SOCIETIES' PROCEEDINGS

ROYAL SOCIETY OF MEDICINE—SECTION OF OTOLOGY AND SECTION OF LARYNGOLOGY

Held at Birmingham July, 1934

Chairman—DR. HARRISON (President of the Section of Otology)

Experiences with Fascia Lata Grafts in the Operative Treatment of Facial Paralysis

By SIR HAROLD GILLIES (London)

Objects of the operation.—This type of operation must not be confused with nerve-grafting, which one hopes will eventually become so successful that few, if any, cases of paralysis will remain uncured.

It is essentially a palliative operation and, like a cock-up splint to a cut musculo-spiral, it serves as an internal grafted surgical splint to counteract the overaction of the opposing muscles. In addition to this surgical stay effect, the loops of fascia are now attached to muscles other than the facial, such as the temporal and masseter; and when these muscles are voluntarily contracted, a movement simulating facial expression is produced. Emotional response is, of course, out of the question unless an intensive training is ever found to produce an associated movement.

Points of interest in a résumé of previous work.—The use of transplanted fascia lata has now had a sufficiently extensive trial in other conditions to prove its worth as a means of support in facial paralysis. The experimental work of Gallie and Le Mesurier[1] first established it as a reliable method of cure of extensive herniae, and for their purpose the fascia was obtained in strips through a long incision in the thigh. The method of obtaining the fascia was later modified by Masson of the Mayo Clinic, and others who used a more convenient form of ring-stripper and cutter, necessitating only a tiny incision in the leg, and thus avoiding a long and unsightly scar.

Blair,[2] New, Wardill,[3] Brooke,[4] Lodge,[5] Fischer,[6] Sheehan,[7] and Moskowicz,[8] have all recorded their experiences with the type of operation in which fascia lata bands formed a fixed support. The improvement in facial symmetry is marked and, subjectively, the patient is usually much more comfortable. No movement on the paralysed side is developed, though not infrequently the amount of

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recovery which sometimes occurs is hastened by the support given to the paralysed muscles. In the second method a certain degree of support and, in addition, muscular movements are obtained by means of the transplantation of the muscles of mastication into the paralysed parts. The temporal muscle, with or without the addition of the masseter, is split into segments; each with a nerve supply, and is implanted into suitable positions. The manœuvre as described by Eden,[10] Gillies[11] and by Lexer[9] and Rosenthal has been favourably reported on by Halle[13] and Sheehan. A definite objection to this operation is that the support is unsatisfactory. The third method, for which some originality may be claimed, is a

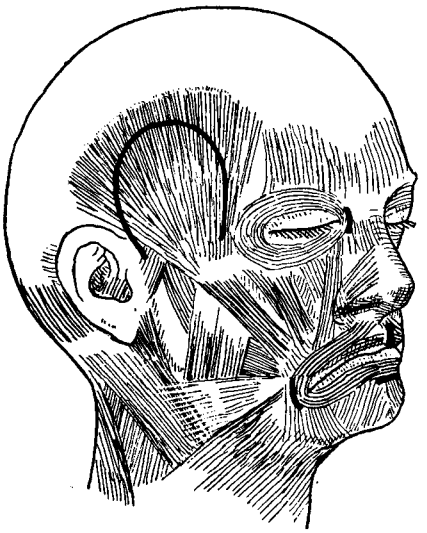


FIG. 1.

combination of support by means of fascial slings, and muscular movement by transplantation of temporal muscle in such a way as to create a new muscle acting from the temporal region and having as its tendon attached to the angle of the mouth, a band of fascia lata. The present communication records several encouraging examples of this manœuvre.

Method of taking the grafts.—There are two main methods of taking the graft, (1) the open method, and (2) the closed.

The open method, as is well known, consists of making a long incision to expose the fascia lata on the outer aspect of the thigh. The closed method consists of making a small incision above the knee, exposing the fascia, and using the ring-stripper and fascia cutter. In some clinics this method is barred because on one occasion hernia of the vastus externus was said to have interfered

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permanently with the use of the limb. The writer has not found this to be a serious risk in his experience.

