Morphological and Histological Study of Uropygial Gland in Moorhen

(G. gallinula C. choropus)

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Abstract: Eighteen healthy moorhens obtained to describe the anatomical and histological structures of uropygial glands. The gland in moorhen composed of two lobes, each one has a single uropygial duct and they joined together by isthmus. Uropygial gland is embedded beneath the skin in a mass of fatty tissue, they surrounded by a connective tissue capsule apparently devoid of muscle fibers and receives its blood supply from the caudal artery, and drained by the caudal vein. The gland parenchyma consist of a highly developed trabeculae packed with tiny parallel secretary tubules, smooth muscle fibers are founds around these trabeculae and also forms a sphincter at the nipple of excretory ducts.

Key words: Papillae wide, trabeculae, isthmus

Introduction
The name moorhen is misleading and is, in fact, a corruption of mirehen or marshhen, which gives a much truer picture of its natural habitat. Since, however, it is essentially a wild bird of an independent nature, Easily separated from Coot by white under-tail feathers (which it raises frequently) and white flank stripe. Colorful red and yellow bill. Moorhens are one of the winter visitors of the Iraq marshes (Allous, 1961). Uropygial gland is specialized pair of oil sebaceous glands with raised portals of ducts (David, 1999). The gland may be considered as the only organized tegumentary structure of external secretion typical of birds, in some species it may be vestigial or absent such as in Rheidae, Psittacidae and Columbidae (Johnston, 1988). The bilobal gland is enclosed in a capsule of connective tissue and lies at the base of the tail, each lobe has a central cavity that collects the secretion from tubules arranged radially around the cavity (Jacob, 1976). The gland secretion is conveyed to the surface via ducts that, in most birds, opens at the top of papillae (Kolattukudy, 1981).

The uropygial gland excrete their secretion via the uropygial duct which project from the primary cavity and extends for the apex of the glands papillae which opens at the porus ductus uropygialis (Bhattacharya,1972; Lucas and Stettenheim, 1972; King and McLelland, 1984; Shawkey et al., 2003). Each lobes shows the primary cavity which appears rounded caudally and narrow caudally at the uropygial canal enterance (Getty, 1975). The glands in Geese consist of two lobes; each lobe has a single uropygial duct. Both lobes were joined together by extremely wide isthmus and there was a barrier separated between these lobes the interlobular septum. The lobes covered by a capsule of dense connective tissue intermediate by blood vessels and nerves (Hayder, 2005).

Materials and Methods
Eighteen adult moorhens (Gallinula c. choropus), 700-900 grams weights of both sexes collected from the local market of Basrah city, Iraq. (Fig. 1). The birds were decapitated and vascular perfusion with 10% neutral formalin via the descending aorta was done before removal the gland. The gross anatomical features were verified and latex injection into aorta at the base of the heart were prepared for the purpose of nutrient blood supply study. For histological study uropygial lobes were removed and immediately post-fixed in 10% neutral formalin via the descending aorta was done before removal the gland. The gross anatomical features were verified and latex injection into aorta at the base of the heart were prepared for the purpose of nutrient blood supply study. For histological study uropygial lobes were removed and immediately post-fixed in 10% neutral formalin for 24 hours. The specimens were washed in current water, dehydrated in agarred series of alcohol, cleared in xylol and embedded in paraffin wax, serial sections of five micrometers thick were made, mounted on slides and stained with hematoxylin and eosin (Luna, 1968).

Results and Discussion
The uropygial gland in moorhen possessed two lobes lies on the base of the tail, over the pygostyle muscles.
Each lobes have a single duct and joined together by an extremely wide isthmus (Fig. 2). These finding were in agreement with that of (Kolattukudy, 1981; King and McElland, 1984; Wexo, 1990; Wissman and Parsons,
three branches, external branch, internal branch and small median branch. The nerve supply is from the first pair of caudo-spinal nerves plus sympathetic fibers, these results are coincident with those reported by (King and McLelland, 1984). And pointed out with (Lucas and Stettenheim, 1972) who reported that the gland innervates from the caudal plexus.

The gland surrounded by a connective tissue capsule apparently devoid of muscle fibers, the glands parenchyma composed of secretary tubules and ducts in addition to the primary and secondary trabecula separated by a connective tissue (Fig. 6, 7). (Montalti, 1999) shows that similar observation in hens and pigeon, while (Al-Mehdawi, 2003) explain that each lobes composed of secretary lobules and the tubules terminates by alveoli.

The tubular epithelial cells are classified into four well defined layers, a germinative layer which consist of one or two rows of flat or cuboidal cells with a basophilic cytoplasm and dark nucleus, an intermediate layer composed of 1-3 rows of polygonal cells with a basophilic cytoplasm, secretary layer formed of 1-6 rows of polygonal cells with secretary granules and the degenerative layer characterized by cells with pyknotic nuclei (Fig. 8), these results were similar with (Hayder, 2005; Bacha and wood, 1990) who stated that the tubular epithelial classified into three zones.

References


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