wall. This latter has been shown to occur by Roy and Adami with large doses of strophanthus, and they suggest that in certain diseased conditions it may also arise. This inco-ordination may act in two ways; it may cause regurgitation at the commencement of the systole, by shortening the musclic before the ventricle has shortened, or by the musclic finishing their contraction too soon and lengthening when the ventricles are shortest, and so inducing regurgitation by allowing the valves to penetrate too far into the auricle. Probably this latter inco-ordination is the more common, for very often a short systolic murmur is heard following immediately the first sound and before the second.

That these murmurs are not due to changes in the blood is sufficiently shown: (1) If the blood is largely diluted with water, murmurs arise, but these then occur at numerous points of the vascular system, and show no special fondness for the localities in which they arise in anæmia. (2) Murmurs appear in cases of debility where very small, or no change is apparent in the blood, and yet they may be absent even in severe cases of chlorosis and pernicious anæmia. (3) The intractability of the disease seems in no way to depend upon their presence or absence. (4) Persons convalescing from acute disease, for example, typhoid, and suffering from anæmia, may have no murmur so long as they are confined to bed, but yet on being allowed to get up and undergo physical exertion, murmurs will arise.

4. The accentuation of the pulmonary second sound. This must be due to high tension in the pulmonary circulation. This high tension is due to the feebleness of the left ventricle, which causes it only very partially to empty itself during systole; hence there is not room for so much blood to enter from the auricle during diastole as normally; thus the tension in the pulmonary circuit is raised. Fresh equilibrium might be restored by the right ventricle similarly refusing to empty itself, were it not that in anæmia there is, even with a normal circulation, a poor supply of oxygen to the tissues on account of the poverty of the red corpuscles, hence any diminution of this at once produces "air hunger." This produces a reflex increase of respiration. With every expiration blood is forced from the lung towards the pulmonary veins and the pulmonary artery; on the left side it finds its way into the left heart and the systemic circulation, but on the right the pulmonary valves prevent such outlet, hence any increase in rate or depth of the respirations raises the blood pressure in the pulmonary artery. So that the benefit derived from the increase of respiration be not lost, the right ventricle must rise equal to the occasion and strengthen its contraction so as to deal with the increased pressure in the pulmonary artery. Indeed, just as an increase of vasomotor contraction in chronic Bright's disease increases the contractile force of the left ventricle, so does an increase in the blood pressure in the pulmonary artery increase the contractile force of the right. It is the instinct of the right ventricle to keep the oxygenating power of the blood at its normal level; to do this it will strain every effort, as I have before explained; and any of those temporary exertions which we all so frequently yet unconsciously undertake, will only increase the necessity for renewed exertion on the part of the right ventricle, and therefore the tension in the pulmonary artery.

5. The instability—irritability, if you will—of the cardiac action is due in a great measure to feebleness of cardiac muscle; in some cases fatty degeneration is found. The normal work of the body becomes thus a toil only just able to be performed by the heart; any slight increase may tax its strength to the utmost. Compare the feeble heart for a moment with a donkey who is dragging a load almost beyond its strength; if the cart wheel happen to go over any small unevenness, such as a loose stone, the poor animal is almost upset with the sideward jerk of the cart shaft. Again, if there be even a slight gradient, it will have to strain its utmost; but if it had been harnessed to its own light coster-cart, this slight gradient and loose stone would have been merrily, almost unconsciously, dealt with. The origin of breathlessness and palpitation in anæmia arises from similar causes; the heart is harnessed to a body beyond its strength. Yet this is not all; for we sometimes see anæemics become breathless with some sudden slight exertion or emotion, who when the first surprise is over settle down to their new condition

and work well and steadily to the end. Here the feebleness could not have been in the muscle, but rather in the manner in which the fresh command for exertion was delivered to the muscle; the nervous organisation must be at fault; perhaps with the hypersensitiveness of neurasthenia, which prevented the message being delivered with due toning down and modification.

ON TRANSPLANTATION OF SKIN FLAPS FROM DISTANT PARTS BY WOLFE'S (GLASGOW) METHOD.

