SURGICAL PROCEDURES IN GENERAL PRACTICE

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TREATMENT OF FACIAL WOUNDS AND CUT THROAT

BY

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The management of accidental and operative wounds of the face is an attractive task, since as a rule their healing leaves final appearances so pleasing that our patient's satisfaction is often commensurate with our estimated deserts. The normal sound healing of the face and the inconspicuous surgically beautiful scars that are easily attained may be ascribed in some measure to two causes—the abundant supply of blood to the facial tissues and the perpetual exposure of its skin to the beneficial effects of air and sunlight. With wounds elsewhere, in ambulant patients, these latter influences are difficult to maintain as adjuvants to healing, since most of the rest of the body is habitually swathed in clothing that insulates it as effectively as does a surgical dressing. The hands, it is true, are bare, but they are in too constant use and movement to permit us to dispense with protective dressings and even splints, in any but the most trivial wounds. The scalp is in striking contrast with the face in surgical behaviour; for though nowhere is surgical skill more certainly rewarded, the neglected scalp wound may become dangerously and heavily infected unless the hair has been shed, when the chance of healing by first intention approximates to that enjoyed by the face. The hairy scalp, however, is handicapped by the habitual presence of dirt and desquamations; for whereas everybody's face is commonly kept clean, in all classes and in both sexes the condition of the scalp is hardly what Western culture might lead us to expect. Furthermore, once healing has occurred in the head and neck, the later conversion of young and vascular cicatricial tissue into a linear contracted and inconspicuous scar is a much more speedy process than in most other parts of the body. This is partly on account of the influences noted and partly because in the erect or seated attitude those portions are the highest in the body and are thus immune from the effects of venous congestion, which may long delay the whitening of scars of the extremities and lower abdomen and may also be among the causes of stretching of scars in the latter positions. The head and neck being thus favourable for success, it remains for us to concentrate our attention on the methods of securing first-intention healing and narrow linear mobile scars.

Abrasions

If there is visible dirt in an abrasion it should be gently removed with forceps or mops and anti-tetanic serum given in most cases. Should bleeding be still proceeding it may be checked by light pressure with a mop wet with normal saline, water, or a mild antiseptic, and when it has ceased the abraded surface may be left to ooze. The exudate is the best antiseptic, and the scab produced by its clotting is the natural and by far the best dressing. Abrasions so treated heal well, and the scab should be left in place until it drops off in days or weeks, according to the depth of the abrasion, when supple skin overlying a minimum of scar tissue is seen to have been formed under it. There

is no need to disfigure the face even temporarily with coloured and irritant antiseptics like flavine, iodine, and picric acid; it should be remembered that any of them may produce a chemical inflammation of the skin, a dermatitis that occasionally may outlast the healing of the wound and even spread from the site of application. Tannic acid is a better application than any of those named; but it is unnecessary, and its blackened ugly coagulum is no improvement on a wholly natural scab. If an antiseptic is desired in the case of a dirty or greasy skin, industrial spirit is as good as any and its effects are fleeting.

In advocating the use of the natural dressing of blood-clot we may go further and say that any kind of cotton or gauze covering is prejudicial, partly because it may result in mild suppuration that would not have occurred without it and partly because its removal may result in trauma to the healing tissues, so that a corresponding excessive formation of scar tissue results. Oily or greasy applications are still worse, and it may be said in strict truth that the surest and almost the only way to make the face suppurate is by applying some form of dressing; indeed, one may go still further in stating the claims of unimpeded Nature, for when, as often happens, a two- or three-day-old abrasion is already beginning to suppurate owing to the employment of a mistaken form of treatment, the surest way to check the process is to remove all dressings, ointments, etc., and allow the exuding pus to dry, while to continue their use is very likely to result in the development of an infective and resistant dermatitis.

Incised Wounds

Where the skin is ruptured the final appearance of the resulting scar depends partly upon the success with which accurate apposition of the cut skin edges has been achieved, partly upon to what degree the underlying facial musculature, closely attached to the deep surface of the dermis, has, if divided, been prevented from retracting, and partly upon the attention paid to the niceties of skin suture. The permanent marks of stitches, even where a narrow linear scar has been made, cannot fail to draw attention to what otherwise might have been so inconspicuous as to be almost invisible. Stitches make permanent marks more by slight sloughing of the included skin than by the punctured wounds of needles, which nevertheless, if not very small, do remain visible. It therefore behoves us to use small sharp needles; but these are of no avail if we fail to employ fine and flexible suture material, if we tie our stitches too tightly, or if we leave them in place too long. It is obvious that some of the most perfect facial scars are attained by the methods evolved by plastic surgeons; among these is the use of fine buried catgut for facial muscles, with fine stitches for closing the skin, which are removed after a day or two, the buried catgut then holding the wound closed while the healing of the skin proceeds. Such methods, however, entail not only the possession of special skill in burying catgut sutures aseptically but also of suitable material against an emergency, and thus we prefer to describe simpler ways that are effective and also available for the general practitioner, who has not at hand the conveniences of the operating theatre.