Methods of application.—The loops of fascia lata are usually passed round the facial muscles at one or more of the following points: (*a*) the centre of the lower lip; (*b*) the corner of the mouth; (*c*) the centre of the upper lip; (*d*) round the palpebral fissure (Fig. 1). The most convenient instrument for passing these loops round the muscles is the Blair type fascia needle. It can be operated through tiny incisions in the situations named. It is considered advisable to embrace the fibres of the non-paralysed muscle in the upper and lower lip. The first series of cases had separate loops to

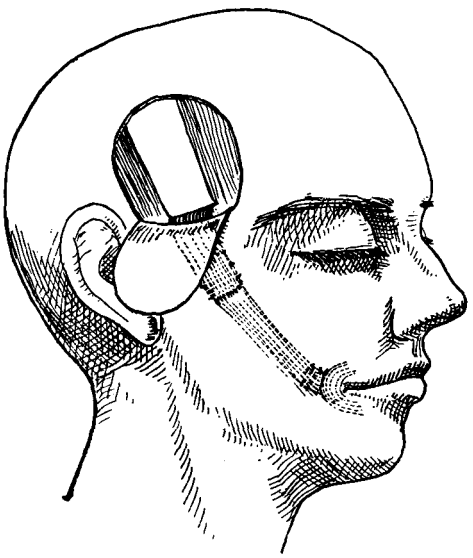


FIG. 2.

each spot and these were fixed to the fascia in front of the ear. This hold seldom gives; but the hold given by the loop round the paralysed circumoral muscle at the corner of the mouth usually does give and has subsequently to be tightened. As the paralysed half of each lip is much elongated, these loops are used to prevent this attenuation, in addition to acting as a general stay. To effect this a loop must be passed from the corner of the mouth to the centre of each lip. A convenient method of applying this particular support is to pass a figure-of-eight loop embracing both upper and lower paralysed muscles and fixing the same at the corner. From the corner another loop or, possibly, a continuation of the same can be taken up to the point of fixation. In later cases the point of fixation was round the zygoma, still later to the fascia over the temporal muscle, the band passing deep to the zygoma, the idea of

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this variation being to pull the corner of the mouth upwards and backwards and so produce a more normal appearance. The fascial bands are attached to their fixed point by means of either silk or catgut sutures. The writer prefers catgut. In addition, if a loop has been passed round the upper or lower lip, or both, to prevent their over-elongation, that loop must be fixed by sutures.

Activation of the face by attachment of fascia lata to temporal muscle flap.—Activation of the facial muscles is now considered advisable and possible by attaching a flap of the temporal muscle to the band and loop in such a way that when the temporal muscle is contracted voluntarily by the patient, a movement of the face simulating facial expression occurs. It was wondered whether an individual patient would learn by practice to associate mentally the temporal muscle action with that of the facial. To a certain extent one of the patients has learnt to do this, but it was felt that, if caught unawares,

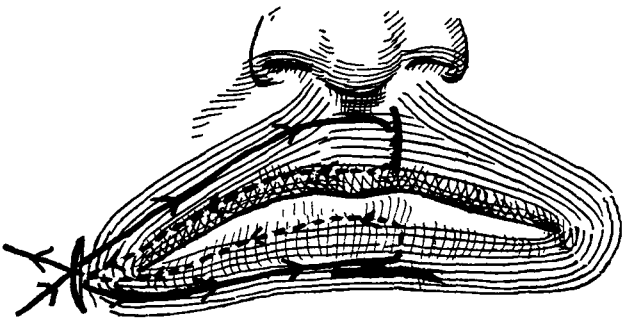


FIG. 3.

the patient's control would break down and the previously exhibited semi-response to emotional stimulus would no longer be demonstrated.

In a War case, in 1917, the writer brought down the temporal muscle-flap to fill in the gap caused by the loss of the malar bone and to simulate expression in this neighbourhood and assist in the closure of the eyelids.[11]

It is obvious—as in the cases shown—that if a flap of temporal muscle is detached from its origin and turned downwards and forwards over the zygoma, there will be a considerable bulge in this neighbourhood. Sheehan therefore advocates the formation of a channel in the zygoma to accommodate the muscle belly. The writer has not done this. The muscle belly is prepared and isolated, its nerve supply being kept intact. It is freed from the superficial layer of the temporal fascia which is attached to the zygoma, but the deep layer which forms the sheath of the muscle is kept intact. A band of fascia lata is now spread over the raw surface of the muscle, viz., that surface opposite the one covered by the deep

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temporal fascia, and is sutured into this position. The muscle belly is therefore encircled with a fascial sheath with a continuation of pseudo-tendon of considerable length. The fascia needle is now passed through the incision previously made at the corner of the mouth and, when drawn down, the muscle belly is pulled into the pre-zygomatic pocket which has been prepared for it. It now remains to attach this pseudo-tendon to the stay loop which encircles the paralysed circumoral muscle at a tension that will give a straight mouth and nose at rest, and a simulation of expression when the temporal muscle is contracted.

