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Yunnantozoon and the ancestry of chordates

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The oldest known chordate, *Yunnanozoon lividum* Hou et al. 1991, from the Chengiang Lagerstätte of Yunnan shows several features in its anatomy that had not been expected to occur at this stage of evolution. Its metameric dorsal myomeres were separated by straight myosepta. The notochord was located ventrad of the muscular blocks instead of being bordered by them. The pharynx did not contain any filtratory basket but had only seven pairs of branchial arches. These were composed of rows of minute scleritic segments that connected the notochord with a rigid ventral trough. The head region was rather complex in organization and bore a specialized ring-like mouth apparatus. The presence of sensory organs, perhaps large eyes with sclerotic rings, is probable. Only in the remarkable elongation of the notochord and metameric arrangement of oval gonads this early chordate is similar to *Branchiostoma*. The anterior part of the muscular blocks of *Yunnanozoon* resembles a little the proboscis and collar of the enteropneusts and may perhaps be homologous with these structures, although in *Yunnanozoon* they are displaced much behind the mouth. The whole metameric muscular unit is proposed to correspond to the 'quilted pneu structure' of the Ediacaran problematic fossil *Dickinonia*. Monotypic Yunnanozoa classis n., Yunnanozoida ordo n., and Yunnanozoidae fam n. are proposed for this early chordate.

Key words: Cambrian, Precambrian, chordates, conodonts, cephalochordates, Dickinsonia, origins, phylogeny.