International Journal of Scientific Trends- (IJST)
ISSN: 2980-4299
Volume 4, Issue 4, April - 2025
Website: https://scientifictrends.org/index.php/ijst
Open Access, Peer Reviewed, Scientific Journal

Apraxia in Motor Alalia in Children

Dilnoza Jamilova
Master of KIUT University

Abstract

Alalia is a speech disorder occurring with normal hearing and intelligence, developing against the background of organic brain damage before the age of three. Systemic underdevelopment of speech in alalia is characterized by disturbances in phonetic-phonemic and lexical-grammatical structures. Non-speech syndromes may also be noted in alalia: motor (movement and coordination disorders), sensory (sensitivity and perception disorders), and psychopathological. Alalia is classified into motor, sensory, and mixed types. In motor alalia, the formation of expressive speech is impaired, affecting speech praxis, articulation, and fluency, while the understanding of others' speech remains intact.

Keywords: Motor alalia, sensory alalia, speech development in children, apraxia.

Introduction

Apraxia is the inability to perform voluntary practical actions with objects. The phenomenon of apraxia, as a disorder of voluntary actions of the hands and fingers, was discovered and introduced into science by Hugo Liepmann in 1900. He defined apraxia as the inability to perform voluntary object-related actions in the absence of paralysis or paresis of the hands. Liepmann identified three main components in apraxic acts: ideational (planning of actions), executive, and transmittal. He considered ideational apraxia to be the primary type. Subsequently, domestic neurologist M. B. Krol, German psychologist and psychoneurologist K. Kleist, and others studied apraxia. English neurologist W. Brain distinguished dressing apraxia, while A. Pick (a French neurologist and contemporary of Broca and Wernicke) identified perseverative apraxia.

Since object-related activities are performed with the hands and fingers, hand and finger apraxia is the primary type of apraxia. It is sometimes referred to as manual apraxia (from the Latin "manus" meaning hand). In clinical research on focal brain lesions, A. R. Luria, building on Liepmann's theory of apraxia, distinguished two types of apraxia, considering their relation to the reproduction of individual postures or their series. As a result, in modern neuropsychology, apraxias are divided into kinesthetic, afferent (sensory), and kinetic, efferent (motor) types. Hand and finger apraxia is characterized by the inability to perform designated postures of the hand or fingers or their series. Oral apraxia builds upon manual apraxia. Its main manifestation is the inability to voluntarily control the organs located in the oral cavity (to blow, click the tongue, snap fingers, etc.). However, these movements can be easily performed involuntarily. For example, the

task of blowing might be difficult, but blowing out a flame from a match held close to the mouth can be done easily.

Kinesthetic apraxia arises from the insufficient functioning of secondary fields in the parietal (postcentral) cortex responsible for the realization (afferentation) of individual postures. Characteristic manifestations of finger and hand apraxia of this type include searching for postures, characterized by chaotic movements of the hands or fingers, and substituting one posture for another. The specificity and types of neuropsychological disorders differ, with numerous searches for correct postures (kinesthesis). At the same time, within the framework of habitual involuntary actions such as eating, dressing, etc., these same postures are usually reproduced easily.

The inability to reproduce a series of movements is termed kinetic apraxia. Its occurrence is associated with damage to the secondary fields of the pre-motor (pre-central) area of the left hemisphere. Patients with kinetic apraxia struggle to reproduce a series of praxic acts that merge into a single action or represent a specific motor program. For example, a repeated reproduction of a designated sequence of postures: fist-palm-rib. A. R. Luria refers to such a series of coordinated actions as a kinetic melody, linking kinetic apraxia to its breakdown. The reproduction of a designated series of postures is hindered by a specific type of stalling—perseverations. In this type of apraxia, they resemble stalling of a cogwheel, so sometimes these perseverations are referred to as cogwheel-type perseverations.

This type of perseveration differs from those arising from the insufficient functioning of the "depth" of the brain, where stalling occurs delayed in time. Deep perseveration can occur forcibly after a certain period following the task, hindering the performance of the current action. Such perseverations are figuratively defined as "floating up from the bottom." Hand and finger apraxia in children often complicates the acquisition of everyday actions (dressing, eating, etc.) and also leads to handwriting disorders (graphomotor disorders), difficulties in playing musical instruments, etc. At the same time, coordination of movements within the general motor sphere may remain normative.

Oral apraxia is manifested by the inability to voluntarily control the organs of the speech cavity (lips, tongue, soft palate, jaws). There is a dissociation between the inability to perform the task of blowing on something (voluntarily) and the ability to do it, for example, by blowing out a flame held to the lips (involuntarily). The ability to voluntarily control oral organs facilitates the transition to performing voluntary articulatory actions.