Suture Material

This should be flexible and fine. Silk is finer than linen thread of a similar strength, and is thus preferable, but both have the disadvantage of needing prolonged boiling to achieve sterility. Horsehair may be brittle and thus unhandy. Gossamer or ophthalmic silkworm-gut, natural or synthetic, is one of the pleasantest materials in use, being strong for its bulk, flexible in adjustment of tension, and painless in removal, though the natural gut is hard to obtain just now owing to the war in Spain. The worst suture material is probably the ordinary medium or coarse silkworm-gut that is found in so many theatres. It is stiff, its tension cannot be accurately judged or applied, it causes sloughing of the stitch-track, because even when correctly applied it does not adjust itself to the contents of its loop, and its rigidity makes it painful of removal. Indeed, the need for the use of a fishing-gut with a tensile strength of half a hundredweight is not obvious in any part of the body.

Instruments

It is well to have fine-toothed dissecting forceps and fine-pointed artery forceps such as are used for venesection. Needles should be the slimmest triangular-pointed ones that will admit sutures, or, better still, the practitioner who likes to be well equipped may keep some of the tubes of "atraumatic skin sutures" that are prepared for plastic skin surgery, and that are employed by Sir Harold Gillies. For use with a holder needles should be curved; in the hand, small sizes are more convenient if straight.

Closure of Incised Wounds

Facial wounds that gape at all are better closed by suture unless they pass so obliquely through the skin as to make suture impracticable, when the thin flap of skin may be kept in place by pressure maintained by a single layer of open-weave gauze stuck to the skin by means of mastic varnish (for example, benzo-mastiche, Martindale); but care must be taken to use only one layer of gauze and a minimum of adhesive. A straight incised wound in a patient with self-control may be closed without an anaesthetic, but where there is any technical difficulty the practitioner is advised to content himself with the arrest of bleeding and a temporary dressing until an anaesthetic be available, though novocain injected round the wound may be all that is necessary. He should remember that although it is a good general rule to deal with compound injuries without delay, the exceptional healing capacity of the face gives him a little latitude in action; that the final result must be as near perfection as possible; and that such an end can be achieved only by an unhurried, deliberate, and accurate operation. In preparation the mechanical removal of dirt from the skin and the depths of the wound, and perhaps the cleaning of the skin with spirit, are the only things necessary.

Bleeding is best stopped by pressure maintained for five minutes or so, but if it is obstinate spurting vessels may be caught with artery forceps and subsequently either ligated or, better still, included in the bites of sutures, unnecessary buried material in a field of doubtful cleanliness being thus avoided. It should be remembered that novocain is a vasoconstrictor and with the passing of its effects bleeding may recur under the closed skin. The cut skin edges must be clearly seen and the obliquity of the cut to the surface estimated. As many deep stitches as may be necessary to hold the facial muscles together are inserted through the skin, preferably as small mattress

sutures protected by bits of fine rubber tubing; but if this last is not available, stitches embracing muscles and skin are quite satisfactory provided they are effective and are not tied so tightly as to cause sloughing of underlying skin, either immediately or with the onset of the slight inevitable swelling of early healing. Small stitches taking skin only, and very close to the cut edge, are then inserted so as to approximate the edges of the wound accurately, their positions and individual tensions being most easily judged if all superficial and deep sutures are inserted before tying the knots. This is the method that was most commonly employed in the days when carcinoma of the tongue was frequently excised after splitting the cheek, and the resulting facial scars of many of them are so perfect that one has to examine them with a magnifying-glass to ascertain their presence or extent.

Removal of Stitches

It is probably unwise to remove stitches holding muscle together at a shorter period than four days, but where they are holding only skin they may be safely removed after two days, though it is better for the surgeon's peace of mind if on so precocious a removal the wound be held together with a single layer of loose-woven gauze and mastic varnish clear of the actual cut, as earlier described. Such a dressing does not prevent air drying of the slight exudate that may still come from the wound and stitch holes, and, though not ideal, it is better than leaving *in situ* stitches whose marks the passage of time may make indelible.

