FACIAL PALSY

By Dr. M. JACKSON, F.R.C.S. (Edin.), D.L.O.

IT is not until the development of a facial palsy that the necessity and importance of a normally functioning facial nerve is realised. This lesion tends not only to shatter the morale of a patient but seriously affects his economic and social status. Unfortunately not enough attention is given to this aspect of the lesion. If facial palsy occurs as a complication of injury or disease of the temporal bone it concerns both the otologist and the physiotherapist; the latter must treat the end result of the paralysis, that is the muscles, whereas the former is primarily concerned with the cause of the paralysis. He must be prepared to advise whether operative interference is necessary or not. In this paper I want to discuss the anatomy, pathology and treatment of paralysis of the facial nerve.

The facial nerve lies in close association with the eighth nerve, separated from it by the sensory division of the seventh nerve as it enters the petrous part of the temporal bone at the internal auditory meatus. It appears on the inner wall of the tympanic cavity and swells out to form the geniculate ganglion. It then bends sharply backward in the upper part of the middle ear, above the fenestra ovalis or oval window. When the nerve reaches a point just below the horizontal semicircular canal it bends downwards and descends vertically to the stylo-mastoid foramen. In its course through the middle ear and vertical portion, the nerve is enclosed in the bony fallopian canal till it makes its exit at the stylo-mastoid foramen. A point of importance is that the nerve is firmly attached to the periosteum lining the canal. This fact makes it particularly vulnerable as any swelling or trauma could cause pressure on the nerve, and, if sufficiently long maintained, may lead to degeneration of the nerve fibres. The canal has the advantage, however, of acting as a splint to support a nerve graft and does away with the need for suture, minimising the formation of scar tissue and thus favouring regeneration.

From the stylo-mastoid foramen the nerve turns abruptly forward, dividing into terminal branches deep to the parotid gland in front of the ear. A lesion in this area, for example a tumour or injury, presents no problem in localization. The nerve has a longer course in a bony canal than any other nerve in the body and this probably accounts for the fact that it is more often paralysed than any other nerve.

The narrow fallopian canal may hinder regeneration, but does not alter the fundamental process of degeneration and regeneration. We must distinguish between degenerative and non-degenerative lesions. In the latter, where a nerve impulse is temporarily impaired, paralysis clears up completely in a short time and, what is important, is that there is no wasting. In degenerative lesions there may either be an interruption of axons with preservation of supporting structures or complete division of the nerve elements. Unfortunately apart from operation, there is no certain means of distinguishing between the lesions as both show the reaction of degeneration. This accounts for the confusion when considering the indications for a decompression operation in traumatic palsy.

Denervated muscle become flaccid and undergo progressive atrophy — more rapid during growth as in young children. Muscle atrophy and resultant fibrotic changes following denervation are soon apparent because of the thin musculature of the face, where there is no definite muscle fascia surrounding the individual muscles. These are inserted in subcutaneous tissue or skin without intervention of any subcutaneous fascia. Gravity and pull of muscles are responsible for stretching denervated muscles which leads to characteristic drooping of the face. When denervation has persisted for any length of time, the fibrotic sheath tends to replace individual muscles which cannot then be made to contract, even if continuity of nerve is restored. The physiotherapist's duty is to try and prevent these changes. Obviously, if the continuity of the nerve is not re-established, a time will come when the fibrotic changes must occur.

If there is no sign of nerve regeneration with spontaneous muscular movement, when is operative interference indicated?

According to Josephine Collier, experimental evidence suggests that waiting for two or three months enhances the chances of successful recovery but that intervals of longer than six months tend to produce irreversible changes. Clinical observation in peripheral nerve injuries points to the fact that the rate of regeneration of nerve is about 2 m.m. a day.

What are the commoner diseases which may affect the nerve whilst in contact with the internal and middle ear?

(1) **Internal Ear:**

Tumours causing pressure on the facial nerve in internal auditory meatus; such as a neurofibroma of the eighth nerve. It is an interesting fact that pressure to an amazing degree may occur, resulting only in facial paresis. This is due to there being plenty of room for expansion of the nerve.