Treatment of the paralysed eyelid.—During the Great War many experimental operations were attempted by the author in the form of spring cartilages to encircle the palpebral fissure with not very practical results.[12] Fascial loops encircling the fissure have been passed and fixed at one or other of the canthi. A fascial loop has been passed from the forehead through each canthus into the lower lid, and when attached to the frontalis muscle a definite lift of the lower lid is obtained. All these methods undoubtedly give considerable improvement as regards the protection of the eye by the raising of the lower lid.

The use of the temporal muscle and its fascia promises to be a more satisfactory method of obtaining muscular movement for the paralysed eyelid. A flap of muscle is again cut, this time rather far forward, and a considerable amount of temporal fascia is taken with it. By splitting this fascia it may be made sufficiently long so that, while still attached to its original muscle, a strip can be passed to the upper and lower lids to meet at the inner canthus; at this insertion it may be fixed to the periosteum. When the temporal muscle contracts, this little flap squeezes the two eyelids together. The muscle action is, as a rule, not very strong, but quite sufficient to give a definite support to the lower eyelid.

The operative risks.—Too much care cannot be taken in cleansing the patient's buccal, orbital and nasal cavities from any potential septic foci, previous to operation. In addition, if the paralysis has been caused by mastoid disease, everything should be done to make that cavity as aseptic as possible.

As regards the immediate pre-operative treatment: the surface of the skin and, in addition, the inside of the lips, and the tongue, and the roots of the teeth should be thoroughly cleansed with surgical spirit. At the commencement of the operation a sterile pack should be inserted between the lips and the teeth. In spite of all these precautions, in the writer's series, some mild sepsis has occurred in a proportion of cases, but usually in only one band among the various ones that have been implanted, e.g. the lowest band to the lower lip, or more frequently the upper band with its fixation to the front surface of the zygoma, or in the malar region.

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A Series of Twelve Cases Improved by Fascia Lata Sling Operations

	Cause.	Duration.	Degree.	Signs and Symptoms.	Operation.	Result and Present Condition.
1	Removal of cervical tumour.	8 years.	Incomplete.	Epiphora in cold weather. Drooping of right cheek. Drooping of angle of mouth. Overaction of left side.	Right internal canthoplasty. Insertion of facial slings into :— (1) Upper and lower lips. (2) Temporal region. Purely supportive.	Subjectively : Excellent. Objectively : Good.
2	Operation for mastoid disease.	8 ,,	Complete.	Drooping of mouth. Eye removed for separate condition. Inability to close eye.	Fascial slings to upper eyelid, upper and lower lips and from temporal region to corner of mouth. Purely supportive.	Very good. Partial recovery of muscle movement.
3	Removal of tumour involving facial nerve.	4 ,,	Complete.	Inability to close eye. Epiphora. Sagging of mouth and sagging of cheek. Dribbling.	Fascial slings to upper and lower lips, angle of mouth and temporal region. Purely supportive.	Objectively : Improved. Subjectively : Excellent result.
4	Anterior poliomyelitis.	25 ,,	Complete.	Inability to close eye. Sagging of right cheek.	(1) Triple fascial slings to upper and lower lips, and angle of mouth. Purely supportive. (2) Temporal muscle turned down and attached to slings, giving combined support and movement.	After (1) marked improvement subjectively and objectively. After (2) good movement of right side of face. Great improvement.
5	Operation for mastoid disease.	23 ,,	Complete.	Epiphora. Inability to close eye. Marked sagging of cheek and angle of mouth.	(1) Triple fascial slings. Purely supportive. (2) Temporal muscle added to slings and these shortened. One year after (1). (3) Shortening of muscle-belly and bands. Muscle fascial grafts to eyelids.	After (1) much improvement but still some sagging of mouth. After (2) and (3) subjectively and objectively improved.
6	? Mastoid abscess.	40 ,,	Complete.	Epiphora in cold weather. Inability to close eye. Sagging of cheek and angle of mouth. Biting of cheek.	Four fascial slings inserted from temporal region to right ala, upper lip, angle of mouth, lower lip. Purely supportive.	Excellent result.

