or 8" long, 1 $\frac{1}{2}$ " wide and  $\frac{1}{2}$ -12" thick; flat instrument trays, and rolling pins have been found helpful to flatten out and to hold the skin tight while the surgeon removes the graft. These contrivances are used in pairs -one above and one below the donor site/pressed down firmly and pulled away from each other. An assistant or two is necessary, one assistant holds ~~the upper block~~ upper block while the surgeon works the lower one with the left hand and pulls the knife ~~against it with the right hand~~ toward it with the right hand.

The Blair-Brown suction boxes are very useful to hold the skin tight and flat. These are flat rectangular metal boxes, (in various sizes)



one side of which is open. From the side of the box opposite the open side is attached a tube leading to a suction motor so that when the open side is placed on the skin and the suction turned on the box is held to the skin by a partial vacuum. These boxes are used in the same manner as are the blocks etc. noted above, i.e. one above and one below the donor site for traction.

The free hand cutting of grafts requires skill and practice, but is easily mastered and the surgeon can attain enough proficiency with this method to cut grafts of any desired size. The flat of the blade should be kept against the skin and the desired thickness of the graft obtained by pressing downwards with the whole ~~flat~~ flat of the blade and not by tilting the blade into the skin. The operator should have a slight elevation of the skin ahead of the blade into which he cuts.

When cutting with the dermatome the tautness of the skin and the slight elevation of the skin ahead of the knife blade are taken care of mechanically by the apparatus.

Judgement comes into play in obtaining the correct thickness of graft when cutting free hand. While with the machine the desired thickness may be gotten by setting the machine, this is not an unmixed blessing since this is simply a measured thickness and the thickness is in reality a relative affair, i.e. depends on the thickness of the skin at the actual site from which the graft is being taken. The surgeon removing grafts free hand must keep watching the donor area to see just what he is getting and may vary the thickness at will when or if the graft seems too thin or too thick. The surgeon cutting with the machine sets it for a certain thickness, glues it to the surface and cuts ahead. He cannot see the surface from which he is cutting and he is committed to the set thickness.

The thin graft is almost transparent, it rolls and folds over the knife edge like wet tissue paper. The thicker intermediate thickness graft is translucent or opaque, rolls rather than folds and is more easily handled, does not tend to tear or fold up limply as does the thin graft. It is possible to get the grafts too thick and uncover the subcutaneous tissues. The surface left by the removal of the grafts should be gray and punctate with tiny pinish bleeding points rather evenly distributed over the surface.

Placing the grafts on the recipient area.

Grafts may be transferred directly from the knife blade to the site, or if a number of sheets of skin are needed they may be placed on dressings moistened with physiologic saline and all put on the area at once. ~~McPheeters has taken a number of free grafts and patched them together as a quilt and then placed on the recipient site.~~ The grafts are placed raw surface down on the site in such a way that the edges of the graft overlap the edges of the defect and lie on normal skin. The grafted skin is held in position, slightly stretched by means of basting stitches of silk or horsehair. If the graft is very large it may be fastened to the base of the defect by long running basting stitches across it. It is often well to puncture the graft in a number of places with a sharp pointed knife to permit the escape of serum.



### Dressing of the graft.

This is a most important step in the procedure. The fate of the ~~the~~ graft depends upon the care with which the graft has been dressed and the care given it later.

1. Lay one or more thicknesses of vaseline gauze cut to the shape of the defect ~~are laid~~ on the graft and pressed down firmly so that the graft is firmly applied to the surface without any air bubbles or serum or blood accumulations beneath it.

2. Then with saline moistened flat gauze dressings mold ~~the~~ a snug cap over the graft and the surrounding area.

3. Then over this lay a huge dressing of fluffed gauze to cover a wide area about the site and if a limb about the limb.

4. Over this place a voluminous dressing of cotton waste or if this is not available use sea sponges.

5. Bandage this whole ~~one~~ firmly with stockinet or elastic bandage or muslin.

- a. It is often advantageous to strap the under dressings down firmly ~~with tape~~ before applying the outer dressings ~~and bandage, to keep them from slipping.~~

- b. If the graft has been applied to an extremity it is well to apply the splint, very well padded, before the dressing is applied. The splint should be sterilized in this case.

### After care.

Unless some indication arises the graft ~~must~~ should not be dressed for from 5 to 8 days. In some instances it may be left for as long as 14 days. The first dressing must be done very carefully lest the graft be pulled off the surface. The sutures are removed, excess skin at the edges should be cut away and if any serous accumulation has taken place the overlying graft should be punctured to allow its removal. If it is possible to perform the dressing without removing the splint at the first dressing it is often better and less disturbing.

