Anatomical classification of the anterior interosseous nerve and its clinical importance

Classificação anatômica do nervo interósseo anterior e sua importância clínica

José Aderval Aragão
Federal University of Sergipe
adervalufs@gmail.com

Caio Siqueira Kuhn
Federal University of Sergipe
caioskuhn10@hotmail.com

Lucimário de Carvalho Barros
Federal University of Sergipe
caioskuhn10@hotmail.com

Felipe Matheus Sant'Anna Aragão
Hospital de Base da Faculdade de Medicina de São José do Rio Preto
felipemsaragao@hotmail.com

Iapunira Catarina Sant'Anna Aragão
Munir Rafful Municipal Hospital
icatarinasaragao@hotmail.com

Bárbara Costa Lourenço
Faculty of Medical Sciences of Três Rios
barbara.costa2203@hotmail.com

Francisco Prado Reis
Tiradentes University and Alfredo Nasser University Center
franciscopradoreis@gmail.com

Keywords: Anatomy, Distal radioulnar joint, Wrist joint, Pronator quadratus muscle.

ABSTRACT
The anterior interosseous nerve (AIN) is the main branch from the median nerve (MN), responsible for the innervation of muscles of the anterior compartment of the forearm, with a path through the ventral face of the interosseous membrane, where it emits branches to the flexor pollicis longus and flexor digitorum profundus muscles, until it reaches the pronator quadratus muscle. The knowledge of its origin, path and ramifications is of great importance not only for the clinic but also for surgery, especially in pronator teres and carpal tunnel syndromes. OBJECTIVE: To describe the origin, course and types of termination of the anterior interosseous nerve until its arrival at the pronator quadratus muscle. METHODOLOGY: Dissections were performed in 52 forearms of 26 human fetuses, 13 male and 13 female. After dissections, schematic drawings were made to analyze the trajectory and ramifications. RESULTS: The length of the AIN ranged from 19.5 mm to 59.83 mm with an average of 39.76 mm. The AIN

regarding its path and branching pattern were classified into three types: Type I, where trifurcation of the AIN occurs in branches for the flexor pollicis longus (FLP), pronator quadratus (PQ) and flexor digitorum profundus (FPD), Type II, where emission of the branch for the FPD occurs and formation of a common trunk for the PQ and FLP branches and, Type III, where there is the emission of the branch to the FLP and formation of a common trunk for the branches of the PQ and FPD, and these types may present extra branches, other branches for different muscles and branches for articulation. CONCLUSION: The knowledge of the origin and path of the AIN is of great relevance not only for anatomy, but also for orthopedic and neurological surgery, as it would serve as a source of nerve grafting and nerve transfer in cases of upper extremity nerve palsy.