Oral Medicine

PSYCHOMOTOR EFFECT IN ATHETOID PATIENTS

Report of Two Cases

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I

WITHIN recent years cerebral palsy has emerged as a problem demanding increased attention by the medical profession. The condition was originally thought to result from birth trauma. Current statistics, however, though fragmentary, indicate a constant, regular distribution, with seven cases of cerebral palsy occurring in every 100,000 births.[1, 2] Thus, failure of brain development in utero, Rh reactions, and a number of other factors should be considered of etiological significance. Postnatal accidents or infections affecting brain development may also cause cerebral palsy.

Cerebral palsy is a generic term which includes several subdivisions, each a type of neuromuscular incoordination.

Spastic paralysis occurs with lesions of the cortical motor areas of the brain, resulting in a hyperactive stretch reflex. Reciprocal movements of antagonist muscle groups are prevented or restricted.

Athetosis implies involuntary movement. Constant, involuntary reflex muscle contractions result from lesions of the extrapyramidal tracts.

Ataxia, in which balance is disturbed; *rigidity,* characterized by muscular stiffness, and *tremor* are other symptoms frequent in cerebral palsy.

In most instances these phenomena occur in combination. The athetoid and spastic paralysis groups together comprise about three-fourths of the reported cases of cerebral palsy.

II. Personality Maladjustment of Physically Handicapped

There exist in the literature two schools of thought concerning the route by which personality maladjustment occurs in the physically handicapped. One group of authors feels that the mere presence of a physical handicap is, in itself, sufficient to produce personality disorder. Others maintain that poor family emotional environment is the prime factor in causing maladjustment.

Phelps says, "... the presence of the cerebral palsy itself is not the basic [factor] for the type of response to situations, but rather [it is] the specific type of motor disturbance which is the determining factor." Responses are considered psychologic variations of first, the early acquisition of the handicap, and second, the result of the various types of the involvement. Athetoid patients, for example, Phelps found to show abnormal displays of both anger

and affection alternately, these "swings" being so constant as to constitute part of the athetoid picture.[3]

Wile[4] believes that crippling affects intelligence, stability, and social equilibrium through interference with normal development, affecting the "emotional evolution."

The appearance of an inferiority complex in childhood as the result of crippling has been studied in conditions other than cerebral palsy.[5]

Lord[6] feels that the parent relationship is the decisive factor when personality maladjustment occurs in children with cerebral palsy. The child's adjustment depends on the emotional stability rather than the intellectual attainment of the parents. Children of normal or nearly normal mental development presented the major adjustment problems, ". . . some of this group [being] in practical control of the situation through domination over their parents,—willing slaves who cannot cope with the demands of a domestic tyrant who is physically helpless."

Kammerer[7] worked with young patients who had osteomyelitis and scoliosis, and concluded that, ". . . there is little evidence of consistent influence of crippling on inferiority, social maladjustment or compensation." Crippling, he feels, is only one more undesirable influence in the child's life, and whether maladjustment occurs seems to be dependent upon the number and severity of problems confronting the child. No evidence was found to support Wile, but Kammerer does not feel either that the family attitude toward the defect is of consummate importance.

III. Case Histories

More than forty individuals with cerebral palsy were examined over a period of six months. Examination of the oral cavity was made routinely as these patients presented for general medical examinations or for physical therapy. Approximately one-half of the group examined were athetoid, the remainder being spastic.

Cases of the athetoid type were selected for more detailed study for two reasons:

1. Their involuntary reflex movements seemed to present a great obstacle to the successful performance of comparatively precise dental techniques.

2. Among the athetoid individuals examined there seemed to be no discernible correlation between the severity of the incoordination and the amount of dental treatment which had been rendered. One very severely involved athetoid patient had been receiving periodic dental care for many years.

The case histories which follow are those of two athetoid patients of about the same degree of involvement who presented for dental treatment within the same week. Both were boys of the same age, and both attended the same class for the physically handicapped. Parents and therapists of both were available for consultation. It has thus been possible to evaluate comparatively the reactions of each of these patients to dental treatment over a period of many months.

Case 1.—The patient was a white male, aged 10, displaying moderately severe athetosis with involvement of the extremities, neck, and facial muscles. There was a brother, aged 15, of normal mental and physical development.

Previous Dental History.—Diagnostic procedure during orthodontic consultation had included intraoral and extraoral roentgenograms, and impressions for study casts. There had been no restorative dental treatment.

At his first visit the patient seemed to be bright, gregarious, and inquisitive. He answered questions in good humor, professing to enjoy school and group activities. The mother appeared to be an intelligent, industrious woman who worked as a clerk in a "super market" in order to bolster the family finances. The father's work, unfortunately, made it impossible to obtain an interview with him. The mother described the family life as "normal" and "cheerful." She disclosed the fact that the athetoid boy had been consigned to an institution for the feeble-minded at the age of 7, being at that time unable to speak, read, or write. The parents had refused to accept what they felt to be an unjustified appraisal of the boy's abilities. Adequate training and therapy had been provided despite severe strain on the family economy, with the result that the boy had reached, within a three-year period, a state of self-sufficiency which could be considered normal for his age.