Lacerated and Contused Wounds

Contusion of course causes some swelling, but, remembering the great capacity for healing that the face possesses, we need not hesitate to close a laceration on account of accompanying swelling and ecchymosis. Maximal swelling from contusion occurs in the eyelids, and it should be remembered that a wound of the forehead penetrating the frontalis causes a subepicranial effusion of blood that passes without encountering obstruction into the upper eyelids, which may rapidly swell and close the palpebral fissure completely. An early effusion into the upper eyelids only need therefore arouse no suspicion of fractured skull. Lacerated wounds should also be closed according to the same rules as those described earlier, and only with the greatest reluctance should skin be excised because it is damaged; if any excision be necessary it should be minimal, and if possible be limited to the extreme devitalized edge. Where skin has been torn away and lost an immediate Thiersch graft is advisable; but if it be in any wise possible to replace an actual detached piece, this is the best graft. After suture of facial wounds the process of shrinkage of the cicatrix proceeds rapidly, and in small wounds is complete in about a month, by which time the scar will have attained its final pale appearance. With larger wounds and lacerated ones, or if by any chance there has been suppuration, the duration of the final shrinkage and devascularization is much longer, and may last six months or more, depending upon the intensity of the cicatricial reaction. In these cases it is only after the lapse of such a period that it is possible to judge as to the advisability of secondary excision of a disfiguring scar. A satisfactory facial scar is one which is linear, pale, and almost invisible. It is flush with the surrounding skin, and neither dimples nor distorts the face with expressional and other movements. The elements that go to make up disfigurement are those of scarring from sloughing, inflammation, and inaccurate approximation of

the skin edges; loss of substance resulting in deformities, especially of the eyelids; dimpling, with adhesions of scars to deeper structures due to unsuccessful closure of the facial muscles; partial paralysis of muscles due to section of filaments of the facial nerve; and occasionally swelling due to lymphatic obstruction—the last being seen sometimes in the lips, and also where the nose has been almost detached from its root so that the end becomes bulbous from lymph stasis, a condition fortunately tending to disappear spontaneously.

Wounds involving the Nares and Lips

In these wounds the test of success is the accurate approximation of the edge of the nostril or of the red margin of the lip. In the nostril this is easy, but where there is laceration the red margin may be difficult to see. It is usually possible to impale a healthy part of the red margin with a small pin on each side of the wound and thus to judge the correct placing of the sutures. If the lip be cut right through into the mouth the mucosa must be closed with catgut before approximating the skin, and owing to the thickness of the muscle of the lip it is usually advisable in this situation to use buried catgut also to close the muscular wound. In the lips and nostrils, where there necessarily is continual wetting of the wound, it is of especial importance to eschew all dressings and to leave the sutured wound uncovered. To keep such wounds partially covered with mucus- or saliva-soaked dressings is to ask for them to be infected, a request that in such circumstances is only too often granted.

Wounds of the Face with Compound Fracture

What has been said of closure of facial wounds applies to all, whether associated with fracture or not. Where a fracture is suspected an x-ray examination should be arranged at once, and if, as will usually be the case with a positive result, it is decided to call in surgical assistance it is better to do so as an emergency than to close the facial wound and then arrange a consultation at leisure. The alveolar margins and jaws, the malar and nasal bones, and the region of the frontal sinus are the common sites of fracture. Of these, it is true the jaws can, if necessary, usually wait a day or two for dental treatment without prejudice to the final result, but the nasal and malar bones are often depressed and need elevating, which should be done before suturing the facial wound; and the injuries of the frontal sinus carry with them the real danger of associated injury to the cranial contents, of cerebrospinal rhinorrhoea, and meningitis. The surgeon confronted with a sutured wound over the frontal sinus a day or two after its infliction may find himself in great difficulty, being uncertain how to proceed with the possibility of an already established frontal sinusitis and a possibly open cranial cavity.

Wounds of the Neck and Cut Throat

Wounds of the neck should be treated on the lines indicated for the face. Skin stitches that include the platysma, properly applied without excessive tension, give narrow scars that are almost invisible.