	Cause.	Duration.	Degree.	Signs and Symptoms.	Operation.	Result and Present Condition.
7	Bell's palsy.	19 years.	Incomplete.	Epiphora in cold weather. Sagging of mouth and cheek.	Triple slings to upper and lower lip, and from temporal region to angle of mouth. Sling to upper eyelid. Purely supportive.	Subjectively: Good. Objectively: Fair.
8	Cholesteatoma petrous temple.	2½ ,,	Complete.	Epiphora in cold weather. Inability to close eye. Sagging of left cheek. Sagging of angle of mouth.	Triple slings to upper and lower lip, angle of mouth, and temporal muscle transplant to separate sling. Combined supportive and muscular.	Subjectively: Affords great comfort. Objectively: Good movement.
9	Bell's palsy.	26 ,,	Complete.	Epiphora in cold weather. Inability to close eye. Sagging of mouth. Biting of cheek.	Double fascial slings to upper and lower lips and angle of mouth from temporal region. Partially supportive.	Subjectively: Marked improvement and affords great comfort. Objectively: Good.
10	Operation for mastoid disease.	11 ,,	Incomplete.	(Had had fascial hypoglossal anastomosis with good results.) Inability to close eye. Dribbling. Sagging of corner of mouth.	Triple slings to upper and lower lips, angle of mouth to temporal region.	Subjectively: Definitely improved.
11	Operation for mastoid disease.	3 ,,	Complete.	Inability to close eye. Slight sagging of mouth. Biting of cheek. Overaction of sound side.	Triple slings to upper and lower lips and temporal region with temporal muscle transplant into separate sling. Supportive and muscular.	Subjectively and objectively good.
12	Operation for mastoid disease.	6 mths.	Complete.	Epiphora in cold weather. Inability to close eye. Sagging of corner of mouth.	Triple slings to upper and lower lips and temporal region with muscle transplant into separate sling. Supportive and muscular.	Subjectively and objectively excellent. Good movements.

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In the latter case the cause is probably a mildly infected conjunctiva. To obviate this some antiseptic medicament should be applied frequently to the eye. Occasionally the band is passed too near to the mucous membrane of the mouth. In one case this was done by the writer, and the band eventually became exposed in the lower lip, owing to mucous membrane sloughing over the band.

Apart from sepsis affecting the band, hæmatomata are not entirely unpreventable in such an operation, and these may become infected. Trouble has also occurred in the form of serous exudate, which has eventually cleared up on the removal of a silk knot. Such infections have not, in the writer's experience, ever been acute, and have usually occurred after the seventh or eighth day, or even during the third week. Partial cosmetic failure of the operation may be due to the hold at the distal end of the band pulling on an atonic muscle. This frequently happens at the corner of the mouth, and less frequently at the point of fixation. The appearance in the writer's series of cases is often partially vitiated by a groove caused by one or other of the bands, particularly that to the lower lip.

The limit of cosmetic result.—Objective results: In a review of the cosmetic effect, in the series under notice a very marked improvement is observed in all the cases but, in view of the lack of emotional response, the deformity, though mitigated, is by no means cured. The photographs are extremely difficult to standardize, other than those taken with the patient's face at rest, which in almost every case are satisfactory. It is obvious that it is almost impossible to obtain the same amount of facial expression at two different sittings to a photographer, and "before-and-after" photographs in this particular condition must at present be regarded as unreliable. The best cosmetic results in the writer's series have been obtained with the temporal muscle-flap operation.

Subjective results: The patients themselves invariably volunteer the statement that their faces feel much more comfortable with the support that has been provided to prevent the overaction of the sound side. The psychological effect is also one of considerable value, even when the cosmetic effect is disappointing to the surgeon.

The choice of case.—The writer believes that in all cases of facial paralysis some form of fascial support is indicated. It is to be hoped that nerve-grafting will progress by leaps and bounds; but even in these cases the fascial support would seem to be the most rational means of splinting the paralysed muscle during the period of recovery.

One may say that the scars produced in inserting the bands are negligible.

In the group of cases in which nerve-grafting gives no hope—i.e. when there is no response to Faradism—the temporal muscle activation is an operation which should be definitely considered.

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Various writers have described operations for using strips of the masseter to activate the facial group, and this muscle certainly appears to the writer to have some advantages over the temporal muscle, to the lower group.

