Short Notes and Clinical Cases.

A CASE OF MIMIC FACIAL PARALYSIS.

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Examples of so-called mimic paralysis of the face—paralysis of the emotional and expressional movements with preservation of voluntary movements—are rare enough to justify the recording of the following case.

A boy, age eight, was admitted to hospital in May, 1927, on account of fits.

In September 1925 he fell, striking his head in the right temporal region. He was not rendered unconscious and recovered very quickly, showing no immediate effects beyond some bruising over the right temple. Some days later his parents noticed that the right side of the mouth did not appear to move as well as the left; this peculiarity was then observed to last for about 14 days.

About 28 days after the fall the first fit occurred. It was apparently a generalised epileptiform convulsion and took place in the night. Since that time attacks recurred about once a month up to the date of his admission to hospital.

These attacks would occur at any time of the day; there was no definite aura, but the attack was ushered in by a movement of the eyes to the right side; it is reported that the patient then muttered indistinctly and became unconscious. Definite convulsive movements then occurred, beginning in the right foot and spreading to the right leg and then all over the body. No post-convulsive paralysis had been noticed. No headache and no vomiting had been complained of, and between the fits the boy appeared to enjoy normal health.

One attack was observed in hospital almost immediately after his admission. Since that time no attacks at all have occurred. In this fit there was no apparent warning. It began abruptly with powerful deviation of the head and eyes to the right. He was quite unconscious. Clonic movements were observed, which started in the right foot but rapidly spread to involve both arms and both legs as well as the muscles of the face and jaws. The convulsive movements were greater on the right than on the left side. Recovery was rapid and there was no subsequent paralysis of the lambs.

Physical examination showed a boy of healthy appearance with no sign of organic disease except for the facial paralysis. Mentally he was bright and intelligent. Examination of the nervous system was quite negative except for the condition of the right side of the face. Examination of the skull revealed no abnormality with the exception of a slight difference in the percussion note over the two parietal eminences. *X*-ray examination of the skull was negative.

The Wassermann reaction in the blood was negative and the cerebrospinal fluid was normal in all respects.

The condition of the face, which is well seen in the accompanying photographs, was as follows: When the face was in repose (Fig. 1) a moderate asymmetry was seen, indicating a slight weakness of the muscles on the right side, with a flattening of the right nasolabial fold. During conversation a weakness of the expressional movements of the lower part of the face on the right side was very apparent. The weakness on emotional movements, however, as seen in smiling or laughing spontaneously, was so great as to amount

practically to a complete paralysis. Fig. 2 shows the face when smiling. It will be seen that there is nearly complete paralysis of the muscles of the lower part of the face, while a distinct paresis of the orbicularis palpebrarum is also apparent.

Voluntary innervation of the muscles of the right side of the face appeared to be completely preserved. Fig. 3 shows the condition when the patient was told to "show his teeth." Fig. 4 shows the condition when he was told to "shut his eyes tight." In this last photograph it can be seen that the associated movements of the lower part of the face are as well retained as the voluntary movements of the upper part.

Since the patient first came under observation in May, 1927, no change in his condition has been recorded.

DISCUSSION.

Although this case is reported principally on account of the unusual form of facial paralysis displayed, the diagnosis of the nature as well as of the site of the lesion is a matter of considerable interest. The symptom appeared to arise in such direct relation to the alleged trauma that at first it was only natural to connect the two events. Seeing that the injury was on the right side of the skull some 'contre-coup' effect on the opposite side of the brain seemed the most likely explanation of the right mimic facial paralysis. If such be the correct explanation the lesion must be considered to be cortical (or mainly so at any rate) and probably at either the frontal or temporal pole, which are recognised to be the most common sites for 'contre-coup' injuries. But a later investigation into the exact circumstances of the alleged fall suggests that it may well have been the first 'fit' which the patient ever had. In this event the 'contre-coup' theory loses much force and with it goes the only indication for the localisation of the lesion afforded by this particular case. It may, therefore, be of some value to review very briefly certain recorded examples of this condition, which indeed is so sparsely reported in the literature as to confirm the writer's first suspicion that it must be an uncommon clinical event.

In a paper in this JOURNAL on "Pathological Laughing and Crying," Wilson[1] has discussed the question of mimic paralysis of the face and reported three cases of his own. He quotes Sir Charles Bell[2] and Stromeyer,[3] writing in 1844 and 1837 respectively, whereby it is clear that this form of facial paralysis had been recognised by these early observers. Thus Bell writes: "In short you find that your patient sometimes exhibits paralysis of the side of the face only when he smiles or laughs, at other times it is not observable." And Stromeyer reports the case of a girl aged 12 in whom "the right side of the face continued expressionless in emotions . . . nevertheless the child was as able to control the muscles of this side as those on the left."