Subsequent dressings are done every day, or every second or third day as conditions of the graft indicate.

If the graft has taken entirely it is dressed as following operation with vaseline gauze, and pressure. Then it need not be disturbed for 2 days. Pressure dressings are maintained for about fourteen days with the intermediate thickness graft. Then simple protective dressings are used for 2 or 3 weeks and after removal the patient cautioned about the effects of sun, heat and trauma. The splint may be removed ~~when~~ when pressure dressings are discontinued unless there is some other reason for continuing it.

If there has been some disturbance in the graft, some loss or if there is some infection, or if the entire area has not been covered ~~the~~ the wound is dressed every day at first. The inner dressings are best kept moist with saline solution and it is usually best not to put vaseline gauze back over the area if infection is present. The gauze which is placed against the surface should be fine meshed, as noted in chapter of dressings. Pressure dressings are kept up until the part has healed. Areas where the graft has not taken may be hurried along by regrafting.



## Dressing of the donor area.

Cover the donor area with a layer of fine meshed vaseline gauze then with several thicknesses of flat gauze and over this a few strips of tape to keep the under dressings from slipping. Then apply a voluminous pressure dressing. Leave this dressing alone for at least 14 days, longer if the graft was quite thick. On removal the donor site should be healed. If not reapply pressure dressings, change as often as conditions seem to indicate and keep up until healed.

Where the area to be grafted has great deal of secretion.

It sometimes happens that intermediate thickness grafts are applied to areas that are not entirely clean but have no serious infection. Here with proper care it is possible to obtain a take. The graft is applied and dressed as outlined above, except that there are incorporated in the fluffed gauze one or several Garrell tubes or fine catheters. the ends of these catheters or tubes are left projecting out of the dressings and covered with sterile gauze patches. Into these tubes are injected 5-10 cc. of ~~sterile~~ ~~physiologic~~ ~~saline~~ ~~solution~~ every 3-4 hours. The purpose of this is to keep the dressings just moist (Not wet) so as to encourage drainage from the raw surface. Such a wound is dressed early, in 3 or 4 days or even on the 3rd day, and usually each day thereafter. the tubes however are usually not reinserted after the first dressing.

## Pinch grafts.

These grafts are very seldom needed. They make a poor cosmetic appearance and the raw area is much more slowly covered and the donor site is unfit for any subsequent grafting. these objections do not hold for the intermediate thickness grafts which are much preferable to the pinch grafts.

There is an occasional spot where pinch grafts are valuable. e.g. to cover the raw surfaces left after the cutaneous gangrene of streptococcal ~~of~~ origin? (Meleney) have been brought under control. At times when other grafts have failed on one or two occasions the pinch graft may be used, and for the neophyte the pinch graft is a sheet anchor.

The grafts may be removed from any surface. Long sharp pointed ~~sterile~~ cambric needles are grasped in the jaws of strong artery forceps, to act as pick-ups. In removing the graft the needle point is pushed into the skin so as to pull up a tiny cone shaped bit. . . The hand is held parallel to the skin surface, and it is important not to dig the needle point deeply into the skin. Then with a sharp knife or razor blade, and working with this blade also parallel to the skin surface the cone of skin is amputated. The graft is then immediately transferred on the ~~needle~~ to the area to be grafted. The needle must be passed through a flame before being used again to raise a graft since it has come into contact with the raw area. Hence a number of the needles must be ~~prepared~~ prepared so as to expedite the procedure. Since 50 to 100 or more of these "pinches" are removed at one time the operation takes some time to perform and close teamwork is necessary.



## Free full-thickness grafts

The free full thickness is more infrequently used than the intermediate thickness graft, which has come to replace it in many situations in which the full thickness graft was used in the past. These two grafts are somewhat similar, in that both include corium, the full thickness of the corium in the full thickness graft and about  $\frac{1}{2}$  or  $\frac{3}{4}$  the in the intermediate graft.

The full thickness graft cannot be applied to a granulating surface. It can seldom be applied to a fresh wound, and then only when the wound is unquestionably "clean". Its especial field is in covering surfaces where a good cosmetic result is needed, or where a friction bearing surface is concerned. Thus it is most often used on the hand and face. Even in these places a well raised intermediate graft will often form a good substitute.

The full thickness graft is primarily for the expert. To raise the graft is in itself a delicate and tedious procedure, and its after care demands much. It is raised by a process of sharp dissection from a suitable surface—usually the inner side of the thigh, from a hairless region. The exact area to be removed is accurately mapped out on the skin by placing a pattern of the defect on the surface and tracing around the pattern with a sharp pointed knife. The pattern, made of crinoline or lead foil, is made over the actual defect to the actual size of the defect. It is important that the donor area be not stretched while the pattern is being traced since if it is the graft will be too small, and since the graft when removed contracts down because of its elastic fiber content and it is always therefore only about  $\frac{1}{2}$  the size of the defect in this contracted condition and on being sutured into position is apparently stretched, the surgeon cannot judge accurately as to its size once the graft has been taken.