REFERENCES

[1] GALLIE and LE MESURIER, *Canad. Med. Assoc. Journ.*, Toronto, 1921, xi., 504-13; *Brit. Journ. Surg.*, 1924-5, xii., 289-320.
[2] BLAIR, V. P., *South. Med. Journ.*, 1926, xix., 116; *Ann. Surg.*, 1930.
[3] WARDILL, W. E. M., *Newcastle Med. Journ.*, 1933, xiii., 35.
[4] BROOKE, R., *Brit. Journ. Surg.*, 1933, xx., 523.
[5] LODGE, W. O., *Brit. Journ. Surg.*, 1930, xvii., 422.
[6] FISCHER, H., *Ann. Surg.*, 1929, lxxxix., 344.
[7] SHEEHAN, J. E., *Journ. Med. Soc. New Jersey*, 1932, xxix., 556.
[8] MOSKOWICZ, L., *Wien. klin. Wchnschr.*, 1928, xli., 1151-3.
[9] LEXER, E., *Neue. Deutsche. Chirurg.*, 1919, xxvi. a.l., Teil 548.
[10] EDEN, *Beitr. z. Klin. Chirurg.*, 1911, lxxiii., 116-26.
[11] GILLIES, H. D., *St. Bart. Hosp. Journ.*, May, 1917, 80.
[12] GILLIES, H. D., "Plastic surgery of the face," Oxford, 1920.
[13] HALLE, "Die Beseitigung der Entstellung bie Facialis-Lahmung." Extrait de la *Revue de Chirurgie Plastique* (3me annee, No. 1, Mai, 1933).

DISCUSSION.

MR. LIONEL COLLEDGE said that there was one point on which perhaps Sir Charles Ballance might like to say something more, and it arose out of the investigation of these cases. Sir Charles had shown that after a certain period the nucleus of the facial nerve degenerated. The operation of nerve-grafting had, in the cases shown, been performed fairly early, soon after the injury or accident which caused the paralysis, and presumably, judging by the excellent results, the nucleus had either not degenerated, or had done so only to such an extent that recovery was still possible. But he (the speaker) thought that after degeneration had been present for some time, however successful the nerve-grafting might be in itself, the nucleus would be permanently damaged, and such a result as those shown would not be possible. Would Sir Charles say after what period he thought the operation could succeed, because if that operation was not practicable, he (the speaker) supposed it would still be possible to carry out anastomosis with another nerve—one in which the nucleus was still intact. Or, alternatively, certainly after many years, the operation Sir Harold Gillies had demonstrated would still be possible.

He did not know whether Sir Charles Ballance thought that the old anastomosis was entirely a thing of the past, or that it still had

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its uses. One now saw fewer of these cases, but most of those sent for advice or operation were in his (Mr. Colledge's) experience, old ones, and were those in which a fascia lata graft would be more applicable.

Mr. E. WATSON-WILLIAMS said that he had performed the operation of facial-glossopharyngeal nerve-grafting on three occasions, and in 1927 he had shown two of the patients at a meeting of the Section in order to demonstrate the degree of voluntary movement obtained.* Turning to the question of decompression of the facial nerve within the canal, the difficulty was that one so rarely saw a case in which the need for this procedure was at once apparent. Only twice had he had such cases and, in both, the post-operative result had been perfect; he had shown one of the patients before at a meeting of the Section in 1929.†

Did Sir Charles Ballance advocate early decompression of the nerve in every case of facial paralysis due to cold or to herpes? A large proportion of these cases recovered spontaneously.

If one was contemplating intracanicular nerve-grafting, how long should one wait before deciding to operate? By an extraordinary coincidence he had had, within one month, three children brought up with mastoiditis and facial palsy; all were treated by simple (Schwartze) mastoidectomy. In none of the cases did the operation afford any explanation as to why the paralysis had occurred. One patient had begun to recover three days after the operation, and had completely recovered in three weeks' time; another, after three weeks, had just begun to recover, and was making steady progress; the third, paralysed eleven days before the operation, had shown no change in a month. Was the method of " preparing " a nerve for use as a graft to divide it and leave it to degenerate? And if so, how long before using it should this be done?

Mr. SYDNEY SCOTT said that it was necessary to discriminate carefully in the choice of the procedure to adopt for facial palsy, and to ascertain the site of the lesion before deciding what method to employ. A central ganglionic lesion of the facial nerve would not be improved by a nerve-graft.

A traumatic lesion of the facial nerve below the geniculate ganglion should be a type of case suitable for a nerve-graft, provided both ends were identified. When, as Sir Charles Ballance and Dr. Duel advocated, the external cutaneous nerve of the thigh had been divided and isolated a fortnight before transplantation, he (the speaker) had found it advisable to slip a small rubber tube over the

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* *Proceedings*, 1927, xx., 1439 (Sect. Otol., 59).

† Ibid., 1929, xxii., 1410 (Sect. Otol., 98).

