

THE HYPERACTIVE CHILD AND THE BODY

A CLINICAL STUDY ON THE ORIGIN OF HYPERACTIVITY IN CHILDREN

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ABSTRACT - A group of 22 hyperactive children from 7 to 12 years of age was selected among 38 out-patients registered at Hospital do Servidor Público de São Paulo (Civil Servant Hospital of the State of São Paulo). Their psychiatric evaluation was negative, the neurological examination showed "psychomotor syndrome", and psychological evaluation revealed disorders related with Ego maturation in all cases. Although all children were referred to psychotherapy, only thirteen underwent individual sessions once a week for an uninterrupted period of up to one year. Neither diets nor medicines were prescribed. After six months and one year of treatment, the children were reevaluated. They showed improved school performance, reduced hyperactivity, and better internal psychic organization. These results are considered as undeniable evidence of the psychodynamic origin of hyperactivity syndrome in children, when no definite neurologic or psychiatric diseases are demonstrated.

KEY WORDS: children hyperactivity, psychopathogenesis, diagnosis, therapy, clinical approach.

A criança hiperativa e seu corpo: estudo clínico sobre a gênese da hiperatividade em crianças

RESUMO - Vinte e duas crianças hiperativas, de 7 a 12 anos de idade foram selecionadas dentre 38 matriculadas no Ambulatório de Psiquiatria do Hospital do Servidor Público do Estado de São Paulo. A avaliação psiquiátrica foi negativa, o exame neurológico revelou síndrome psicomotora, a avaliação psicológica evidenciou transtornos relacionados com maturação do Ego em todos os casos. Encaminhadas à psicoterapia, apenas 13 crianças puderam atender a sessões individuais e semanais, por um período ininterrupto de seis meses a um ano. Nem dietas nem medicamentos foram prescritos. Reavaliação feita após seis meses e um ano, revelou redução da hiperatividade, aumento do rendimento escolar e melhor organização psíquica interna. Estes resultados são considerados forte evidência da origem psicodinâmica da síndrome hiperativa em crianças neurologicamente normais.

PALAVRAS-CHAVE: hiperatividade na infância, fisiopatogenia, clínica, diagnóstico, tratamento.

Hyperactive behavior in children, often associated with learning disabilities, is one of the most common parents' complaints that lead them to seek medical and psychological care in children's outpatient clinics. Hyperactivity has attracted a growing interest of study in the last decades.

The term *hyperactivity in childhood* has been widely used as synonymous to other terms such as "minimal cerebral dysfunction", "hyperkinetic syndrome", "hyperkinetic reaction", "learning disabilities", "behavior disorders", "psychomotor instability", and "attention deficit syndrome". The use of so many synonymous terms is a clear sign of the conceptual inaccuracy and divergence among

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authors. Therefore, some authors believe that *hyperactive behavior* in children refers to *motor and attention disabilities* resulting from lesions or disorders in neuronal structures^{17,27}. Others think that hyperactivity in children corresponds to a *hyperkinetic reaction* caused by toxic food agents, i. e., a type of allergy expressed by hyperactive behavior and attention deficit^{20,30}. To authors with a psychodynamic approach and to school psychologists, hyperactive behavior corresponds to a *symptom of adaptation and relationship problems* in the family and mainly at school^{5,21}. Other authors see hyperactivity as an expression of a *specific behavior disorder*, without any other physiopathogenic mechanism¹¹. None of these publications, however, mention experimental or clinical findings of hyperactivity pathogenesis. Therefore, the value of the diagnoses proposed by such authors is solely hypothetical. Hence, it may be said that hyperkinetic syndrome in children is still subject to speculative thoughts of a varied nature and depends on research to clarify its real causes and mechanisms.

In our study we were concerned with actual children who are part of our daily lives and who are taken to specialists to clarify and solve the problems caused by hyperactive behavior. We used this expression more as a behavior description than as a diagnostic term. Therefore, we concentrated on children who are not able to remain seated at their desks in the classroom, disturb the work of their peers with their restlessness and constant psychomotor movement, are repeatedly reprimanded by the teacher, moving constantly in any environment, tampering insistently with all objects at their reach, violating the established order and the organization of the place where they live, disobeying the social sense of the environment, seeming unaware of the hierarchy and of the natural respect for objects and people present, even when these are not familiar to them. We are interested in understanding the movement experienced by the child's own body, with desires, intentions, and values. This means movement as a significant expression, as *praxis*, as a language for communication between the individual and his universe.

