BIOMECHANICS AND INTERNAL DERANGEMENT OF THE TEMPOROMANDIBULAR JOINT

The temporomandibular joint (TMJ) is a mobile and synovial joint with a tri-axial movement. Nutrition, mastication and verbal communication are among the most significant functions of the TMJ. An appropriate interincisal mouth opening is vital for such functions and with the increase in the severity of the TMJ disorders, multiple quality of life scores diminish. The disc which enables the harmony between bony surfaces divides the TMJ in two portions which contribute to the maximal interincisal opening. The lower portion is responsible for the rotation which is the first phase of mouth opening. The upper portion is responsible for the translation which is the second phase of mouth opening. Also, the biconcave articular disc absorbs the excessive force that is generated by the muscles and that are conducted by the bones. The elastic retrodiscal tissue and ligaments pull the disc back to its normal position during mouth closure. On the other hand, the TMJ has occlusion as a strict endpoint that is unique to this joint. Due to its unique characteristics such as occlusion, bilaterality and the presence of an articular disc, the TMJ is prone to biomechanical pathologies and internal derangement. In the TMJ, internal derangement is a common diagnosis and it is defined as any failure of the intraarticular structures. The derangement is a change in the normal motion of the TMJ and frequently, it is related to the malfunction of the articular disc. Numerous symptomatology and etiology are present in the internal derangement. Reductable and non – reductible anterior disc displacement constitute 77 % of this pathology. In addition to biomechanical and psychological factors, new studies demonstrate emerging evidences on biologic factors of the internal derangement. The aims of this presentation are to describe the pertinent anatomy of the temporomandibular joint and to define and visualise the internal derangement with the help of an anatomic model and some play dough.