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distal end of the divided nerve, and close the incision. This enabled one to find it much more easily a fortnight later, when cutting down to remove a section for the graft.

Sir Harold Gillies' procedures were valuable, whether a nerve-graft were ultimately employed or not.

Mr. THACKER NEVILLE said that when he had been working in China before the Great War he had anastomosed the spinal accessory nerve with the facial nerve in several cases. His most prominent success was in a missionary who was afterwards able to preach with his face straight if he raised a book in his hand.

Later, when he had joined the Army, Sir Charles Ballance was his consultant, and when in Malta he had seen Sir Charles performing an anastomosis; this had been a further stimulus to him (the speaker) in his work. When making an anastomosis he used to bury the anastomosed ends in the posterior belly of the digastric muscle. The anastomosis with the spinal accessory was a successful operation, so he had never aspired to complicated operations, as, e.g. that with the descendens noni.

Then came the fascia lata operation, which appealed to him, and he had carried out four. In only one case had sepsis occurred, and that was through his own fault in operating on a patient with a discharging ear. The three others had been successful (see reports on p. 758). They showed the result of using the fascia lata as an internal sling to enable the muscles to recover.

The technique of the operations was an exaggerated aseptic technique, similar to that followed by Sir Arbuthnot Lane when bone-plating, i.e. no part of an instrument which had touched the gloved hand must be allowed to go into the wound, and in these operations he (the speaker) sterilized the instruments at least five times, re-sterilizing before the insertion of each graft, and the towels were repeatedly changed. The dangerous site with regard to sepsis was the corner of the mouth.

He used intratracheal anæsthesia, inserting the tube himself. He did not go round the mouth with one graft as Sir Harold Gillies did; he used five grafts, and that was why he re-sterilized the instrument five times; he took two hours for the operation. He thought the secret of success was to employ this exaggerated aseptic technique.

He had not tried the facial nerve-grafts which Sir Charles Ballance had shown. He understood that Sir Charles used gold foil for covering the grafts, and he asked whether the foil was left in to be covered by granulations or whether it was removed after a time. Was it dental foil?

Dr. DOUGLAS GUTHRIE said that only once had he carried out the operation which Sir Harold Gillies had described, but from that single operation he had learned much.

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The patient was a young woman suffering from facial paralysis following a mastoid operation, and there was much scarring below and in front of the ear, so that operative exposure of the peripheral end of the facial nerve was impossible. The main deformity was drooping of the angle of the mouth. The operation consisted in introducing a fascial sling to support the angle of the mouth, in the manner described by Sir Harold Gillies. The graft passed across to the healthy side—an essential point—and a flap of temporal muscle was cut. The result was satisfactory, and the patient had since done fairly well, her appearance being much improved.

Dr. Guthrie asked whether Sir Harold had any difficulty in securing the mobility of the graft or grafts which he used, as it occurred to him (the speaker) that a flap of muscle turned down in this way would become fixed by dense fibrous adhesions. In his own case there was little mobility, though the angle of the mouth was supported. Did Sir Harold wrap this muscle upon itself, so as to have a fascial covering to the raw muscle surface, or did he take any other measures to ensure mobility ?

He believed that Sir Harold passed his graft just below the mucous membrane, deep to the skin and to the muscles of the face. He (the speaker) had passed the strip of fascia only below the skin ; this, he now thought, was a mistake as, though the result was good, a visible ridge of fibrous tissue remained.

He further asked how Sir Harold ligatured one graft to the other, i.e. the graft crossing the face to the graft passing around the mouth. Fascia was a very slippery tissue ; if one simply sutured one end to the other the suture material was liable to slip off.

Mr. HOLT DIGGLE said he would like to know whether Sir Harold Gillies had given up associating this type of sling operation with face-lifting, i.e. whether he found that after putting in a tight sling there was a redundancy of skin, which required lifting. Or had the lifting of the face been given up ?

Sir CHARLES BALLANCE (in reply) said that before the War he had performed some of the operations which Sir Harold Gillies had described, e.g. such operations as lifting a portion of the temporal muscle, or a portion of the anterior edge of the masseter, as described in 1911 in a paper by Professor Eden of Jena, which had come to his notice some years before the Great War. Professor Eden mobilized the anterior part of the masseter, carefully avoiding injury to the masseteric nerve ; he (Sir Charles) passed it across the face and anchored it to the angle of the mouth. Eden also passed the slip from the temporal muscle to the lower eyelid. He did not think he had himself ever done that operation, but he had been struck, in these facial palsies, with the fact that the lower eyelid was depressed, and one of the things the skilled observer saw was white conjunctiva below the cornea.