Suicidal cut throat is the result of a wound usually made with the right hand, and is thus more extensive on the left side than on the right. The vigour of the suicide is apt to be spent in the length of his incision rather than its depth, and the level chosen is often that of the thyro-hyoid membrane, presumably because the thyroid cartilage can easily be felt as an obviously resistant structure under the skin. Less often the wound is made above

the hyoid bone, and rarely it is below the cricoid cartilage. In half-hearted attempts such wounds may be superficial only, but often they penetrate the air passages, in the common subhyoid variety opening the supraglottic part of the larynx, while in the less common suprahyoid wound the vallecula is penetrated; in either case the epiglottis often suffers partial or complete separation. In the subcricoid variety the trachea may be opened. These are the injuries actually inflicted as a rule, though the object of the suicide is presumably to open a large blood vessel in the neck. In the first two varieties, owing to the backward passage of the carotid sheath as it ascends the neck, its contents are in little danger; nor are the superior thyroid, lingual, and external maxillary vessels, though these are nearer the site of injury. Actually the large vessel damaged most frequently, in my experience, is the common facial vein, from which it is possible for a patient to become almost exsanguinated, but in a low wound the thyroid gland and the jugular vein may be involved. Nevertheless the brunt of the injury usually falls on the respiratory passages rather than on the vessels, at any rate in the cases arriving in hospital. An example of this occurred during the great war, when a soldier at the end of his endurance cut his throat one evening and reported sick in the morning holding a towel to his neck. He had divided his epiglottis and had incised his posterior pharyngeal wall, but there was not a great deal of bleeding.

When the thyro-hyoid membrane is cut the gash does not open widely, but in suprahyoid wounds the suspension of the larynx is partly lost, so that the wound gapes and the interior of the oropharynx can easily be inspected. Whichever level is chosen for cutting there is danger of asphyxiation from blood or loose fragments of epiglottis and laryngeal mucosa entering and obstructing the airway.

TREATMENT

With a closed respiratory passage the superficial wound is treated by ligation of whatever vessels may be necessary and by closure of the wound as described for other neck wounds. It is usually well to drain the deepest part, and this as a rule is in the middle line. With an open pharynx or larynx an anaesthetic is necessary, and when respiration is obstructed preliminary tracheotomy should be performed without hesitation. The upper opening can then be packed with a cocaineized plug and the wound closed deliberately. The first step is the inspection of the interior of the pharynx or larynx and the removal of any loose fragments likely to cause suppuration or obstruct the airway. The epiglottis may be sutured, or if it is so badly lacerated that healing seems unlikely it may be removed with no fear of deglutition difficulty other than a temporary one. Swallowing, indeed, is impossible in any case in the early days after pharyngeal suture, and before closing the wound a catheter must be passed into the oesophagus and brought out through the mouth, where it is fixed by a suture through the cheek or a loop round the auricle. The pharyngeal mucosa is then closed with catgut, but the skin is left widely open except where there is no underlying pharyngeal wound. Closure of the skin carries with it a danger of infection of the fascial planes of the neck from the opened pharynx. If a tracheotomy tube has been used it may with advantage be left in place for a few days until it is certain that there is not enough inflammatory swelling of the upper opening of the larynx to obstruct respiration. A damaged trachea may be closed if not lacerated, after adequate exposure of the operative field, preferably under local analgesia with cocaineization of the tracheal mucosa. If

the condition of the trachea be thought unsuitable for suture, a tracheotomy tube should be inserted for a few days, the wound being left open and packed with a small plug round the tracheal opening. This will suffice to prevent infection tracking in the fascial planes to the mediastinum, and the plug may be removed when a layer of protective granulations is well established. In no circumstances should a sutured trachea be covered by a closed skin wound, as not only distressing surgical emphysema but also widespread infection of the neck is the likely consequence.

RESULTS

Pharyngeal and tracheal wounds usually suppurate for a time, especially if there has been loss of blood; this, if severe, may be replaced by transfusion, should it be thought advisable to take healthy blood to revivify a suicide. Often a temporary pharyngeal fistula occurs, but such openings eventually heal of their own accord in most cases. If healing fails, a small plastic closure is easily effected when the fistulous track is completely covered with epithelium.

TREATMENT OF SYPHILIS

A SURVEY OF CURRENT METHODS

W. R. Snodgrass and R. J. Peters,¹ under the auspices of the Medical Research Council, have undertaken a survey of the results of treatment of early, latent, and mucocutaneous tertiary syphilis. Their report shows not only how these forms of syphilis should be treated but also what results may be expected from treatment—adequate or inadequate—begun in the various stages of the disease. Early syphilis can usually be treated according to a set plan of standard "courses," each of which should consist of not less than 5 grammes of "914" and about 2 to 2.6 grammes of bismuth metal, the whole being given over a period not exceeding fifteen weeks. Treatment is most effective when given early, regularly, and adequately; clinical relapse was noted in only 2.8 per cent. of the adequately treated cases as against 8 per cent. of the inadequately treated. It is the first course which is important, for of the cases receiving total adequate treatment those who had had an adequate first course showed a much lower relapse rate than those whose first course had been inadequate. In general, for early syphilis one standard course after the Wassermann reaction has become negative represents optimum treatment. An intensive first course gives the best results, and the intervals between courses should be reduced to a minimum. It is claimed that the author's intermittent concurrent use of "914" and bismuth gives at least as good results as the continuous alternating method recommended by the American Co-operative Clinical Group. Examination of the cerebrospinal fluid would seem to be unnecessary in the absence of symptoms referable to the central nervous system appearing before the end of the second year.

