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*Quarterly Report of the Edinburgh Surgical Hospital from
August to November 1829.* By JAMES SYME, Esq. Fellow
of the Royal College of Surgeons, and Lecturer on Surgery.

(From the Edinburgh Medical and Surgical Journal, No. 102.)

SINCE the date of last Report, the cases of surgical disease, for which relief has been sought at the hospital, have increased in number and importance.

553 patients have applied within the last three months. Of these 64 have been admitted into the house, and the remainder have been treated as out-patients, receiving advice and medicines from the institution.

It was my intention to have written a report of the more interesting cases which have occurred within the period above-mentioned; but I find that my Systematic and Clinical Lectures, together with my professional avocations in private, do not afford me the requisite leisure for this purpose at present. I will therefore, in the meantime, merely make some observations on the treatment of ulcers, and at a more convenient opportunity take a review of the other cases.

The very great number and variety of ulcers which have been presented at the hospital, afforded me ample opportunity of illustrating the treatment of these most frequent and distressing affections. I felt much satisfaction in doing so on several accounts. 1st, The great relief derived by the patients, many of whom were restored to the means of earning a livelihood, of which they had previously been long deprived. 2d, The useful instruction derived by my pupils, who were wise enough to regard the ordinary duties of their profession as deserving of at least as much attention as those great and bloody exploits, which occur but seldom in the course of practice. 3d, The widely extended and sound reputation acquired by the new Institution from curing diseases, where the relief is so great and manifest, and the means of remedy are so little disagreeable.

It would be out of place for me to enter here into a detail of cases which are usually reputed trifling and uninteresting, though there are few surgical diseases which more seriously affect the patient's comfort; but I cannot refrain from reporting at some length, and with some care, the advantages of a practice which I have lately introduced in their treatment, and which I believe is a new one.

In treating what are called Indolent ulcers of the leg, I used to regard the plan recommended by Mr Baynton as approaching nearly to perfection, and still believe that, when properly executed, it will sooner or later effect a cure, if a cure be practicable; but another method has lately suggested itself to me, which seems in many respects preferable.

It is not unusual to meet with cases of indolent ulcers, which after exhibiting their characteristic obstinacy in opposition to the most careful treatment, heal up at once without any attention, so soon as the limb begins to recover from an attack of phlegmonous erysipelas which it has happened to suffer. The observation of such cases led me to try the effect of inducing a similar inflammation artificially, and the result has fully equalled my expectations. The means employed for this purpose were blisters, and the object being to excite a smart and diffuse inflammation, they were not limited in extent to the size of the sore, but were made to cover a great part of the limb, and were allowed to remain in operation for a long while, sometimes even twenty-four hours.

The first effect of the blisters in these cases is a more than ordinary inflammation and discharge, the surface sometimes continuing to suppurate profusely for several days, just as if the cutis had been denuded by a scald or burn.

In a day or two the patient is agreeably surprised by observing that the œdematous swelling of the limb, which so constantly accompanies ulcers of the kind under consideration, begins to subside, and in the course of a very short time, rarely exceeding a week or two, it nearly or entirely disappears. The consequence of this detumescence is a great diminution in the size of the sore, which also comes to be on a level with the surrounding skin. Then the surface takes on a healthy granulating appearance, and the sore heals, partly by contraction, partly by the formation of a cicatrix. For the first few days after the blister has been applied, some simple ointment may be used, just as in the ordinary treatment of a blistered surface, and afterwards a wash of acetate of lead or sulphate of zinc, in the proportion of one or two grains to the ounce. If the sore should again prove obstinate, the blister may be repeated, and if a small part remains stationary towards the conclusion of the

cure, it ought to be filled with the red oxide of mercury, or a mixture of this powder with flour. My friend, Professor Davidson of Aberdeen, induced me to try this application in the treatment of ulcers, and I cannot say too much in its praise, especially in the case just mentioned. After one or two dressings it forms a firm crust over the sore, which ought not to be disturbed, and renders any farther interference unnecessary.