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The other method was that of Busch, which was published in 1910. In this a bronze wire was passed round the zygoma, and brought out at the upper lip. He (Sir Charles) had used that method, but he substituted very fine platinum wire, such as that employed in the laboratory. Platinum was not acted upon by the tissues, and he believed that his results had been made better by the use of the anterior portion of the masseter muscle, and the wire. He still thought that the wire method was an excellent one to attempt, though he would not say it was better than had been described by Sir Harold Gillies, but those who were *not* " Gillies " might try the Busch operation by using platinum wire.

The answer to Mr. Colledge's question about the nucleus could be given clearly. In long-standing paralysis it was known that the opposite Rolandic cortex atrophied. If the speech centre was destroyed in early life, the cells of the opposite cerebrum took up its function. Mr. Colledge wanted to know what happened when the medullary nucleus was completely destroyed. If one performed an operation for the relief of facial palsy when the nucleus was destroyed he did not think it made any difference. He (Sir Charles) had carried out many operations for facial palsy two, three, five years after the onset of the palsy, and with success, and in those cases the medullary centre, and probably also the cells of the facial area of the opposite Rolandic cortex were gone, but the operations had been a success.

In none of his cases of facial palsy had the patient died ; indeed, he thought that, except in cases of fractured base of the skull, he had never known an autopsy on a facial palsy case. If any members came across a fatal case of facial palsy it would be of great importance to have it fully reported, especially in regard to the medullary nucleus.

Sir HAROLD GILLIES, in reply to Dr. Guthrie, said that the new muscle belly was completely surrounded with fascia, as described in the paper. The method of suturing one graft to another was by transfixion with a needle threaded with chromic catgut for the primary knot, and subsequently the fascia was passed round the fascia, or through it, so as to make it quite secure. He had not found any difficulty in this procedure.

In reply to Mr. Holt Diggle : It was advisable to remove a wedge of skin in the pre-auricular temporal region when there was an excess of skin ; but in his opinion that did not permanently aid the alleviation of the facial paralysis.

He (Sir Harold) was delighted with the remarks that had been made about his paper, and the kind reception which had been accorded to it.

Mr. Watson-Williams apparently agreed about decompression, but asked when it should be done. He (the speaker) supposed that

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in cases in which cold was the cause of the paralysis, and also in those in which the geniculate ganglion was inflamed, perhaps 85 to 90 per cent. of the patients recovered without anything being done. If at the end of three months it was found that there was no response to the Faradic current, it would be ridiculous to wait longer—he, personally, would not wait so long, but three months was the limit. In the past, surgeons seemed to have waited months and years before suggesting treatment in cases of surgical facial palsy, whereas it was now known that wonderful results ensued if medical treatment was given up and an early operation performed. There could be no doubt that the earlier the operation was done, the nearer perfection was the result, and also that the younger the patient, the better was the result, and the more rapid was the recovery.

Mr. Watson-Williams had also asked about otitis and suppuration. If one was going to use a graft it did not matter if suppuration was present; but what was important was that the surgeon must himself do the dressing every day.

With regard to Mr. Thacker Neville's question about gold-leaf: that was put on at the time of the operation in order to prevent any drag on the graft region in the process of dressing. It was removed seven days afterwards. One could not then see the graft, but continued to dress the wound. If the surgeon did the dressing gently himself it would be a success; if he handed this over to a dresser who did not know anything about it, or to a nurse, no surprise need be felt if it failed.

As to the preparation of the graft, Cajal mentioned from eight to twelve days. In his (Sir Charles's) own work from ten to twenty days was the time. Dr. Duel, when he had two cases in hand, would sometimes take a nerve from one patient to graft both. That was not a good plan unless a blood test was carried out beforehand to ensure that both belonged to the same blood class, but both Dr. Duel's patients had done well. In his paper he described the preparation of the graft. The degenerated graft was in such a condition as to be particularly favourable to the passage along the empty tubes of the degenerated graft of the axons of the central segment of the nerve.

Mr. Sydney Scott had asked what happened if the lesion involved the geniculate ganglion. He (Sir Charles) did not think that mattered. [Mr. Scott: If you have a case with a fractured base, must you do the old anastomosis?] Yes, that was so. He had had cases of gunshot fracture of the mastoid in which the whole region was destroyed, and one could not perform the new operation on the injured nerve in the aqueduct because the nerve had been blown away.