By DR. ANTONIO CECI,

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At the Congress of the Deutsche Gesellschaft für Chirurgie, held in Berlin in March, 1885, I admired the beautiful results which Professor von Esmarch had obtained by transplanting large skin flaps according to Wolfe's method, and was much impressed with the simplicity of the procedure. On my return to Italy I commenced to apply this method to the plastic operations in my clinic; so that in April, 1887, when the Congress of Italian surgeons was held in Genoa, I was able to show six patients operated on by this method, the results being then sufficiently established for demonstration. I have communicated to the International Congress in Berlin a memoir of these cases, and have more recently shown another successful case to the Academy of Medicine of Genoa.

It must be understood that Wolfe's method of transplanting skin flaps is quite different from the epidemic grafting of Reverdin and Thiersch; it should be placed rather alongside Tagliacozzi's method, which will always maintain an honourable position in surgery.

CASE 1.—P. A., aged 26, peasant, was admitted into the University clinic on April 11th, 1891. Eight years ago he noticed a small tumour in his right temporal region, which continued growing slowly until two years before admission, when the tumour was lacerated with a pointed piece of wood. The wound did not heal, but caused ulceration, which extended rapidly. A few months before admission it began to cause lancinating pain. As may be seen from the photograph taken before the operation (Fig. 1), there was a large solution of continuity in the anterior part of

Fig. 1.—Before the operation.

the right parietal region, extending to the neighbouring frontal and temporal regions. The wound was of an irregular circular form, with hard borders and excavated. The base was tough, granular, bleeding easily, and in some spots covered with crusts. The bone was also diseased.

The operation was performed on April 17th. The head having been shaved and disinfected, I cut down, at a distance of 1 centimetre from the infiltrated border to the temporal muscle, and then to the periosteum, dissecting it from the neoplasm. The bone was diseased to the extent of a 10-centimetre piece. It was cleaned. Five arteries were tied, and upon the other bleeding surface antiseptic compresses were applied. On April 21st the dressing was removed, when there was oozing of blood, which was arrested by washing. The bleeding surface was of an oval shape, measuring in its oblique diameter vertically 8.5 cm. by 7.2 cm. and circumference 26 cm. I then dissected with the scalpel the part of the external table of the parietal bone which was diseased, and applied a compress with a sublimate solution, whilst the brachial flap was being prepared. From the external posterior surface of the right arm I took, with two longitudinal parallel incisions of 4.5 cm. each, a cutaneous flap of 17 cm. long, and removed it from the arm. The dissection of the flap took one hour and a-half. The skin was detached in the plane of its connective tissue, and the under surface having been quite cleaned of connective tissue the flap appeared smooth and white, like the white skin of a glove. Then the dressing from the head was removed and washed with a solution of borax. The dissected skin was divided into two halves, and applied to the head in such a way that the line of reunion cut vertically, and a little obliquely, in two halves the oval surface of the wound. Where the skin was superfluous it was cut, and the small bits thus obtained were applied at the four peripheric points where the flaps were deficient. The flaps, well adjusted, were kept applied for some time with the palm of the hand to its new site. My colleague, Dr. Smutny, in the meantime adjusted the wound of the arm, into which he put eight sutures, by which means he obtained a straight line of reunion, upon which he applied antiseptic dressing. The transplanted skin flap was covered with silk protective, and above it gauze and iodoform.

The patient was free of all inconvenience during the treatment. The dressing was removed on the sixth day after the transplantation, when the flaps were found perfectly adherent to the neighbouring skin, so that no trace of any division could be discovered. The transplanted skin was diffused with red spots. The little flaps were also adherent and red. But in the anterior superior surface of the transplanted skin there were three greyish white lines where the epidermis was raised containing bloody serum, and the skin corresponding to it had undergone partial sloughing in its thickness, but even this part never separated from the flap. The wound was then dressed every alternate day with boracic vaseline. Gradually the transplanted flap cast off its epidermis, and changed its red appearance into a healthy condition. The sutures from the arm were removed on the twentieth day, when there was a solid adhesion by first intention. On May 20th the patient left the hospital perfectly cured.

It can now be seen on examination (Fig. 2) that the surface

Fig. 2.—After the Operation.

of the arm presents a long cicatrix of 17 cm. The transplanted skin presents a rose coloured surface of an irregular oval shape, measuring in its largest oblique diameter 8 cm., in

its vertical 7 cm., and in circumference 25 cm. These measurements are a little less than those noted after the removal of the neoplasm. Sensibility is nearly normal in the whole

Fig. 3.—Before the Operation.

transplanted surface. The skin is movable except where it is applied directly to the bone, there it remains adherent. Upon

Fig. 4.—After the Operation

the transplanted flap there are three lines a little redder and smoother than the neighbouring skin; these lines are cicatricial tissue and correspond to the spots of partial sloughing

Fig. 5.—Before the Operation

Fig. 6.—After the Operation.

above mentioned. In comparing these with the rest of the surface of the flap we may appreciate the comparative result

of the epidermic grafting of Reverdin and Thiersch, where we obtain a cicatrix, and the transplanted skin, according to Wolfe, by which we obtain an entire living skin.