I have no hesitation in ascribing the good effect of blisters which have been just described to their stimulating the absorbent vessels, so as to remove the œdema. We know that blisters possess a singular power of doing this, as is exemplified in the cure of dropsies of the joints and bursæ, and it is easy to see that the existence of œdema must be an insuperable obstacle to the healing of the ulcer. It prevents the contractile effect of the granulating action, and thus occasions a struggle, which probably gives rise to the pain and other symptoms that so often induce a resemblance between indolent and irritable ulcers. And we find, in fact, that all the modes of treating the ulcers in question which have ever proved serviceable, such as the horizontal posture, the roller of Underwood and Whately, or the adhesive straps of Baynton, tend to reduce œdematous swelling. Some frivolous and wrong-headed improvers have advised that the straps should not encircle the whole limb, but only two-thirds of it, and in so far have done what they could to bring themselves and the practice into contempt. I lately cured an ulcer on the leg of a lady which had existed without interruption for twenty years, and was deemed incurable, because it had resisted the most assiduous exertions of several surgeons in town. When I proposed to apply adhesive plasters, the patient would hardly consent, because they had been tried previously without success. I ascertained that they had not encircled the limb, and hence the failure.

In order to appreciate fully the good effects which attend the removal of œdema, it is necessary to have clear ideas of the process that is employed in the healing of an ulcer; and as it seems to me that the truth in this respect has been, and still is, very much overlooked, I may perhaps be excused for making a few observations on the subject.

It is a common remark, that the things which lie most within our sphere of observation are least attended to, and there is no better illustration of this than the subject which I am now going to discuss. Every wound, when it does not unite by the first intention, and every ulcer, if it heals at all, heals by granulation, and yet nobody takes the trouble of inquiring into the precise nature of this process, every one being satisfied with the vague account of it which is to be found in surgical books.

The statement generally contained in these is, that lymph being effused on the surface of an abscess, wound, or ulcer, becomes organized, and formed into a layer of small red, pointed fleshy granulations; from these pus, together with coagulable lymph is secreted, and the new crust of organizable matter is in its turn converted into granulations. "In this manner layer after layer is formed, until the cavity is filled up."* Such is the explanation usually or rather universally given, and as generally considered satisfactory.

Instead of attempting to disprove the accuracy of this description of the mode in which losses of substance are repaired, by criticising the process itself, I will at once endeavour to show, that the alleged reproduction does not really occur; that the appearances which are thought to establish its reality are delusive; and that, therefore, the explanation employed to account for it is equally unnecessary and erroneous.

The subject of Reproduction or Incarnation engaged the attention of the French Academy of Surgery; and the memoirs of its members, Fabre and Louis, leave little wanting with regard to its history. How they have happened to be so completely forgotten in modern times, as to permit the old doctrine of regeneration to revive and flourish to the suppression of the truth, I cannot tell, but shall attempt to place the matter once more in a clear point of view.

The arguments in favour of reproduction by granulation are, 1. the regeneration of lips, tongues, and the glans penis completely or partially destroyed; 2. the filling up of abscesses or sinuses; and 3. the healing of wounds attended with loss of substance.

When we come to inquire a little particularly into these proofs, we find, that of regenerated lip there is only one instance on record; and if M. Louis's account be correct, not much weight ought to be founded on it. Louis says, that M. Pibrac and he were invited to visit this famous lip, in order to satisfy themselves of its actual regeneration. The loss of substance, they were told, had been so great, that it was impossible to unite the cut edges; that it had even been necessary after the excision to apply the actual cautery to the roots of the disease; that eventually the patient was cured; that the lip was restored; and that they should be lost in admiration of this wonderful work of nature. "We visited the patient," says he, "and saw nothing at all extraordinary. The patient had been freed from a tumour, the extirpation of which might at first sight have seemed to require removal of the whole lower

* Sir Astley Cooper's Lectures, Vol. i. page 161.

lip. But it is well known that when a part is much swelled, a large portion may be taken away without diminishing its natural extent; and this is just what had happened in the case under consideration. The lip, properly speaking, was completely wanting, so that the teeth and gum appeared through the breach. *The loss of substance had not been repaired.* A perpendicular cicatrix denoted that the lower part of the wound had been closed by the union of its edges. The patient was unable to retain his saliva, and the skin of the chin, which had been drawn up to supply the lip in part, and which had been taken for the product of regeneration, was covered with its characteristic *beard*. The great breach caused by the operation had been in some measure closed by contraction, but not one particle of the lost substance had been regenerated."

