ON
CONTRACTIONS
AFTER
BURNS OR EXTENSIVE ULCERATIONS.

By HENRY EARLE, Esq.

SURGEON TO THE FOUNDLING HOSPITAL.

Read May 10, 1814.

THE occurrence of contractions after large ulcerations where the subcutaneous tissue has been extensively destroyed, is so frequent a subject of regret among surgeons, and so constant a source of blame among the parents and friends of the unfortunate sufferers, that I trust no apology is necessary, in offering the following observations and case.

I should have hesitated in giving publicity to an insulated fact, and should have waited until subsequent experience had confirmed the plan of treatment which I shall recommend to be adopted in these cases, but that I conceive the principle on which it is grounded to be perfectly established, though the present application of it may be in some respects new, and farther I am unwilling to withhold any suggestions which may at all interest the cause of humanity.

I have said that these contractions are a source of blame to surgeons; in some instances, perhaps, such reproaches are merited, as much may be done to prevent them by proper and strict attention to position during the progress of the healing process: and many limbs are suffered to continue in a bent position, by which the sides of the wound are approximated, and a smaller surface left for cicatrization, even when such wounds are in the immediate vicinity of a joint. By such practice the permanent benefit is often sacrificed to remove a temporary evil. The wounds are certainly sooner healed over, but the limb may for ever after remain contracted and useless. Frequently, however, such contractions do not depend on any inattention on the part of the surgeon, but are the result of a natural process which follows cicatrization, and which has often baffled all the efforts of art to controul. This process consists in an absorption of the granulations on which the new skin has been formed; by which the cicatrix is made to occupy a much smaller extent than the originally ulcerated surface. Perhaps it would be speaking more correctly to say that the granulations which are at first florid and extremely vascular, after having deposited the new skin, receive a smaller proportion of blood; become paler and diminished in bulk, and consequently occupy much less surface for the new skin. In many cases, such as amputation, where sufficient integuments have not been saved to cover the bones, this process is

very salutary, as it is essential to have the smallest possible extent of new skin on a surface which is to be subject to much pressure. But when it occurs in the neighbourhood of the neck or any of the joints, it often causes the most distressing contractions and deformities. The force with which this gradual process acts is truly astonishing. I have known it draw down the chin upon the sternum, and approximate the shoulders so much as to cause a partial absorption of the clavicles, and completely alter the dimensions of the thorax.

To superficial observers unacquainted with the nature and extent of the mischief, it would appear that the whole evil depended on the contracted integuments, by a simple division of which the limb would be instantly set at liberty.

So deceptive is this appearance that I have more than once known men indulge this vain hope of affording relief, until a painful and ineffectual operation has convinced them of their error. In recent cases, occurring in any of the extremities, the contraction may be confined to the integuments, by dividing which, the deformity may be for a time removed; but the same cause continuing to operate will produce the same effect, and the limb will again contract after the wound is suffered to heal up. Where the contraction has been of longer duration, the muscles acquire a new sphere of action, and afford an additional and

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tended, which kept the elbow immovably bent to a right angle. Being fully aware of the inefficacy of a mere transverse incision, on mature consideration of the case, I proposed to remove the whole cicatrix, and to endeavour to approximate the integuments from the two sides of the arm, which was to be kept extended on a splint, not only during the healing of the wound, but for a considerable time after the cicatrix had formed, until, indeed, those changes, which I have above described, had been fully accomplished. By such practice I conceived that the contraction which I knew must follow so extensive a wound, would take place in a lateral direction, and not in the long axis of the limb. In a word, I hoped to be able to direct and modify that, which it was not in my power to prevent, and thus, at all events, counteract its injurious effect. Having submitted my opinion to some professional friends, which met their concurrence, on the 12th of November I performed the operation with the assistance of Mr. Lawrence, in the following manner. I made an incision on the outer side of the cicatrix, commencing about two inches above the elbow, where it was broadest, and terminating within two inches of the wrist; nearly the whole of this incision was made through the sound integuments. I then made a similar cut on the inner side, and carried it down gradually, converging until it met the opposite incision. The upper part of this incision was necessarily made through the cicatrix, which

nearly enveloped the inner side of the elbow. The next step was to dissect off the firm horny cicatrix, which I detached from below upwards as high as the commencement of the incision, conceiving that this triangular flap of cicatrix might be useful in accelerating the healing of so extensive a wound. I did not remove it from its upper broad basis, thinking that it might unite in its new situation. On attempting now to extend the arm, we found considerable resistance from the forcible contraction of the flexor muscles, which had been so long accustomed to a more limited sphere of action, that they with difficulty admitted of any extension. By degrees, however, they yielded considerably, and the arm was brought nearly to a right line. When the arm was so extended, the extreme point of the cicatrix, which still remained attached to the upper arm, was deficient nearly three inches of reaching the part from whence it had been removed.

The sides of the wound were now approximated as much as possible with adhesive plaister, and the whole limb was bound down on a splint. As the operation had been rather tedious, and very painful, and there was great disposition to spasm in the biceps, I gave him a large dose of opium, and directed the nurse to sit by him and hold his hand, which checked the violence of the cramps. This disposition in the muscles to contract gradually abated, and the following day I was able to extend

the arm perfectly to a right line. On removing the dressings, four days after, I found that the whole of the cicatrix which I had detached, had sloughed; in consequence, I suppose, of its being a part of new formation, and not possessing the same vital powers with an originally formed part. The slough was soon thrown off, and the wound, though extensive, wore a healthy aspect.

Nothing sinister occurred during the progress of the cure, and the whole was perfectly healed by the 20th of December. I continued to apply the splint constantly for about six weeks longer, during which time the cicatrix diminished much in a lateral direction, and in a very slight degree in the long direction, but the arm continued perfectly straight. I now permitted him to use his arm for some hours during the day, but reapplied the splint when in school and at night. By degrees he left off the use of the splint altogether during the day, but I directed it to be applied at bed-time until about a week since. I am happy to add, that nearly five months have now elapsed since the wound was healed, and his arm continues perfectly straight, and he enjoys the free and perfect use of it as much as of the other. The cicatrix has contracted laterally to about one-third the size of the wound, is quite insensible, hard and devoid of vessels, and on the whole, from its present appearance, I do not apprehend that any further alteration will take place.

I have considered this case not unworthy of attention, as it strongly illustrates the efficacy of art well directed in counteracting and even rendering subservient a powerful law in the animal economy. The view which I have been led to take of the subject is, I believe, new, and the result of the case will, perhaps, warrant my expectations that it may be beneficial both in the prevention and cure of many deformities and contractions in the extremities.

Should a similar case occur to me again, I should prefer the removal of the whole cicatrix at once to leaving it with the probability of its sloughing.

10, *Berner's Street*,
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