Intolerance is one of the bugbears of antisypilitic therapy and a frequent cause of defaulting and inadequate treatment. Specific measures for avoiding it are lacking, but care in the preparation of the patient, especially the detection and elimination of focal sepsis, and in the technique of injection, will reduce its incidence. Jaundice occurred in twenty-three cases (4 per cent.) in the series, in twenty-two of these during the first course, but in only three was it severe; one patient died of acute yellow atrophy of the liver. Only thirty-six of 7,355 injections

(0.49 per cent.) provided skin reactions, which in six cases amounted to dermatitis. Though it often lessens the total amount of treatment, intolerance often coincides with maximum therapeutic results. Thus 11.4 per cent. of unfavourable final results were recorded in cases showing intolerance as against 19.7 per cent. in cases not showing intolerance out of a total of 570 cases.

Latent and Tertiary Syphilis

Latent syphilis is defined as syphilis of more than two years' duration with no clinical signs but showing a positive blood reaction. The question arises as to whether such a case should be treated. The answer is that it should, because treatment lessens the incidence of late syphilitic lesions, may prevent conjugal infection by way of the spermatic fluid, and prevents hereditary syphilis. Of the cases under review treated and observed for more than two years clinical and serological tests were negative in 50 per cent. at the end of that time, in contrast with 27.9 per cent. in Brunsgaard's series of untreated cases (*Arch. Derm. Syph.*, Wien., 157, 309); the former figure agrees fairly closely with that of the combined American clinics. The treatment of latent syphilis is much more unsatisfactory than that of early syphilis, though the earlier the case comes under treatment the better the outlook. In general, three standard courses were considered sufficient for cases of latent syphilis, though in the case of a patient under 40 whose blood test is still positive after two years it is worth while continuing treatment even further, since this series showed 5 per cent. of clinical relapses after the two years' treatment and observation.

Tertiary mucocutaneous syphilis, like the latent form, responds better the earlier it is treated. Visible lesions heal rapidly, and in few cases is there progression to cardiovascular syphilis or neurosyphilis. Clinical skin relapse was seen in only 2.1 per cent. of this series—that is, it was practically unknown when adequate initial treatment was given—but intolerance is more common than in early syphilis (44 per cent. as against 27.7 per cent.) and rises with the age of the patient. This and the fact that two years' treatment and observation only produce negative Wassermann reactions in 37.2 per cent. of patients suggest that it is not usually wise to give long and intensive treatment unless the patient is young and healthy. In such cases many think it is an advantage to employ a quantitative serum test—such as the "Sigma"—which records results in units—and, provided the patient stands treatment well, persevere so long as the blood reaction continues to fall. Generally speaking, it was found that two courses of "914" (11.7 grammes) and thirty injections of bismuth (7 to 8 grammes) with potassium iodide orally afforded a very considerable means of protection against clinical or serological relapse. It is doubtful if one can speak of "cure" of any form of late syphilis; even if treatment reduces the blood reaction to negative and the patient is clinically free from symptoms he or she ought to be kept under observation indefinitely. Syphilis of the heart and blood vessels and of the nervous system have not been considered, since in the series under review too few cases were observed to warrant analysis.

Treatment of Early Syphilis

Finally, Snodgrass and Peters offer some suggestions on the treatment of early syphilis. The rate of serological relapse is the best single criterion of the value of a drug, if only because its incidence is nearly four times as great as that of clinical relapse. Research on intolerance is much needed, and the question of defaulting looms large, for obviously the more the cases default the worse will be the end-results. Bismuth and "914" appear to be the drugs of choice, and much depends on an adequate first course. It is therefore well worth while making this course as intensive as possible. In the first forty-seven

¹ Snodgrass, W. R., and Peters, R. J. *An Analysis of the Results of Treatment of Early, Latent, and Mucocutaneous Tertiary Syphilis*. Medical Research Council Special Report Series, No. 224. Price 2s. net. London: His Majesty's Stationery Office. 1937.