

Mini Review

PARAPHYLETIC ANIMALS ARE CHORDATES POSSESS SPINE FROM NOTOCHORD

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INTRODUCTION

An animal belonging to the phylum Chordata is called a chordate. All chordates have five synapomorphies basic physical traits that set them apart from all other taxa at some point during their larval or adult stages. The notochord, dorsal hollow nerve cord, endostyle or thyroid, pharyngeal slits, and post-anal tail are among these five synapomorphies. The first of these synapomorphies, the notochord, which is crucial to chordate movement and structure, is where the name chordate originates.

A notochord, a stiff rod of cartilage that runs the length of the inside of the organism, is one of the physical characteristics that characterises the phylum of creatures known as chordates. The notochord, a member of the chordate vertebrate subgroup, develops into the spine in fully aquatic species, which aids the animal's ability to swim by flexing its tail [1]. A neural tube in the back, this gives rise to the spinal cord, the primary nerve trunk and means of communication in fish and other vertebrates. Slits in the pharynx, the area of the throat just behind the mouth is known as the pharynx. The slits are transformed into gills in fish, but in some other chordates, they are a component of a filter-feeding system that draws food particles from the water in which the animals reside [2]. They only exist in tetrapods during the embryonic phases of development. A muscular tail that extends behind the anus is known as the post-anal tail. The embryonic stage is the only time this is present in some chordates, like humans. a style, an endo. This depression can be found in the pharynx's ventral wall. It produces mucus in filter-feeding species to collect food particles, which aids in delivering food to the oesophagus. It may be a forerunner of the vertebrate thyroid gland and accumulates iodine as well.

Most tunicates are soft-bodied filter-feeders without the typical characteristics of chordates, and they can be found as adults in two main varieties known as sea squirts and salps. While salps float in mid-water, feeding on plankton, and have a two-generation cycle in which one generation is solitary and the next forms chain-like colonies, sea squirts are sessile and mostly comprised of water pumps and filter-feeding equipment. All tunicate larvae do, however, have the typical chordate characteristics, such as long, tadpole-like tails, as well as primitive brains, light sensors, and tilt sensors. Appendicularia, the third major group of tunicates, are thought to have originated as the larvae of sea squirts or salps since they live their entire lives with tadpole-like forms and are active swimmers [3].

Every craniate has a unique skull. The hagfish is one of them; it lacks vertebrae. The vertebral column replaces the notochord in the majority of craniates, which are classified as vertebrates. These are made up of several cylindrical vertebrae that can be bony or cartilaginous, usually having neural arches to protect the spinal cord and projections to connect the vertebrae [4]. Hagfish, on the other hand, are not considered to be vertebrates since they lack vertebrae and have incomplete braincases; instead, they are considered to be members of the craniates, a group from which vertebrates are assumed to have developed. Hagfish may be a defective vertebrate that has lost its vertebral column, making their cladistic exclusion from the vertebrates problematic. The place of lampreys is unclear. They can be considered vertebrates and real fish because they have entire braincases and simple vertebrae. However, data from molecular phylogenetics, which classifies animals using biochemical traits, have shown that they can both be grouped with vertebrates and hagfish [5].

Echinoderms differ from chordates and their other relatives in three striking ways: they have tube feet; they have radial symmetry in adulthood, which means that their body pattern is shaped like a wheel; and their bodies are supported by calcite skeletons, a material not used by chordates. Echinoderms also possess bilateral symmetry only as larvae. Their skeletons, which enclose their bodies but are also covered by thin skins, are hard, calcified shells that keep their bodies well protected from the environment. Echinoderms have a water vascular system of canals that serves as a lung and is encircled by muscles that work as pumps, which is how the feet get their power.

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