Therefore, understanding hyperkinetics in children involves the study of its origin, implied in the affective-emotional and psychomotor organization that is established *pari passu* with body language development.

In this sense, the genetic study of movement¹ reveals development stages that reach their climax in a significant activity of the body. In this development, mobility is enriched by conditioning and inhibitions, with tonic modifications accompanying each affection, each event of the conscious mind, and suffering specific changes under pathological conditions. The study of psychomotor syndromes seems to be lessening and deceiving when limited to motor aspects. One should not conceive psychomotor movement as a mere instrumental function of a purely effecting value and depending on the participation of external systems. Tonic changes and kinetic activity should be understood as expressions and reactions to internal or external events. When studying this theme, Ajuriaguerra¹ states: "a psychic event not yet mature may be represented by a motor expression before it reaches its clear and complete conception or verbal phrasing".

In his studies on anxious states Ajuriaguerra¹ describes three types of psychomotor disorders: a) chronic hyperactivity; b) muscular hypertension; c) muscle hypertonicity. These disorders usually appear after some months in children whose mothers were worn out in the last months of pregnancy or underwent emotional problems; in infants who were bottle-fed too early or weaned in the first week or later in an abrupt manner; in children who received insufficient food and in those whose toilet training was imposed too early. The author shows that changes in the muscle tone of these children may also be caused by factors not related to food satisfaction. Warm baths, gentle strokes on the head, reduction of light intensity, rhythmic swings, touches and massages, all these produce changes in muscle tone, thus reducing the anxious state.

Kinesthetic development is influenced by events of the child's life, particularly in the early mother-infant relationship experiences^{6,7,14,15,23,28,29}. It is in this stage that the Ego formation structure is constructed and also the internalized concept of the "Self" and "not Self". In the earlier development

stages, the individual is contained in his body when his personal experiences are combined to determine the infant's behavior in relation to its body. Among the first experiences, the most important ones are those concerned with relationship. In the first development stages, the child only feels complete with the existence of a mother, and the way the mother behaves is fundamental for the child's future^{5,27,28}.

In genetic psychoanalysis studies, Soulé et al.²² and Brazelton^{8,9} observed that early functional disorders in infants and the establishment of object relationship are part of a system of pre-verbal communication between the child and the mother. After analyzing the findings of Spitz²³ in a population of newborns and using cybernetics formulations, these authors concluded that problems in regulating biological systems lie in the origin of the so-called "functional expression disorders of infants". They believe this syndrome is the cause of expressions not relating to organic disorders, such as cramps in the first three months of life, insomnia in the first six months, rumination, anorexia, vomits. Other manifestations are: difficult breathing that may lead these children to develop some type of respiratory failure. In addition to the "functional expression disorders", movement is also considered a form of body expression of early psychopathology. Therefore, in the mothering period, the mother helps the infant form a regulating basis for its still immature psychological and motor reactions. These studies lead us to consider, as the most important factor for the establishment of this regulating basis, the development by the mother of a perception of her infant's attention ability and its need for separation, either partially or completely, after a period of attention. Brief cycles of attention and separation seem to underlie every period of prolonged interaction. Within this rhythmic and coherent setting, mother and infant may introduce interchangeable communication elements. Smiles, vocalizations, postures, and touches are signs of this type. It is the need for such structures, that vary from infant to infant, that determines its limits^{14,15,28,29}.

Perez¹⁸, in his infant observations, mentions that as from the eighth month of life, the baby shows a more concrete orientation to the object of affection. This need is now more clearly expressed at the sight of an external object, that the baby recognizes better. Motor restlessness, hyperkinetics, and body movements that appear in this period cease when the child is held in the mother's arm, although the baby is partially limited in its movements. Its hyperkinetic impulse is then offset and replaced by the mother's hugs. According to the author, the baby's need for direct contact with the mother's arms expresses the development of a total object relationship. The author also considers that a major factor in the psychomotricity in the early development stages is the use of movement for the purpose of keeping united the parts of the Self, instead of the containing that the object would have to provide. Movement plays the role of a "second skin", meaning that the individual seeks support and continuity. To stop moving would mean to fall into nothing, into an empty space.