If this be the true account of the lip, I certainly feel inclined to agree with M. Fabre, that the "well formed proportioned glans," which Mr Jamieson of Kelso had the pleasure of seeing reproduced after "amputating the Balanus, preputium, and a small portion of the corpora cavernosa penis," was nothing more out of the ordinary course of nature than the original glans itself, which had been concealed from sight by the swelled and gangrenous prepuce. If the alleged reproduction admits of this explanation, in regard to the lip and glans penis, it is evident that we should pay little attention to the evidence afforded by the separation of sloughs from the tongue, where it is so difficult to ascertain the extent of destruction and also of restoration, owing to the great extensibility of the tissue composing this organ.

As to the filling up of abscesses, it ought to be recollected that the cavity which contains the pus is not formed by the destruction of any tissue, but by distension of the skin and subjacent organs, whence evacuation of the fluid is followed immediately by such collapse and approximation of the surrounding parts as nearly obliterates the hollow. And where there is really a destruction of cellular substance, as in the abscesses of weakly children, a permanent depression remains after the cure is completed. Sinuses are healed on the same principle, viz. by coalescence of the sides; and every attentive practitioner must have observed the great advantage of laying them together by means of proper bandages, so soon as they are disposed to unite.

Lastly, as to the healing of ulcers or wounds attended with loss of substance, it is well known that the resulting cicatrix is always smaller than the original sore; and that there is invariably a depression of it proportioned to the destruction of parts. M. Fabre quotes the case of a wound in the thigh destroying

the muscle and exposing the bone, the cicatrix of which rested directly on the bone without the interposition of any newly formed substance. It was a similar case which led my attention to this subject. M. Bezoet of Rotterdam, who wrote against the doctrine of reproduction, appeals to a case of wound in the head, where a portion of the scalp was removed, and where, notwithstanding the most luxuriant granulations, the cicatrix rested on the bone. I have in my possession several skulls, with the scalps, from which portions of bone had been removed, artificially and naturally. One of these belonged to a gentleman who was attended by myself, and in all of them the cicatrix is but a pellicle resting on the bone or *dura mater*.

When amputation was performed in the old way by cutting directly through all the parts, a very large granulating surface resulted, which ought to have become larger if there really was a growth of new substance, so as to form the stump into a bulbous figure. But it always happened, on the contrary, that the cicatrix was much smaller than the wound, and that the stump, so far from being bulbous, was of a sugar-loaf or conical form.

We have frequently an opportunity of dissecting a granulating sore after death or amputation. And do we then find any such appearance as the common description would lead us to expect? Do we find successive layers of granulations, or any considerable thickening of newly formed substance? I have made many such examinations, and could never perceive any thing but a thin layer of organized matter covering the surface.

How then are wounds healed by granulation?

Lymph being effused over the surface and organized into a granular pellicle, lymph and serum are effused into the subjacent cellular tissue so as to distend it more or less. In what is called a healthy granulating ulcer, the quantity is very small, so as hardly to affect the elevation of the surface, or induration of subjacent parts, but when the process proceeds in a morbid manner, then many remarkable phenomena are thus induced.

