ONTOGENETIC AND CLINICAL ASPECTS OF AXIAL-PARAXIAL SYNDROME

P. Hubenov, L. Havezova, A. Dimitrova, R. Hubenov

Key-words: axial syndrome — paraxial syndrome — clinics — etiology — pathogenesis — ontogenesis

The axial-paraxial syndrome includes several brain-stem lower reflex mechanisms with a clearly determined ontogenesis and physiology which are inhibited by premotor and motor cortical zones during ontogenesis. The lesion of the fronto-cerebral cortex of the fronto-pontic tract as well as of the lower neural structural formations causes a cortical deblockade of these mechanisms.

The reflexes which belong to the axial phenomenology are: the nasolabial Astvatzaturov's reflex, Bechterev's trunk one, Vurpas' buccal and peribuccal ones, suctorial and distantoral ones. In contrary to the other axial reflexes the nasolabial one has an other physiological importance. It provides the ocular defense reaction similarly to the optopalpebral, corneal, and conjunctival reflexes (1—5). That's why J. Vitek (6) considered them conditioned cortical reflex mechanisms. The reflex arc is realized by means of the trigeminal and facial nerves at pontic level. Its disappearing attests to peripheral lesion of facial nerve. It can be slightly reduced in case of corticospinal tract damage.

K. Popek (cited after 7) numbers the sterno-epigastric and sterno-hypogastric reflexes described by himself among this group in case of lacunar state. These periostal reflexes present an enlarged muscular reaction of both medio-sternal and sterno-brachial reflexes.

In our opinion, the mandibular reflex which is pathologically raised in pseudobulbar palsy belongs to the group of axial phenomena, too.

Not long ago, the paraxial reflexes were included in the heading of so-called irritative pyramidal ones. The thumbo-mental reflex (Vitek) is obtained by strong pressing and simultaneous bending down and to one side of the top of the thumb. In both Vitek's and Sarno-Marinesco-Radovic's reflexes there is a mental musculature contraction. The reflex arc is realized at the level of caudal part of the cervical intumescence and pons and the facial nerve nucleus, respectively. The adductor-thumbal reflex of Marie-Fois-Iustor which is realized at C_7—C_8 segmental level belongs also to this group. According to Vitek's data (6), it can be obtained on the ulnar side of the hand till the 4^{th} and 3^{rd} interdigital spaces, i. e. on the sensory zone of the ulnar nerve. The reflex phenomena of catching type (7) belong to the liberating paraxial reflexes. They are complex reflex automatisms which originate in case of deep skin irritation. Yanishevski's reflex is considered for the hands but the desintegrated catching manifestations of toes' fan for the lower limbs. The reflex arc of the latter is realized at the level of the caudal part of lumbal intumescence.

K. Popek (cited after 7) considers the palmo-cervical reflex to be associated with severe lacunar conditions in the form of Marinesco-Radovic's reflex modification. It is presented by a conjugate contraction of both mental and cervical musculature resulted in bending down of te head.

Axial-paraxial reflexes were formed during philogenesis. The catching reflex mechanism in monkeys exist in hands and feet both and its development requires perfect integration between senso-motor and sensory analysators. Its kind was modified according to the modus of nutrition: the food was not accepted by the mouth any more but by means of legs and then served to the mouth.

The irritation of skin receptors of thenar, ulnar part of the hands, outer side of the thumb as well as of its joint receptors causes an associated movement of mental musculature. It is primarily related to catching and mouth opening for biting in the nipple of for defence. In the elderly both sucktorial and labial reflexes present a pathological response reaction for sucking or food catching. Little by little, during development, cortical superstructure induces an inhibition and even disappearing of these ancient reflex automatisms. During ontogenesis which is a short repetition of philogenesis a number of facts can be found which support the above hypothesis. In sucklings and early infancy the axial-paraxial reflexes are physiological phenomena. They then disappear with age because of development of prefrontal cortex and pyramidal tract.

According to Vitek (7) paraxial reflexes are atavistic in the sense that partially catching and supporting reflex mechanism, respectively, is observed. In fact, they could be considered atavistic signs only in the early stages of cortical and subcortical structures formation. The fan-like spreading-out of the toes is an atavistic pseudocatching reflex which is inhibited by the corticospinal motor system during development. In certain circumstances the foot can become a catching and working organ. An evidence is given by men without hands who get used to catch and perform a fine second signal activity by using their feet.

The axial-paraxial reflex as it is evident from its origin is primarily inherited inferior uncondilonal reflex. During development of cortical motor zones and internal inhibitory mechanism they disappear or remain inhibited in a latent state. The lesion of frontal parts of precentral motor zones and their pathways at brainstem level and lower structures causes a desinhibition of axial-paraxial reflexes.

The presence of axial-paraxial syndrome in adult patients gives an evidence for the loss of cortical inhibitory influence upon the lower nervous structural formations but in children it reveals the maturation of the fronto-prefrontal cortex and its relations to the brainstem as well as the delay of this process. This concept is supported by the fact that this symptomatics holds a longer time in children with peripheral encephalopathies. The presence of renewall, respectively of axial-paraxial signs in adults means a progressive fronto-prefrontal cortex desintegration. It is an expression of this desintegration upon old reflex mechanisms described above.

Axial-paraxial syndrome is common in neurological practice. In certain cases it preceedes the psychic symptoms in uni- and bilateral cortical lesion of the frontal lobes.

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ОНТОГЕНЕТИЧЕСКИЕ И КЛИНИЧЕСКИЕ АСПЕКТЫ АКСИАЛЬНО-ПАРААКСИАЛЬНОГО СИНДРОМА

П. Хубенов, Л. Хавезова, А. Димитрова, Р. Хубенов

РЕЗЮМЕ

В работе сделана феноменологическая и онтогенетическая оценка аксиально-парааксиального синдрома, встречающегося у больных в пожилом возрасте в результате диффузного увреждения коры больших полушарий мозга, профронтальной области лобных долей и их афферентных путей. Установленные патологические феномены имеют определенную диагностическую ценность при расстройствах высшей нервной деятельности.