The scratch line outlining the graft having been made the surgeon with a very sharp knife cuts into the skin along this line down to the required depth, i.e. just through the corium. Then slanting the knife blade almost parallel to the skin surface he undermines the edges of the graft at the desired depth along its borders. Often by careful cutting  $\frac{1}{2}$  inch or more of the borders of the graft may be raised in this fashion. After raising the borders the surgeon proceeds to raise the rest of the graft by dissection at the lower border of the ~~skin~~ corium. The donor surface left after removal of the graft should be evenly punctated and gray, the subcutaneous fat should not be exposed.

Essential for the removal of these grafts are plenty of sharp knife blades, frequently changes needed, fine sharp toothed forceps, and good assistants. The surface must be held taut and flat during the removal and there must be no relaxation otherwise the surgeon will cut too deep or too shallow. The graft itself must be held on the stretch so that the surgeon can see the line between the raised skin and the underlying corium.

The graft thus raised is laid over the recipient site, fitting the various irregularities accurately. Certain landmarks should be determined beforehand otherwise the graft cannot be adjusted. Corners or turns in the site should be used. The graft is first tacked down with fine horse hair at these landmark sites and then sutured



accurately and evenly all around. The surgeon may use interrupted ~~or~~ sutures or he may combine running sutures with interrupted ones. If running sutures are used the surgeon must be careful not to pull them too tight or a purse ~~string~~ string deformity will occur. After the ~~it~~ graft has been sutured into position it is punctured in a number of ~~s~~ spots with a sharp pointed knife so as to allow drainage of serum. It is often wise to do the puncturing before the graft has been entirely sutured down so that the puncturing knife does not injure any underlying structures.

The graft is dressed as other free grafts i.e. with a few layers of vaseline gauze cut to the exact measurements of the graft, moist flat gauze ~~over~~ over this and then a voluminous pressure dressing. It is not dressed for 9 or 10 days, at which time about one-half of the sutures are removed. It is then dressed every 2 or 3 days thereafter. The surface if dry is dressed with vaseline gauze, if moist with ~~mo~~ moist saline gauze. Pressure is kept up for at least three weeks or longer if there are some raw spots.

### Pedunculated flaps.

These flaps may be { Simple flaps with one or two pedicles  
                          { Tubed flaps  
                          { Pocket flaps

It is often necessary to use both skin and subcutaneous fat for covering e.g. to cover tendons, nerves, large blood vessels bones and joints. There is no way to transfer fat ~~except~~ and its covering skin except through a pedicle flap. Such flaps bring with them some of their ~~in~~ original blood supply and remain attached to it until such a time as they develop an adequate supply from the donor site.

Flaps may be used in two situations :

- A. Fresh wounds which are received early enough to warrant primary closure, which cannot be closed by suture or by free grafts. With exposed tendons, nerves, bones and joints.
- B. Freshly dissected surfaces e.g. removal of dense contracting scars, separation of thumb from side of hand, excision of scars of neck, face chin, restoration of nose, lips, etc.

Flaps may not be put down on granulating surfaces, because of the danger of infection.

Simple flaps may have one or two pedicles depending upon size and apparent adequacy of blood supply.

Immediate transferred flaps are raised and sutured into the defect at once,

Delayed transfer flaps are prepared in advance of transfer in several stages - being raised partially from its location and sutured back into position, raised further at the next stage, and so on. In this way very large flaps may be secured - much larger than if immediate transfer were done. The circulation in the flap is developed - the flap is "trained" so to speak, to subsist on the blood supply from its pedicle.

### Technic of raising flap:

1. Estimate size and make pattern of flap required and choose appropriate donor site. This site must be such that the flap may be



brought into the defect by swinging about its pedicle- ( chest to face) or the recipient must be brought to the donor site - (hand to abdomen, heel to opposite leg etc. )

2. Place pattern on donor area and arrange pedicle in such a way that main blood supply is not compromised, that it need not be too greatly twisted when transferred or that if the part is to be brought down to the flap ( e.g. heel to opposite leg ) the two parts are in a comfortable position.

3. Mark flap out on skin and then proceed to raise it from its bed except at the pedicle.

4. If flap is to be delayed raise only part of it- e.g. two borders only and undermine partially only. If flap is very large it may not be advisable to raise a whole side at the first stage, but to gradually lengthen the flap in succeeding stages.