Articulatory apraxia is characterized by a complex structure and consists of the inability to articulate clearly despite the absence of paralysis or paresis of the articulatory organs. According to A. R. Luria, articulatory apraxia in adults is a primary defect in motor aphasias. Detailed descriptions of the phenomenon of apraxia can be found in various monographs on aphasia (A. R. Luria, L. S. Tsvetkova; V. M. Shklovsky, T. G. Vize, M. K. Burlakova, etc.). Kinesthetic articulatory apraxia is referred to as afferent. Just as in hand and finger apraxia, it is characterized by difficulties and disruptions in reproducing individual articulatory postures, that is, isolated speech sounds. It is called afferent because it involves the processing of afferent signals received by the brain from the articulatory organs. The term "kinesthetic" reflects that this type of apraxia affects individual articulatory postures—speech kinesthesias.

Kinetic articulatory apraxia is referred to as efferent. Just as in hand and finger kinetic apraxias, the articulatory efferent apraxia is characterized by difficulties and disruptions in reproducing series. Such ability, in turn, is necessary for the smooth pronunciation of words (not by individual sounds, but as a whole). The term "kinetic" reflects that this type of apraxia affects the entire motor act (kineteme). This type of apraxia is called efferent because it affects acts of efferentation, that is, transitions from one articulatory posture to another and, therefore, the transmission of a series of signals sent from the brain to the periphery— to the articulatory organs. The direction of such signals, that is, efferent signals, is opposite to the direction of afferent signals sent from peripheral speech organs to the brain, where they are analyzed kinesthetically, that is, receive kinesthetic afferentation.

In some types of activities, disturbances in gnosia and praxis occur simultaneously. They are difficult to distinguish. These include constructive, somato-spatial, and optic-spatial activities, and drawing. As expressed by I. M. Sechenov, in these cases, there is a disturbance of "the synthesis of individual elements into groups." A. R. Luria attributed significant importance to this disorder and laid it as a foundation for the development of semantic aphasia. Indeed, it is often difficult to determine why a person is unable to draw something: whether they lack an image of what needs to be depicted (the gnostic moment), or they are unable to perform it with their hand (the praxic moment). Similarly, it is unclear why it is difficult to perform somato-spatial postures—whether due to disturbances in spatial orientation or difficulties in controlling the hands that should reproduce the designated posture. Such disturbances are referred to as apraxia agnosies. Mild articulatory apraxia in children may lead to difficulties in mastering phonetics (one type of dyslalia), while its severe form may cause underdevelopment of oral speech (motor alalia).

References:

1. Belova – David R.A. Speech Disorders in Preschoolers. Clinical Features of Preschool Children with Speech Underdevelopment. – Moscow: Prosveshchenie, 1971.
2. Belova-David R.A. Clinical Features of Preschool Children with Speech Underdevelopment // Speech Disorders in Preschoolers. — Moscow, 1972.
3. Belova–David R.A. Causes of Underdevelopment of Receptive and Expressive Speech in Preschool Children // Speech Disorders in Preschoolers. - Moscow, 1982. pp. 82-128.
4. Bryla M. The State of the Question on Methods for Forming the Lexical Side of Speech in Children with Expressive Alalia // Improving Methods of Diagnosing and Overcoming Speech Disorders. — Leningrad, 1989.
5. Vlasenko I. T. Problems of Logopedics and Principles of Analyzing Speech and Non-Speech Processes in Children with Speech Underdevelopment // Defectology. 1988. No. 4.
6. Vorobieva V.K. Teaching Initial Skills of Coherent Speech to Younger Schoolchildren with Motor Alalia // Defectology, 1989, No. 4.
7. Vorobieva V.K. On Some Features of Phrase Construction in the Oral Speech of Children with Alalia // Essays on Speech and Voice Pathology. Vol. 3./ Ed. S.S. Lyapidevsky. - Moscow, 1967. pp. 66-76.
8. Vorobieva V.K. On Principles of Logopedic Work on Forming Coherent Contextual Speech in Motor Alalics // Issues of Logopedics. Moscow, 1979. pp. 37-43.

9. Vorobieva V.K. On Principles of Ensuring Motivation in the Process of Teaching Coherent Speech to Students with Motor Alalia // Current Problems of Logopedics. Collection of Scientific Works / Ed. Seliverstov V.I., Shakhovskaya S.N. - Moscow, 1980. pp. 91-99.
10. Vorobieva V.K. Teaching Children with TNR Initial Skills of Descriptive-Narrative Speech // Defectology. – 1990. - No. 4.
11. Vorobieva V.K. Teaching Initial Skills of Coherent Expression to Younger Schoolchildren with Motor Alalia // Defectology. – 1990. - No. 4.
12. Vorobieva V.K. Features of Coherent Speech in Schoolchildren with Motor Alalia // Speech and Voice Disorders in Children. — Moscow, 1975.
13. Vorobieva V.K. Comparative Characteristics of the Type of Speech Activity of Students in Primary Classes of Speech and Mass Schools // Speech and Voice Disorders in Children and Adults. Collection of Scientific Works. – Moscow, 1979. pp. 11-15.
14. Voronova A.P. The State of Mental Functions and Processes in Children with General Speech Underdevelopment // Methods for Studying and Overcoming Speech Disorders. — St. Petersburg, 1994.