Anzieu² stresses the child's psychomotor and emotional need to construct a me-skin, obtained mainly through the interaction with the mother's body, that is a changing and stimulating experience both for the epidermis and the excitement and as a filter for mutual exchanges between the internal world and the universe. In the breast-mouth relation, the author stresses the contingent skin-to-skin interaction between mother and infant^{14,15}. In relation to motor activity in language acquisition, he stresses the role of the body and especially of walking, that means the child's possibility to experience real separation from the mother, something that is felt with anguish since the age of 7 or 8 months. Analyzing the semiotic function implied in Piaget's work¹⁹, the author emphasizes the process that involves sending and receiving meanings and responding to environment stimuli, before verbal language activity takes place. He mentions that the infrastructure of significant communication is obtained in the first place, with echopraxis or a game of gestures, through which the child and the adult imitate each other. This gesture imitation is prolonged in games of voice imitation that enable the child to isolate and control the significant phenomena in the natural language spoken in the environment and in mimicking games when the child, in the presence of an adult, mimics an usual activity and pretends, for example, to be sleeping. These studies also show that symbolization is acquired by the child when its mimicking activity is accompanied by a verbal comment, consisting

of the words it has already learned to utter; therefore, the semiotic continuity of the body gesture in the verbal significant is gradually established. Anzieu² admits that language in adults continues to function on these two levels: the verbal-linguistic and the pre-verbal body expression that sustains and modulates speech.

The meaning originates from the body, the child's real and imaginary body in interaction with the mother's body and with surrounding bodies, beings, and objects. Within this rhythmic and coherent setting, mother and infant may introduce interchangeable communication elements: smiles, vocalizations, postures, touches exchanged at random but contained in the same rhythmic structure that limits them^{2,8,9,22,28,29}.

We are concerned with children brought to children's neuropsychiatric, psychiatric and neurologic outpatient clinics with complaints of excessive movement and problems to concentrate in tasks to be performed, relating to school and domestic chores, both at school and at home. Hyperactive behavior is pointed out in these children by guidance counselors and by the family as the only or main cause of school failure and disturbance of interpersonal relations in the family circles.

In a clinical study of 88 children, Jordy¹³ found that school failure in hyperactive children were associated not only to attention deficit, but also to other psychomotor disorders and a wide range of behavior and conduct problems: manipulation, night terror, somnambulism, enuresis, encopresis, tantrum, excessive impulsivity, excessive aggressiveness, difficulty to accept authority and withstand frustrations. He also found that the attention deficit associated with hyperactivity depended on the content of the stimulus and the child environment at the moment under study, and that hyperactive children showed behavior changes clearly related with affective disorders. The author concluded that psychomotor syndromes and affective disorders shown by children at school age are part of a more comprehensive syndrome caused by "*a global disorder in the development process*", and may be expressed through a number of minor clinical syndromes. He pointed out that "psychomotor syndromes" observed in children and at that time usually called "minimal cerebral dysfunction" were always connected to primary affective disorders, as shown by projective psychological tests. Affective disorders should, therefore, be seen as the pathological origin of several psychomotor expressions in childhood.

The referral of a large number of children at school age with hyperactivity signs and attention deficit to neurological and neuropsychological study led us to review this matter. For this study, we have set the objective of better analyzing the determinant value of affective disorders in the origin of hyperactivity in children. For this purpose, a prospective study was conducted in the Clinical Psychology Department of University of São Paulo and in the Behavior Neurology Sector of the Federal University of São Paulo, in children registered in the Psychiatric Center of the Civil Servant Hospital of the State of São Paulo, with due authorization of the respective families.