Nothnagel[4] has been credited with placing a centre for emotional and expressional movements of the face in the optic thalamus. In his well-known book he suggested the existence of a psychoreflex path for facial movements, separate from the ordinary path of the facial fibres in the pyramidal tract, a separation which was assumed to explain the usual dissociation between

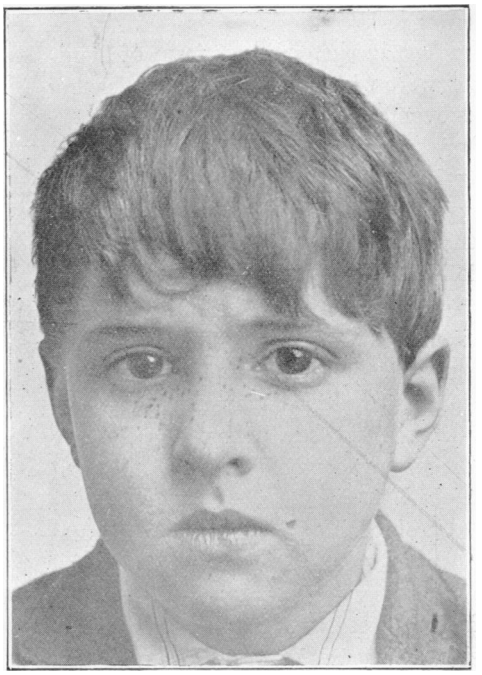

Fig. I.
Shows the face in repose.

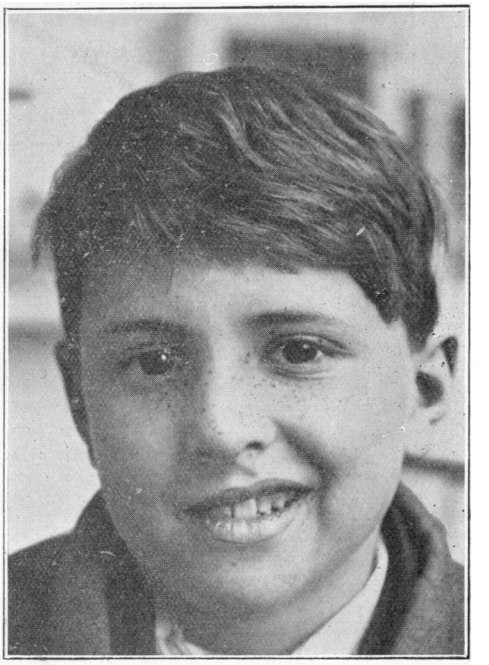

Fig. II.
A spontaneous smile.

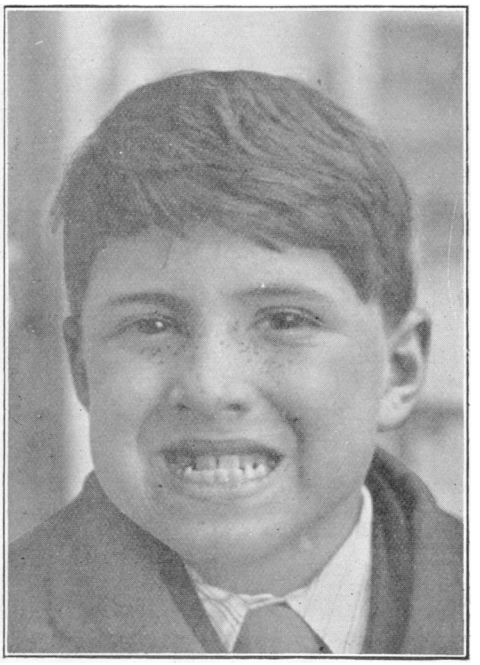

Fig. III.
Told to "show his teeth."

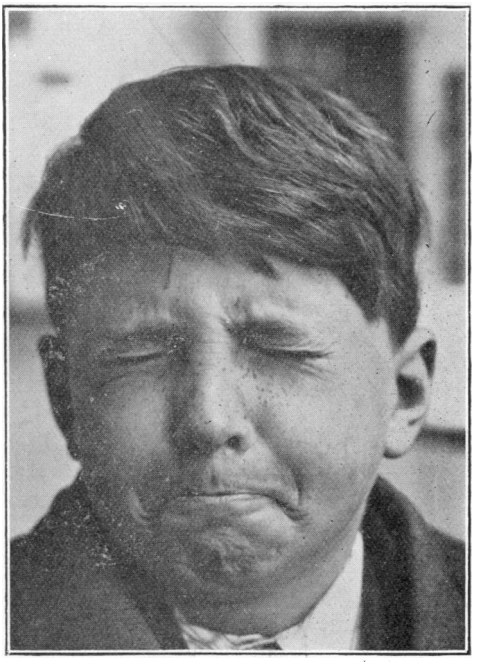

Fig. IV.
Told to "shut his eyes tight."

