

A STUDY OF THE BRACHIAL ARTERY IN THE PRIMATES

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The distal part of the mammalian brachial artery may take one of two courses, medial or lateral. The medial course is followed in man in the rare cases in which the supracondylar foramen is represented, and in all mammals other than the primates, whether the supracondylar foramen is present or not. The lateral course is normally followed in man and in the anthropoids.

The question has arisen whether or not the artery follows the medial (and apparently primitive) course in the early human embryo, being replaced when the supracondylar foramen is not represented, by an entirely new (lateral) channel. The difficulty of finding an answer to this question in the human embryo itself, led to a search for indirect evidence by contrasting the conditions occurring in adult primates having and not having a supracondylar foramen. In brief, the brachial artery of the lemurs (*Nycticebus*) and the platyrrhine monkeys (*Cebus*) having a supracondylar foramen takes a medial course. The artery of the catarrhines not having the foramen (*Ateles*, *Alouatta*, *Lagothrix*) and of the catarrhines (*Nasalis*) takes the lateral course. The two channels were never found to coexist.

The arrangement of the branches suggests that the lateral channel is a distinct alternative to the medial, but does not exclude the possibility that whichever channel is found in the adult has existed as such from the beginning of development.

HISTOLOGY OF THE BRANCHIAL EPITHELIUM IN FISHES

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The problem of water regulation in fishes has been extensively studied. One of the most interesting facts which has been brought to light in this problem is that water regulation effected by the extra-renal excretion of salts is of as great importance as the regulation effected by the kidney. It has been demonstrated (Smith '32) that active secretion of salts occurs in the region of the gills in both Elasmobranchs and Teleosts.

With the above information at hand, the writer has made a histological study of the three representative groups of fishes which were available during the summer of 1932, viz., the Cyclostomi, Elasmobranchii, and Teleostei. The purpose of this investigation was to ascertain first, whether there was present in the gills of fishes any tissue which might account for extra-renal salt secretion, and second, whether the physiological differences observed in diverse classes could be accounted for on a structural basis.

The branchial epithelia of the Cyclostomes, *Myxine glutinosa* and *Amnocetes*, have been described by Cole ('12) and Wallin ('12) respectively. Both of these authors mention the presence of a specialized epithelium. Cole definitely ascribes to this tissue a secretory function. The writer's observations confirm the presence of glandular epithelium in the gills of *Myxine*.

In *Squalus acanthias*, it was observed that there were two types of specialized epithelium. The first is situated in the interbranchial septum and arranged in numerous crescentic patches. It is a tall columnar type of cell free from granules and is probably concerned with mucous secretion. The second type of cell occurs in the region between the afferent and efferent branchial vessels of the gill filament. These cells are very numerous and are in intimate association with the blood vessels. They are somewhat cuboidal in shape and contain numerous granules.

The Teleost gill shows the presence of mucous cells, but as yet no definite indication of the cuboidal cells described above has been ascertained. A more detailed study will probably be necessary.

From the standpoint of structure, the evidence at hand indicates the presence of a secretory type of cell in the gills of Cyclostomes and Elasmobranchs. It is therefore highly probable that the gills of these two classes of fishes are in part, at least, concerned with water regulation.

LITERATURE CITED

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Smith, H. W., 1932, *Quart. Rev. Biol.*, 7, 1.
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THE SPECIFICITY OF MONKEY PROTOZOA

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Material collected in June and July in the province of Chiriqui in Panama was studied at Salisbury Cove. This consisted of the intestinal contents, fixed either in bulk or on slides, of 71 red spider monkeys, 23 titi monkeys and 8 white face monkeys. The monkeys were shot in the jungle several miles from any human habitation and were autopsied within a few hours after being shot. It was found that the intestinal protozoa present remained in a viable condition and active for 8 hours or more after being killed. The three species of monkeys studied differed as regards their intestinal fauna. No protozoa were observed in the material from white face monkeys. Every specimen of titi monkey was parasitized with a trichomonad flagellate. A high percentage of red spider monkeys were infected with three species of protozoa belonging to the genera *Balantidium*, *Trichomonas* and *Endolimax*. Although these three species of monkeys were living in