5. In preliminary stages of delayed flaps , after control of bleeding ( must be good hemostasis) lay flap back on its bed and suture accurately back into place.

6. With immediate transfer flap, or at transfer stage of delayed transfer flap it is usually wise to raise the flap before creating the defect which it is to fill (unless of course the surgeon is dealing with an acute injury ). This is because it would be a great disaster , if after the defect has been made, to find that the flap were not viable or would not withstand transfer at that time.

7. When the flap is raised for transfer ~~much time may be saved~~ it is advantageous to close the open bed. This will save much time later. Closure may often be accomplished by suture, or partially by suture and partly by intermediate thickness graft.

8. The flap is transferred to recipient site and sutured accurately but not tightly ( danger of skin necrosis). The skin borders of the recipient area should be slightly freed so as to allow good apposition of flap and skin.

9. If it has been possible to close the donor site the only raw area left is the angle where flap turn onto the recipient area.

10. The flap must be dressed with great care. The great danger is that of congestion from slight impedence of venous outflow. Usually if the flap has been well planned and visualized beforehand the arterial supply will be all right, but slight twists and turns in the ~~pedicle~~ pedicle or lack of support of the flap by pressure ~~will~~ will be enough to halt venous outflow. Hence the guiding principles of dressing the flap are: 1. Maintain resilient pressure over the flap to prevent congestion 2. Avoid twisting pedicle, especially dangerous are right angle turns.

11. The parts must be immobilized so that no pull is put on the flap or change of position occurs. This best secured by applying plaster-of-Paris cast after dressings are completed.



12. The first dressing need not be done for 5-8 days. however it is ofetn advisable for the surgeon to look at the flap on the 2nd or third day to make ceratin tht pressure has been maintained.

### ~~13xxSurgeonxx~~

13. The surgeon or his assistant must inspect dressings every day to be sure that they are snug enough- not removed- but tightened up as needed.

14. After the first dressing, the dressings are changed as conditiions indicate, usually every other day. The area must be kept clean with soap and water so as to prevent accumulation of secretions. Remove the sutures by the 10th to 12th day.

15. Pedicle of flap in most acses may be divided at end of thee weeks- some very latge flaps should be allowed to go for 4 weeks or longer. While it is true that many surgeons divide the pedicles much earlier( 10-14 days) they are taking some chance with them, and there is so much to loose if the flap dies.

### 16.

The pocket flap is simply a multiple pedicled flap which is raised in a convenient area and the part placed under it. The large raw area upon which the part will rest may be covered at time of transfer by an intermediate thickness graft, so that when the part is removed the underlying defect is covered with skin.

The recipient part is left uder the flap somewhat longer than under the simper flaps because of the very latge pedicle or several pedicles. Usually about the third week a very large pedicle may be partially divided or one of the several pedicles may be divided. Then a week to 10 days later the division may be completed.

The tubed flap is simply a double pedicled flap the central port-ion of which has been turned in on itself and sutured in such a awy as to make a skin surfaced tube of it- like a satchel handle. The donor area is closed beneath the flap, leaving the flap attached at either end and free in the center. Such a flap ~~is~~ has no raw surfaces. When ready for transfer it is divided at one end and opened up and spread out and attached to the recipient site. In all other ways it is handled as any other pedicled flap.

The tube flap may be made very long so as to transfer very large areas of skin. It may be "caterpillared" into position i.e. divided at one end and reimplanted at a place nearer to the recipient area and by a series of such tranferences it may be bgrought even from great ~~sixth~~ distances right up to the required sute. One end of such a tubed flap maybbe temporarily attached to the hand. Then at the appropriate time the pedicle may be divided and the ahand and the attached flap brought to reipinet site and the flap attached to recipient are. The flap then receives its blood supply from the hand for a long enough time to~~xx~~ enable it to develop a blood supply from its desited sute. Such a flap is called a "jump flap"



One guiding principle in the treatment of open wounds is to obtain closure as soon as possible. If the closure can be done at once so much the better. BUT the surgeon must not forget that an open wound remains an open wound even though it may last months and that it is his job to get it closed as quickly as he can even though it will close spontaneously in time. The surgeon must not wait weeks or months for spontaneous healing of a wound which he can close by the very simple procedure of a skin graft. Skin grafting should be looked upon as nothing more than a surgical dressing.

Spontaneous healing of sizeable defects results in poor skin coverage with easily traumatized epithelium, thin and easily rubbed off.

The longer the delay the greater the fibrosis and contracture.

Certain tissues, e.g. bones, tendons, ~~ligaments~~ undergo necrosis if left exposed.

Time is saved by early grafting.

There is less danger of secondary infection with early grafting.

Secondary repair of nerves and tendons is made possible by use of grafting.