CASE II.—Figs. 3 and 4 represent that of J. P., aged 54, chef de cuisine, who suffered from a cratiform epithelial ulcer on the right inner canthus and on the bridge of the nose; the nasal process and the superior maxilla were denuded of the periosteum. A year before his admission he had to give up his occupation on account of his repulsive appearance. This deformity was cured by a flap from the arm, cm. 4.5 x 6.5, circumference 29.25 cm. The artistic result, as seen from the photograph taken after the operation, was excellent, and he was able to resume his occupation.

CASE III.—Figs. 5 and 6 are that of C. O., aged 52, who suffered from a large epithelioma of the eyelid, face, nose and chin. After the extirpation of the tumour a flap was brought down from the forehead for correcting the deformities, leaving a large granulated ulcer on the forehead. This was again corrected by a flap from the arm, 4 cm. x 5, circumference 20 cm. The flap was adjusted with the palm of the hand without any sutures. Complete adhesion has taken place.

These are some of the typical cases in which Wolfe's method rendered me invaluable services.

The modifications which I venture to suggest are: (1) In gradually reducing the number of sutures I have at last given them up altogether, finding that the flap adheres like sticking-plaster. (2) Instead of transplanting the skin at once after preparing the surface, I find it better to allow two or three days to intervene. This is especially imperative when arteries have been tied, because these bits of sloughing tissue may have a septic effect upon the transplanted flap. (3) To obviate the objection of cutting an irregular flap to the required shape and measure and thus leaving a granulating sore on the arm, I remove it in a straight line, whereby I obtain a lineal cicatrix.

Of seven cases on which I operated by this method, and which I reported to the International Congress in Berlin, one was nearly a complete failure, but the skin flap was one of very large size, measuring 96 cm., taken from a freshly amputated limb to cure an ulcer of the foot and leg.

Notwithstanding that the flaps transplanted by this method undergo contraction of its surface in the lapse of years, they always remain unlike a cicatrix. Besides, we find in other plastic operations, when the flap is taken from distant parts according to Tagliacozzi, or by migration (*Wanderlappen*, von Hacker and Obalinski), that it undergoes a slight process of shrinking in course of time.

I think, therefore, that Wolfe's method is admirably adapted to plastic operations on the forehead, the cheeks, the surface of the cranium, and on the nose, when the bones are intact, in which regions it forms sufficient cutaneous protection and shows little tendency to subsequent retraction.

A CASE OF MYXEDEMA WITH INSANITY TREATED BY INJECTION WITH EXTRACT OF THYROID GLAND

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THE results reported to have been obtained in cases of myxœdema by injection of an extract of thyroid gland have been sufficiently favourable to justify a more extensive trial, while the small number of published cases may possibly render the following record of some interest. The account published by Dr. George R. Murray, of Newcastle-on-Tyne, in the *BRITISH MEDICAL JOURNAL*, October 10th, 1891, suggested its application in a case which seemed likely to furnish a good test of the efficacy of this treatment conducted under favourable circumstances.

M. P., aged 43, married, was admitted in October, 1887, subject to delusions, incoherent in her language, and violent in her manner. It was her first attack, and had lasted twelve months. Her general mental condition was one of exaltation, and her behaviour, though in the main quiet, was varied occasionally by paroxysms of excitement characterised by shouting, gesticulation, delusions of persecution, and forcible statement of fancied grievances. When quiet, she employed herself with the needle. The facies and other well-known characteristics of myxœdema were noted at the time of admission, and she continued in practically the same state mentally and bodily till the commencement of treatment on October 21st, 1891. Note on present state at that time: The patient exhibits very typically the thickening of hands and feet, the coarsening of the features, blueness of lips, persistent malar flush, and dry earthy skin which mark the disease. The hair is dry, rather short, and absent on the back of the neck. No trace of thyroid gland is to be felt. There does not