For instance, when the ulcer is defective from weakness, the granular surface is distended by serum, effused under it, and elevated into soft spongy projections, the proud flesh of the vulgar. This œdematous state of the sore is usually accompanied by a similar condition of the limb or other part in which it is seated; no trace of these fungosities is to be found after death; pressure restrains them as effectually as it does the œdema of the limb; and they suddenly subside under the action of what are called escharotics without leaving any remains in the place they occupied. These observations afford satisfactory evidence of their real nature, which I had lately an opportunity of illus-

trating still more convincingly. William Brown entered the Hospital on the 27th of October to obtain relief for a most extensive and frightful sore of the leg. It had existed for seven years—it stretched from the middle of the calf, on the back and both sides of the limb, to the heel. There was great general swelling—enormous fungous growths—complete inability of motion—in short, such a formidable appearance as led the patient, and most of the medical men who saw him, to conclude that amputation afforded his only chance of remedy. A large blister was applied, and the state of matters soon suffered an extraordinary change for the better. The swelling of the leg subsided—the fungosities disappeared, and the sore, now greatly diminished in extent, assumed a healing appearance. At the end of two weeks from his admission, I desired him one morning to try if he could walk. When he had accomplished a few steps, I observed the blood trickling from the ulcerated surface; and, on observing it more closely, discovered a number of dark-coloured eminences which had not existed previously. They varied in size from that of a pea to that of a nut, and exactly resembled proud flesh—or fungosities of weak ulcers. When squeezed roughly they suddenly burst, and collapsed with effusion of blood. When pressed more gently, the pellicle forming them could be distinctly traced over the adjacent granulating surface, where a similar appearance was produced by the blood forced out of the little tumours formed in the first instance. It is difficult, I think, to conceive a more satisfactory proof of the opinion which has just been offered as to the nature of a granulating surface than this observation, which I am very much surprised should not have been made before.

In those sores, again, which have something specific in their action—something capable of contaminating other parts of the system, either by absorption or extension of action, there is an effusion of lymph into the subjacent and surrounding cellular substance, which occasions the indurated and elevated edge so characteristic of such sores.

In other ulcers, as those occurring in scirrhus and medullary sarcomatose textures, lymph is effused under the granulating surface, and becoming organized, elevates it into fungous excrescences. And here I dare say it will be asked, if morbid structures be reproduced, why cannot the healthy tissues be regenerated? To which I answer by asking, Since the legs of salamanders and lobsters are reproduced after removal; why are not the limbs of man also reproduced? In studying the operations of nature we ought always to prefer facts to reasoning.

The granular surface being formed, so as to seal up the inter-

stices of the body and serve as a temporary integument, the process of healing proceeds by levelling the sore with the surrounding skin. The slight effusion which, as already mentioned, obtains under the granulations, assists in this, but the effect is chiefly produced by absorption, consequent emaciation, and sinking of the surrounding tissues, especially the fat. So soon as the surface of the ulcer, or the edge of it at least, is on a level with the skin, the absorbing process goes on more rapidly, removing the interstitial particles of the granular pellicle and subjacent tissue, and thus diminishing the area of the sore. In illustration of this part of the process I may remark, what every attentive surgeon must have observed, that the cicatrix of ulcers is smallest in those parts of the body where the integuments are most lax, as the scrotum, the abdomen, the mamma, and that it is largest where the skin is most unyielding from its firm connection, as the thorax, the cranium, the shin, &c.

The cicatrix is formed of the granular pellicle and subjacent cellular substance, which has been indurated by the effusion of lymph into its cells. Its thickness varies with circumstances, but always diminishes after the cure seems to be completed; whence, though when first formed upon a level with the surrounding skin, it ultimately becomes lower, so as to constitute a depression; but this appearance is no doubt partly owing to the surrounding parts recovering from the emaciation, which, as above-mentioned, takes place in the first instance as a step towards the cure.

Though there is no reproduction by granulation generally speaking, there is one exception in the case of bone, which we every day see regenerated after exfoliation, compound fracture, &c. This also may be argued in favour of the common opinion, but may be answered as above, that analogy is no proof against facts. Why bone should be formed by granulation, and the other tissues should not, I cannot tell. Nature is the best judge of her own proceedings. And our business is to study their results, not the motives which led to them.

The length to which this paper has extended, renders me averse to detailing any of the particular cases treated by blisters in the Hospital, as I intended to do. Suffice it to say, that various people who had suffered for many years,—one man for twenty-five years, had been treated unsuccessfully in other hospitals, and were considered incurable,—speedily recovered under this treatment.

75, *George Street*,

17th November 1829.