

Avian Esophagus: A Comparative Microscopic Study In Birds With Different Feeding Habits

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Abstract : The morphology of an organ system varies according to the feeding habit, habitat and nature of their life-style. This phenomenon is called adaptation. During evolution these morphological changes make the system species specific so the study on the differential characteristics of them makes the understanding regarding the morpho-physiological adaptation easier. Hence the present study was conducted on esophagus of pariah kite, median egret, goshawk, dove and duck. Esophagus in all birds was comprised of four layers viz. Tunica mucosa, Tunica submucosa, Tunica muscularis and Tunica adventitia. The mucosa of esophagus showed longitudinal folds thus the lumen was irregular. The epithelium was stratified squamous in all birds but in Median egret the cells were large and vacuolated. Among these species very thick epithelium was observed in goshawk and duck but keratinization was highest in dove. The stratum spongiosum was 7-8 layers thick in both Pariah kite and Goshawk. In all birds, the glands were alveolar mucous secreting type. In Median egret and Pariah kite, these were round or oval in shape and with or without lumen depending upon the functional status whereas in Goshawk the shape of the glands varied from spherical / oval to triangular with openings towards the lumen according to the functional activity and in dove these glands were oval in shape. The glands were numerous in number in egret while one or two in each fold in goshawk and less numerous in other three species. The core of the mucosal folds was occupied by the lamina propria and showed large number of collagen fibers and cellular infiltration in pariah kite, egret and dove where as in goshawk and duck, collagen and reticular fibers were fewer and cellular infiltration was lesser. Lamina muscularis was very thick in all species and it was comprised of longitudinally arranged smooth muscle fibers. In Median egret, it was in wavy pattern. Tunica submucosa was very thin in all species. Tunica muscularis was mostly comprised of circular smooth muscle bundles in all species but the longitudinal bundles were very few in number and not continuous. The tunica adventitia was comprised of loose connective tissue fibers containing collagen and elastic fibers with numerous small blood vessels in all species. Further, it was observed that the structure of esophagus in birds varies according to their feeding habits.

Keywords : dove, duck, egret, esophagus, goshawk, kite

Conference Title : ICMMA 2015 : International Conference on Microscopic and Macroscopic Anatomy

Conference Location : Barcelona, Spain

Conference Dates : August 17-18, 2015