The patient expressed a willingness to cooperate in the contemplated treatment and at first sat quietly in the dental chair. However, when the dental handpiece was brought toward his mouth, the boy became so hyperkinetic that the handpiece was removed in order to prevent possible injury. These jactitations ceased gradually. The patient then began to cry, although up to this time no real attempt at rendering treatment had been made. When quiet, he revealed an intense fear of anything that would "hurt" him. It was possible to allay this fear at subsequent visits through the use of local anesthesia. The boy never again experienced the excessive dyskinesia which had occurred at the time treatment was originally attempted. Several carious teeth were restored over a period of months.

Case 2.—The patient was a 10-year-old white male with moderately severe athetosis and involvement of the extremities, neck, and facial muscles. There were no siblings.

Previous dental experiences had been traumatic. Several dentists had attempted treatment unsuccessfully. The parents felt that this was due to the fact that these dentists had "had no patience" with their son because of his physical handicap.

The patient appeared apprehensive and agitated when first seen in the dental waiting room. His dyskinesia was plainly apparent. The boy was resistant and evasive in answering questions, despite parental prompting. He volunteered the information that he "liked to read and play by himself," and that he did not "care much" about participating in group activities with other children in his class. The mother seemed to be a somewhat inadequate person, relying on her husband and son for even simple decisions. Her extremely overprotective attitude toward the child was specifically in evidence by her determined insistence on the unessential cosmetic restoration of two

chipped anterior teeth. The father, a businessman, was frequently required to leave his place of business to accompany the boy to dental appointments, the mother being unequal to this task. What little control the father exercised over the boy resulted from a series of "bargains," in which the boy seldom kept to his share of the agreement.

At the start of each visit the boy reaffirmed his desire for treatment and his willingness to cooperate. His dyskinesia increased markedly when he was seated in the dental chair, however, and if an attempt at treatment was made his incoordinate movements became so violent that it became necessary to exercise restraint lest the boy injure himself. This behavior sequence was repeated at several visits over a long period. Although the use of local anesthesia helped to diminish the reaction slightly, this patient has never been able to control the hyperkinetic effect to the extent of becoming a fit subject for dental treatment. To the boy, the dentist soon became "Hitler," and epithet he had formerly applied to an authoritative physiotherapist whom he "hated."

IV

The manifestation of emotional conflict through physiologic mechanisms of the body has been widely observed. It does not seem unusual to find such reactions first evidenced through a particularly unstable physiologic system, if one is present.

Extreme emotional tension is a ubiquitous experience in individuals whose fear of dental procedures is uncommonly exaggerated. This condition has been described specifically as *dental anxiety*.[8] With patients who have had no previous experience with dental procedures, and more particularly with restorative dentistry, dental anxiety is amplified by fear of an unknown danger.

It may be said of both of the cases cited that a dental anxiety, operating on an already *labile* neuromuscular system, produced the psychomotor effects described. That the anxiety experienced by both patients was largely of an unconscious nature may be deduced from the fact that both expressed a willingness to cooperate in treatment procedures: their inability to do so as the result of unconscious anxiety was translated into violent incoordinate movements via the neuromuscular system.

When more closely examined a pertinent difference is found to exist between the two cases. Case 1 responded well to the use of local anesthesia. In the absence of pain he exhibited little or no hyperkinetic reaction during treatment. It may be inferred that a discreet fear of pain was the underlying cause of this patient's dental anxiety, and that other factors played little or no part in producing the psychomotor effects.

Case 2, however, did not show any appreciable reduction in the hyperkinetic reaction over a long period, despite attempts at reassurance and reeducation, and the use of local anesthesia. In contrast to Case 1, the adjustment of this patient to his handicap was poor, as was the emotional environ-

ment in which he existed. It may be said that while a dental anxiety may have been the immediate excitatory factor in producing psychomotor effects in this patient when treatment was attempted, the underlying and far more serious condition of this boy is that of a deep, generalized unconscious anxiety state affecting every aspect of his activity and interpersonal relationships. Over a period of many months this patient created an impression of growing incipient schizoid tendencies in his personality.

V

The occurrence of similar motor reactions to attempts at dental treatment has been described in two cases of athetosis. It does not seem possible to explain the violence of the transition from the usual dyskinesia of these patients to the severe hyperkinetic effects observed on the basis of the physical condition alone. Emotional environment has been suggested as a likely additional factor to the athetosis.

Social requirements invariably demand that the patient with cerebral palsy make some adequate emotional adjustment to the handicap. Children with cerebral palsy are further affected by the reactions and attitudes of parents whose emotional stability may be seriously impaired by the demands placed upon them.

Unquestionably much of the insecurity evident in athetoid patients results directly from the neuromuscular disability, and may be considered an unavoidable consequence of it. It is clearly apparent, however, that the emotional environment of such patients has a deep and pervading effect on the personality. In varying degree both factors operate to produce the anxiety and insecurity.

In the first case described the excellent family emotional background and high morale permitted rapid adjustment to a comparatively discreet manifestation of anxiety. A reverse condition existed in the second case, in which an unhealthy family emotional environment resulted in a diffuse anxiety and an overwhelming insecurity which prevented any satisfactory adjustment when dental treatment was attempted.

From the foregoing it may be concluded that athetosis, present to a comparable degree in both patients, was not the decisive factor in the production of the extreme hyperkinetic reactions. Early emotional environment had created anxiety states which were apparent from the first in both cases, although one patient was subsequently able to exercise an appreciable amount of control. These anxiety states acted as a "*trigger*" mechanism in setting off violent psychomotor effects through the medium of a labile neuromuscular system.

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