(2) **Middle Ear:**

From childhood to old age the middle ear is subject to infection and may be a potential source of danger to the facial nerve.

(*a*) In acute infection of the middle ear the facial nerve is rarely involved. Paralysis may be due to vascular congestion and oedema, probably on account of there being a dehiscence in the bony fallopian canal. This invariably clears up with resolution of the infection.

In acute mastoiditis pressure from pus in a cell leading on to the nerve may cause paresis or paralysis. In some cases operation may be indicated.

(*b*) The incidence of facial palsy is relatively much higher in chronic suppurative otitis media than in acute conditions, and is chiefly due to cholesteatoma, which has the ability to erode the bony wall of the fallopian canal. Operation is imperative in these cases.

The incidence of facial paralysis produced by acute head injury is high, especially in fractures of the middle and posterior fossa. Most authorities agree that between 80 to 90% of these cases recover completely, or at least adequately. Recovery may be expected to follow massage and electrical treatment of the paralysed muscles. In such cases which show no sign of recovery after three months operation must be considered. Surgery is feasible where the injury is distal to the geniculate ganglion. The site of injury can be gauged by a careful history and clinical examination. X-ray plates are necessary, as well as testing for signs of injury to the labyrinth. Electrical tests, such as faradic and galvanic stimulation must be done. Tests for lachrymation, taste and salivation assist in localising the actual site of injury. In cases where repair in continuity is impossible anastomosis with the hypoglossal or spinal accessory may be required.

In 1812, Charles Bell described the motor supply of the facial muscles as due to the seventh or facial nerve. Since then peripheral facial paralysis not due to injury or disease of the temporal bone has been commonly known as "Bell's Palsy". It is a well established fact that this is the commonest type of facial palsy. The actual aetiology of the condition is obscure. Exposure to cold is usually considered to be the cause but emotional factors and hereditary dispositions may play some part. Occasionally small epidemics of facial paralysis occur which suggests an infective factor. The consensus of opinion is that local ischaemia produces this lesion.

The cause of the paralysis must be treated immediately the diagnosis is made. Medical treatment must be directed

towards relief of the ischaemia, vaso-dilator drugs being the obvious choice. The use of adrenal cortical hormones in very early cases of Bell's Palsy has given encouraging results. Supportive treatment by splints of the affected muscles must be undertaken from the onset of the paralysis. Faradic treatment should only be given 10-14 days after the paralysis has occurred, earlier than this a response may be present, although the nerve has been divided. Electrical treatment should now be instituted.

It is estimated that 80% of cases recover spontaneously. Unfortunately it is not possible to tell definitely which cases fall in this category. If after two or three months of supportive treatment, there is no sign of recovery and the faradic response is negative then decompressions of the facial nerve should seriously be contemplated. Certain other factors influence this decision. The paralysis is not usually ushered in with pain. If, however, pain is present and this is concurrent with the rapidity of onset and completeness of the paralysis, then the prognosis is grave, and may be a potential candidate for operation. The facial musculature must respond to galvanic stimulation if decompression is to be of any value. Repeated electromyography may assist in deciding which cases will recover spontaneously.

The actual operation is straightforward provided the surgeon has a good knowledge of anatomy. A post-auricular is made. The facial nerve is exposed at the stylo-mastoid foramen and the vertical portion followed on to the external semicircular canal. Neurolysis is then performed and, in my limited experience, it is quite dramatic to witness the nerve being exposed and bulge through the incision. The hearing should not be affected and no post-operative complications should occur.

A patient who after two months showed no sign of recovery, and with no response to faradic stimulation, was recently operated on by me. Two weeks after operation recovery began, and within six weeks was almost complete. I have been impressed with the good results where operation has been indicated.

Indiscriminate operation is not recommended and the standard methods of treatment should be adhered to in all cases. Operation must only be considered after a lapse of two or three months if conservative methods have failed.

BIRTHS

Te Groen, to Mr, and Mrs. Te Groen, neé de Jager a son in Pretoria on June 2nd.

Norris, to Bill and Heather at Mater Dei Hospital, East London, a daughter Wendy Jane, sister to Jennifer and Barry on June 15th.