MATERIAL AND METHOD

Twenty-two children were examined, 3 females, selected among 38 children, with ages ranging from 7 to 12 years, registered at the Civil Servant Hospital of the State of São Paulo. All of the children were referred to the Psychiatric Clinic with a diagnosis of significant and prevalent "hyperactivity and attention deficit", as well as school failure. None of them showed symptoms or signs of mental deficiencies, neurological diseases or psychotic manifestations, according to the following evaluation that served as the exclusion criteria: semi-structured anamnesis with parents, complete neurological evaluation and laboratory tests, including electroencephalogram and computerized axial tomography of the skull, clinical and laboratory data obtained from medical records, psychological evaluation using tests such as the Wechsler Intelligence Scale Test for Children²⁶, the Trinca Story-Drawing Test²⁵, the Concentrated Attention Test of the CEPA Battery³, the Bender Gestalt Test⁴ and also the critical analysis of anamnesis data. Sixteen children of the same Hospital served as control group, paired by age and sex. In the diagnostic process, we concentrated our attention on behavior characteristics shown by these children that would clearly differentiate them in their age bracket, both at school and at home. In the Clinic, these children were observed for quantity, diversity and rhythm in the psychodiagnosis

interaction, in the initial contact with and without the presence of parents, according to a model already used in other surveys¹⁰. In this proposition, the observation of psychomotor movement is directed to child-environment interaction, especially to emotional interchanges. The symptom appears as the vehicle of discomfort between the real body, where the symptom is exchanged, and an imaginary body, representing the subject's "body history", considering that the origin of the Ego structure is corporal. In the psychodiagnostic interaction, our attention was directed to the eyes, the breathing, the muscle tone, gestures, movements, the play activity, transference and countertransference.

Aiming at understanding the children under study and considering their standpoint, their actions and symbolizations, an individual psychoanalysis program was established with sessions once a week, supported mainly on the principles postulated by Winnicott^{27,28} and Anzieu². Therefore, in the relationship with the patients, our initial condition was the establishment of a safe and reliable basis, so as to provide the children with the required freedom to explore and express their thoughts and feelings. Therefore, we were able to observe the behavior of these children and evaluate their performance over a period of one year.

The study was conducted in two phases: a) survey and b) psychotherapy treatment.

The following points were considered for the survey: 1. Intellectual level according to the Wechsler Scale²⁶; Concentrated attention test of the CEPA battery³; Item digits of the Wechsler Scale, as attention test; 4. Item labyrinths of the Wechsler Scale, as attention test.

In the psychotherapy treatment phase the following tests were used: 1. the Story-drawing Procedure²⁵ with analysis at 6-month intervals; 2. the Bender Test⁴.

RESULTS AND COMMENTS

a) SURVEY. 1. AGE: average ages of the experimental group (A) and the control group (B) were 8 years and 11 months and 9 years and 2 months, respectively. The difference between the averages was not significant ($p > 0.10$), meaning that the groups are comparable in terms of age; 2. ATTENTION: The Concentrated Attention Test in group A averaged 30.8 points; in group B, the average was 56.3 points ($p < 0.001$). In the Labyrinth Test, group A averaged 7.0 points and group B averaged 9.9 points, ($p < 0.001$). In the Number Test, group A averaged 6.8 points and group B, 8.9 points ($p < 0.001$). The Attention level was significantly lower in group A as compared to group B, confirming data already known^{16,20,26}. In quantitative terms, hyperactive children showed a worse performance in tasks involving attention. However, the qualitative analysis of behavior in a test situation showed that hyperactive children have an almost frenetic behavior in attention tests, going from the first to the last lines too fast, seemingly not caring about performance. In the labyrinths, they cross lines, seeking a faster path to finish the task. On the other hand, they stay very alert, when the activities are part of their field of interest (free drawing; listening to stories of their favorite heroes, watching their favorite TV programs). 3. ANAMNESIS DATA: Data obtained through anamnesis and confirmed by children's medical records, as regards significant events associated with physical and psychomotor development of the children in the experimental group as compared to the control group are the following: sleep disorders (experimental group: 63.6%; control group: 12.5%), speech delay (experimental group: 68.2%; control group: 12.5%), fractures and bruises (experimental group: 81.8%; control group: 25%), attention problems at home and school (experimental group: 100%; control group: 0%), "expression disorders": bronchitis (experimental group: 50%; control group: 18.8%), dyspepsia (experimental group: 27.3%; control group: 0%) school complaints (experimental group: 95.5%; control group: 31.3%), and problems in the separation from the parents (experimental group: 27.3%; control group: 6.3%).

b) PSYCHOTHERAPY. All patients were submitted to individual psychotherapy sessions of one hour, once a week. The sessions were recorded in detail for an uninterrupted period of 6 to 12 months. After survey completion, the children continued to be treated according to their psychological needs.