voluntary and emotional movements of the face in the ordinary form of hemiplegia. He[5] later published two cases which were widely accepted as indicating the existence of a centre for emotional movements of the face in the optic thalamus. In one of these, where a left facial paralysis of the mimic type had been found, associated with a slight left hemiplegia, a large tumour of the right optic thalamus was discovered at autopsy. But as pointed out by Wilson[1] there was in addition definite disease of the internal capsule as well as of the corona radiata. In the other case, a glioma of the left optic thalamus was associated with a mimic paralysis of the right side of the face, but here the condition of the neighbouring parts is not fully described.

Later writers tended to accept Nothnagel's hypothesis, but many of the cases reported are too dubious to warrant their use as material on which deductions of any value in localisation may safely be based. The writer entirely agrees with the opinion of Wilson that the cases reported by Nonne,[6] Borst[7] and Kirchoff[8] are unsatisfactory in this respect.

Mills[9] in a valuable paper on the "Cerebral Mechanism of Emotional Expression" reports a case of mimic paralysis of the face where a careful autopsy was made. The case was one "of a symptom-complex showing emotional paralysis of one side of the face, associated with marked ataxia of the left upper and lower extremities, with paralysis of emotional expression in the right face, right nerve deafness and loss of pain and heat and cold on the right side. Autopsy showed a destruction of the ventral part of the dentate nucleus of the cerebellum and adjacent superior cerebellar peduncle, with degeneration of the mesencephalic root of the left fifth nerve and of the left lateral fillet." Mills says "the cause of the loss of emotional expression of the face . . . would appear to be related to the destruction of afferent tracts in the lemniscus or of this and some part of an important cerebellar arc."

In discussing the possible sites of lesions causing disorders of emotional expression, it is of interest to note that Mills accepts the possibility of such disorders being due to lesions of the "emotive cerebral cortex."

Spiller[10] records a case of mimic facial paralysis of unusual interest. His account of the case is illustrated by plates showing clearly the nature of the facial paralysis, which was associated with a tumour of the cerebellopontine angle. After operation the paralysis was much improved. Was this case an example of a mimic facial paralysis due to a lesion of the infranuclear portion of the nerve? Before accepting this suggestion we should be certain that the condition was not produced by pressure on the pons with consequent involvement of supranuclear facial fibres.

Monrad-Krohn[11] has reported a case of left-sided mimic facial paralysis in a patient the subject of the postencephalitic Parkonsonian state and considered that the "case supported the belief that the lenticular nucleus (probably in its pallidal part) contains the motor centre for emotional innervation, the thalamus probably being the corresponding sensory centre in the emotional reflex arc."

Wilson[1] has recorded three personal cases. In one with a left-sided mimic facial palsy the later course of the case indicated the presence of a cerebral tumour in the region of the right internal capsule and the right regio subthalamica.

In a second case the clinical picture consisted of emotional paralysis of the right side of the face, tremor of the right limbs, inactivity of the left pupil to light, with poor reaction on convergence and paresis of upward and downward movements of the eyes, a picture strongly suggesting a lesion of the mesencephalon.

His third case was one of a tumour of the mesencephalon and upper part of the pons verified by autopsy, where in addition to double Argyll Robertson pupil, nystagmus, tremor and ataxia of the left side an emotional paralysis of the left side of the face was present.

Symonds[12] mentions a mimic paresis of the face as a symptom of practical value in the diagnosis of temporal lobe abscesses. He refers to " a slight weakness of the opposite side of the face, mostly of the lower half, which may be present when the patient talks or smiles, but is less apparent when he responds to the usual test of showing the teeth at command."

It seems clear, therefore, that there is no justification for placing a ' centre ' for emotional movements of the face in the thalamus, a conclusion which emerges both from a consideration of the reported cases of mimic paralysis of the face and from our modern knowledge of the symptomatology of lesions of the thalamus itself. The writer is disposed to agree fully with Wilson[1] in his suggestion that " there are corticifugal paths for the expression of the emotions via the faciorespiratory apparatus, distinct from those for voluntary innervation of the same nuclei."

For the photographs of the case here published the writer is indebted to the kind co-operation of Mr. Hugh Nicol, M.Sc.

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