ENGAGEMENT

Steenkamp — Carstens, Miss L. J. R. Steenkamp (Pretoria Hospital Diploma) to Mr. W. Carstens, both of Pretoria.

MARRIAGES

Breitschuh — Neuhaus, Miss I. B. Breitschuh, formerly of Pretoria, to Bob Neuhaus at Windhoek on June 22nd.

Winkle — Human, Miss M. Winklé (trained Pretoria Hospital) to Mr. Human on May 29th.

Lopis — Dove, Miss B. Lopis (University Student and Student Member) to Mr. J. Dove on June 2nd.

DEATHS

Fisher — Mrs. Janette Fisher (B. Sc. Rand) Neé Maurer at Brakpan on April 24th.

Hahne — Mrs. M. H. Hahne, neé Biggar at the Far East Rand Hospital on April 30th.

Hope — Mr. F. W. Hope, husband of Mrs. H. B. Hope of Witwatersrand University on June 28th.

To their relatives the Society records its sincere sympathy.

BRANCH NEWS

NORTHERN CAPE BRANCH

Mr. E. Nicholson has returned to Kimberley from overseas and has accepted a Physiotherapy post at the Vocational High School, Diskobolos.

The branch has been very active the first half of this year. Regular monthly Group-discussion meetings were held which were enthusiastically attended by members.

Members have found talks given by Mr. Nicholson on his recent experiences in the treatment of poliomyelitis at Royal National Orthopaedic Hospital, Stanmore and study-observation visits to many Rehabilitation Centres in Britain, most useful and interesting.

EAST LONDON BRANCH

LECTURE BY DR. I. G. FITZPATRICK

On February 13th, Dr. I. G. Fitzpatrick, spoke to the Branch on "Hypnotism, its use and general acceptance in the field of Medicine".

Dr. Fitzpatrick traced the use of hypnotism down the ages from the 'Sleep Temples' of the Middle East, to the more recent times when it was known as Mesmerism, and accompanied by much 'passing of hands' and use of magnets. He explained how showmanship, and the air of mystery thus created, had delayed the acceptance of this ancient art by Medical Bodies the world over; and even today left many sceptics and hindered its full and universal acceptance as an asset in the field of medicine.

It was a little horrifying to hear of the very remarkable work and research done in this field during the last Century, that came to nought because of the refusal of Medical Bodies to recognise Hypnotism as anything but a sort of 'Black Magic'; and the exponents of this art as nothing short of quacks — despite medical qualifications. However with the formation of the 'British Society of Medical Hypnotology' in 1947, a start had been made to remedy this.

Whilst showing us that there is a very definite future for the use of hypnotism in the Medical — Therapeutic world, Dr. Fitzpatrick decried its use on the stage or by unqualified persons; for the reasons that a great deal of harm can be caused by removing a symptom without getting down to the cause. Even removing the desire to smoke from a heavy smoker could do him infinite harm, unless the cause for that craving was routed out, and something concrete put in its place.

To demonstrate to us the three stages of hypnosis (light, sombulant, and deep), Dr. Fitzpatrick used a volunteer member of the branch as a model. He explained that the full co-operation of the subject was essential, and that she must have the power to concentrate on what he was saying and asking her to do, to the exclusion of everything else. (The model was glad to learn that it is the most normal and intelligent who are the easiest subjects). The word sleep he said was a mis-nomer, but it is used as an easy simile for everyday practice — in fact hypnotism was not in any of its stages a true sleep, but a state of deep relaxation.

Following the very interesting demonstration an eager discussion ensued. One main point forthcoming being the realisation, and general acceptance of the immense value that lies in the art of Self-Hypnosis — the ability to relax oneself mentally and physically for ten to twenty minutes at any time.

At the request of members Dr. Fitzpatrick tried mass hypnotism on all present, and succeeded in convincing most of the members that they were easy subjects for hypnotism, and all that they would endeavour to cultivate the art of self-hypnosis.

The talk was so interesting that members forgot the time to the extent of concluding the evening at ten thirty p.m., without having conducted any business. It was agreed to leave arrangements for the S.A.S.P. conference to be held in East London, to the Executive committee, and to discuss them at a later date.