RESULTS EVALUATED BY THE STORY/DRAWING PROCEDURE²⁵: This procedure includes a projective technique similar to that of theme perception tests, based on spontaneous

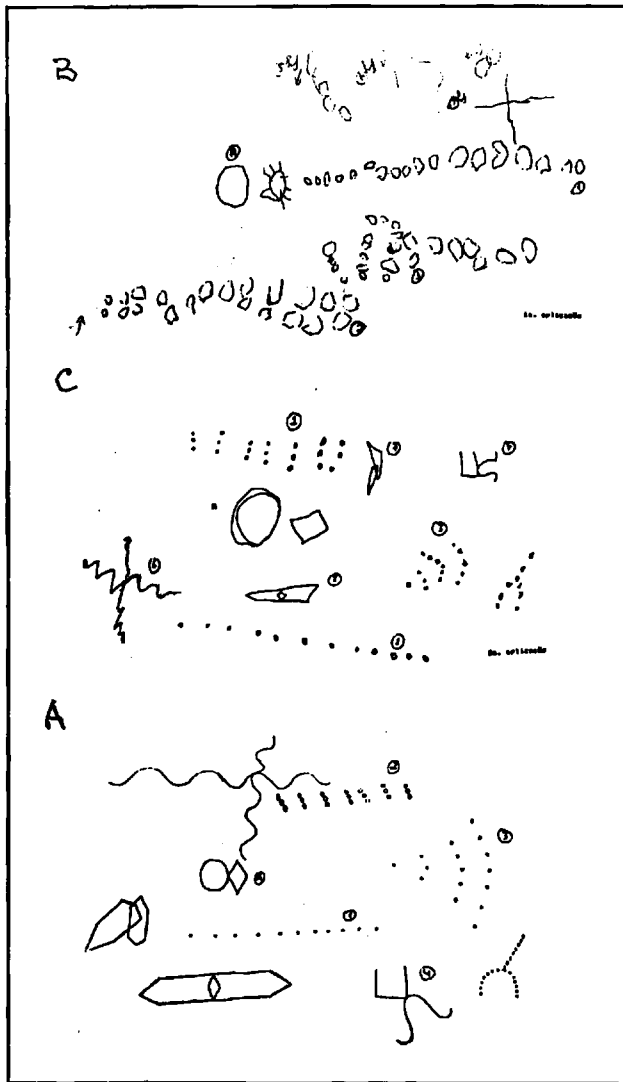


Fig 1. Explicação no texto.

drawings created by the child. The procedure was used as an evaluation tool at six-month intervals during the psychotherapy process. We found the whole group's drawings and stories more elaborated. Children evolved from scribbles, erratic and unconscious - although shared and accepted - movements to reproducing their stories graphically and to reporting them.

RESULTS EVALUATED BY THE BENDER TEST: The Gestalt Visual-Motor Bender Test²⁷ was used as an instrument to assess the children's perceptive and motor space organization, to check aspects related to their own self organization at six-month intervals. Based on the executed copies, we observed an increase in the movement inhibiting ability and a better distribution and organization of the graphic space. Figure 1 shows the graphic expression (in Bender test) of a 7-year-old child from the control group (A), and of a 7-year-old hyperactive child, in the beginning of the psychotherapy process (B) and after 6 months (C).

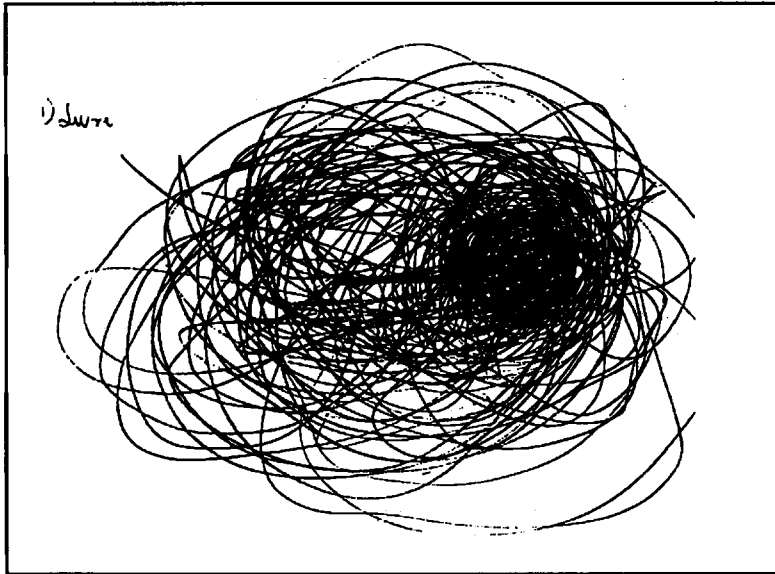


Fig 2. Explicação no texto.