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Royal Society of Medicine

CASES

Three Cases of Facial Paralysis treated by Temporal Muscle Graft and Fascia Lata Control.—SIR HAROLD GILLIES.

CASE I.—G. M., male, aged 20.

History.—August, 1930. Mastoid operation.

First seen, 16.6.33.—Complete right facial parálysis.

Operation, 27.10.33.—Figure-of-eight loop fixation of upper and lower lips. This loop was drawn upwards and backwards by two further strands of fascia, one being fixed deep to the zygoma, forming a rigid support, while the other was passed superficial to the zygoma and attached to a turned-down flap of temporal muscle.

Operation, 17.11.33.—Strip of temporal muscle and its fascia passed forwards to embrace the upper and lower eyelids.

Complications.—Slight slackness in the pulling-back effect. Muscle movements present but poor ; possibly the stay suture was a mistake.

CASE II.—F. B., female, aged 27.

History.—At age of 9 months, mastoid operation. Nerve not cut but it was seen and found to be definitely necrotic at operation. Left-sided facial paralysis developed during childhood. One year's electrical treatment.

First seen, 13.3.30.—Requires fascia lata sling operation.

Operation, 9.4.30.—Three fascial loops passed from incision in upper parotid region to (1) angle of mouth, (2) centre of upper lip, (3) centre of chin.

Result : Improvement, especially when at rest, but there was failure of the middle band to hold the corner of the mouth. Referred to Dr. C. B. Heald for electrical treatment.

Operation, 3.3.31.—Fascia sling uniting corner of mouth to temporal muscle. Result : Improvement. Further electrical treatment.

Operation, 20.3.34.—(1) Muscle fascial graft to eyelids, (2) old bands and muscle belly hitched up, (3) excision of excess skin, (4) excision of excess mucous membrane from lower lip.

Complications.—Marked groove effect of the fascia pull, especially of the lower band. Muscle movements strong. Eyelid result good.

CASE III.—J. T., male, aged 8.

History.—14.3.33, admitted to Downs Hospital with chronic mastoid disease, having had aural discharge for three years. Mastoid operation, *April*, 1933. A small fistula was found passing through the posterior wall of the meatus into a diseased cell behind the bridge, very near to the plane of the facial nerve. During removal

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of the diseased bone the nerve was damaged, and facial paralysis was noticed as soon as the boy came round from the anæsthetic.

First seen, 20.10.33.—During the six months since operation no signs of recovery, in spite of treatment with massage and electricity.

There has been no reaction to Faradism at any time. Mastoid wound now healed.

Operation, 16.2.34.—Strip of temporal muscle turned down on right side over zygoma. Fascial strip sutured to undersurface and passed through to corner of mouth and forward, at which point it was attached to a figure-of-eight loop, embracing the affected circumoral group.

Complication.—Slight serous exudate from corner of mouth, causing depression or groove. Effect, a good muscular movement.

Three Cases of Facial Paralysis.*—W. S. THACKER NEVILLE.

CASE I.—W. S., aged 33, fireman on an engine, on *August 7th*, 1931, was coupling up a train and was caught behind the right ear by the vacuum pipe. Result: facial paralysis. The eye could not be closed and the patient was therefore unable to perform his work.

January 1st, 1932: Fascia lata graft inserted into the lower eyelid and also into the upper eyelid. Result: eye aperture reduced to a small slit which patient was able to close. Consequently he was able to resume work in *April*, 1932.

CASE II.—C. L., aged 32, came to hospital *September 1st*, 1931, complaining of tinnitus, vertigo and deafness of the left ear. Said life was intolerable.

27.10.31.—Radical mastoid operation performed.

3.11.31.—Labyrinthectomy performed with destruction of the cochlea. Paralysis of facial nerve.

11.11.31.—Fascia lata graft to face.

24.11.31.—Fascia lata graft operation repeated.

3.12.31.—Fascia lata graft to upper and lower eyelids.

CASE III.—A. J., aged 35, complained of otitis media, tinnitus and vertigo.

17.8.32.—Left radical mastoid operation—destruction of labyrinth—cochlea opened—(Hinsberg's operation). Paralysis of facial nerve.

31.8.32.—Muscle graft to mastoid cavity.

7.12.23.—Fascia grafts inserted from above left temporo-mandibular joint to corner of the mouth and from temporal region through upper and lower eyelid to inner canthus of left eye.

* Shown at the Meeting of the Section held on May 4th, 1934.

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