RESULTS OBTAINED THROUGH PARENTS' AND TEACHERS' REPORTS: Children were accepted by schools and those who, in addition to our intervention, found a more flexible school environment as far as behavior is concerned (for example, freedom to wander around the classroom) were able to free themselves from the stigma of problem student. Children who were placed in a repressive environment often transgressed school rules. We paid schools several visits to show teachers how they could build a more adequate relationship with the children during school work. Parents' interaction with the professional team treating their children changed considerably, and they started accepting their children's problems more easily. Gradually the parents became more aware when their children were anxious as a result of the family dynamics.

BRIEF PRESENTATION OF A CLINICAL CASE

When R. was six years old, he was expelled from two schools. R. is very anxious, hyperactive, and demanding due to his restlessness. R. is not able to learn and disturbs other children in his classroom. He does not have friends. He masturbates incessantly in the classroom. These were the complaints from the last school he attended. He was considered a medical problem, and the family was advised to seek neurological treatment. Examined at a neuropediatric clinic, the results of his neurological clinical tests and electroencephalogram were normal. He was then referred to the psychological sector, to our care.

R.'s mother had a normal delivery. He weighed 3010 kg. In his neonatal tests he is described as a hydrated, eupneic, acyanotic, rosy, active baby, with a strong cry, and normal reflexive movements. Since he was one-month-old he has been followed up on at the Pediatric Clinic, and his development is properly recorded. R.'s records confirm his mother's references to cramps, evacuation difficulty, as well as nursing and bottle-feeding problems. Prone to colds, diarrhea and bronchitis, R. was again and again taken to the emergency room to be submitted to inhalation. Since he was 11 months old, R. has been considered a hyperactive child. His psychomotor development was as expected. He walked when he was 9 months old. He uttered his first words when he was 1 year old. In the beginning of psychotherapy, R. used to speak in an infantile way.

When he came to our clinic, R. was referred as having significant graphic expression problems. Expression in his drawings were very poor and when submitted to the Bender test²⁷ he was able to produce scribbles only. His production was impaired by hyperactivity and attention deficit. When submitted to attention tests^{24,26}, he went quickly from the first lines to the last ones so that he could finish the task as soon as possible.

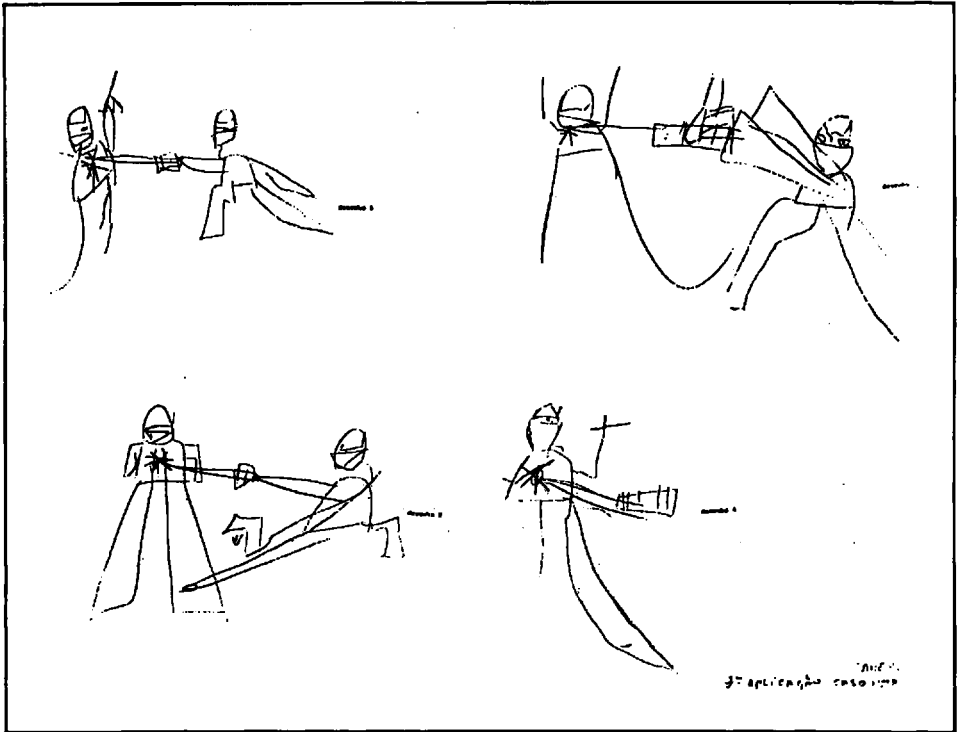


Fig 3. Explicação no texto.

After six months of psychotherapy, we were able to establish together some boundaries in relation to our work environment. For example, the window could be opened without risking an impulsive behavior that could result in his jumping out of the window. Within these boundaries, R.'s hyperactivity, sudoresis, and tachycardia decreased, a fact that R. himself noted. The hyperactive behavior occurred whenever R. felt abandoned or frustrated due to imposed limits.

During the psychotherapeutic process, R. goes from erratic and seemingly senseless, although accepted, movements to fighting with his favorite heroes and then to graphically represent them, giving special attention to the forces of good and evil. He asks for a male doll dressed in feminine clothes, and beats it, throws it out of the window, and heals it (he dramatizes the doll being taken to the doctor's). In one of his graphic expressions he reproduces the "spirit of window". He mentions that inside him lives a spirit that orders him to do wrong things, to be restless, to think about sex. He says that he wanted to jump out of the window to break his neck and expel this evil spirit. We talked about the spirit, about which of its aspects R. would like to be dead. We pointed out that these aspects R. calls spirit are actually connected to life, because it is through his movements that he stops being a doll dressed in feminine clothes and that sex is life. One year later R. is able to express his feelings graphically. As he uses symbols, he becomes less hyperactive. Figure 2 is an example of R.'s graphic expression in the beginning of the process and Figure 3 (one year later) is a sequence of his graphic expression on how he feels about leaving his therapist for one month. It is worth noting how remarkable the display of symbolic movement is in these examples. His anger emerges through the fight between two Ninja warriors, the old ninja (the therapist) and the young ninja (R.) who is abandoned. To him, abandonment means death. It should be pointed out that R. took an active part in the interpretation of the contents of his drawings.

From then on, R. began to be accepted by his school mates and teachers. One year later R.'s parents said they were going on vacation and that R. had passed to second grade.

DISCUSSION

The statistical and qualitative analysis of data show that children considered hyperactive compose an independent pathognomic group. They are different in psychopathologic terms, as shown by the projective tests. In all cases the Story/Drawing test revealed disorders related to Ego functioning. The overt syndrome - hyperactivity - was considered the least relevant symptom from the therapeutic standpoint, when disorders in psychic dynamics appeared. The relevance of this fact may be compared to the equally inefficient attempts to control hyperactivity in itself as a symptom during psychotherapy, and leaving out of the therapeutic approach the syndrome's pathogenic nuclei. The poor results arising from this strategy prompted some authors^{12,16,24} to consider hyperactivity in childhood a risk factor leading to the onset of psychotic pictures in adolescence and in adult life. The results in this paper show that hyperactivity in childhood should be considered a psychic disorder with intense psychomotor manifestation which, as in several other clinical conditions, lead to a wrong diagnosis approach. Because motor or psychomotor symptoms are so apparent, they may lead even specialists to disregard the existence of the psychodynamic substratus, thus taking the diagnosis proposition off target. However, the psychological apparatus is the promoter of the interconnection between both projective aspects (not only psychic but also motor) and introjective aspects (not only psychic but also sensitive and sensorial). In his/her interaction with the environment, the person internalizes the object and interacts with the internalized object as much as or more than with the real object. For this reason, during psychotherapy the therapist should pay special attention to problems in this relationship.

As shown by the results in this clinical study, there is sufficient evidence to locate in phenomena occurring in intrapsychic dynamics the probable actual cause for hyperactivity in children such as those comprising the material in this paper.

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