Histological Development of Papilla of Preen Gland in Duck

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Received: 11 January 2013; Accepted: 19 April 2013

SUMMARY

Histological developmental studies were conducted on preen gland of duck from the day of hatch to 150 days of age. The gland was a paired organ with a common cylindrical papilla. The papilla had two ducts lined by glandular epithelium proximally and keratinized stratified squamous epithelium distally at the tip. The glandular epithelium was surrounded by longitudinally arranged smooth muscle fibres and skin. Lamellar corpuscles and circlet feather follicles were noticed in the papilla.

Key words: Duck, Histology, Papilla, Preen gland

Precise study concerning the post hatch histological development of the papilla of preen gland has been less reported so far. A detailed study on the post hatch histological development of the papilla of immunologically important preen gland in the duck seemed to be appropriate. Hence, the study on papilla of preen gland was undertaken to trace the histological changes from the day of hatch to 150 days of age in ducks.

The preen gland papilla was collected from 44 ducks from the day of hatch till 150 days of age. The papilla was cut into small pieces and fixed in 10% neutral buffered formalin, Zenker’s fluid and Bouin’s fluid. The paraffin sections were stained by Erhlich’s haematoxylin and eosin, Mallory’s phosphotungstic acid haematoxylin method, Gomori’s aldehyde fuchsin technique, Gridley’s method for reticular fibres, Gomori’s one step trichrome method, Van gieson’s method and toluidine blue (Luna, 1968).

In ducks, the preen gland was a paired organ. The glands of both sides together were ‘V’ shaped with the apex directed backwards. The primary cavity of each preen gland was lined by one or two layers of columnar cells with spherical nuclei. The epithelium of the ducts near the tip of the papilla was

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Fig. 1. Photomicrograph of preen gland papilla (30 days old duck) showing terminal portion of the duct lined by keratinized stratified squamous epithelium. H. & E. × 400

Fig. 2. Photomicrograph of preen gland (20 days old duck) showing lamellar corpuscle in the papilla. H. & E. × 400
lined by keratinized stratified squamous epithelium (Fig. 1) as reported by Bradley and Grahame (1950) in fowl and Sunanda et al. (2001) in ducks. Spearman (1971) opined that the keratinized stratified squamous epithelium of the ducts was suggestive of a cutaneous origin of the preen glands.

The epithelium at the initial portion of the duct was surrounded by connective tissue layer followed by longitudinally arranged smooth muscle fibres and the skin. The connective tissue layer was dense irregular type having collagen and reticular fibres. Elastic fibres were absent. The epithelium of the ducts near the tip of the papilla was surrounded by feathered skin. Longitudinally arranged smooth muscle fibres were detected near the tip of the papilla whereas, Farner et al. (1982) and Chandrasekar et al. (1990) reported smooth muscle fibres both in the longitudinal and circular fashion at the sub terminal portion of the papilla in various species of domestic birds and Japanese quails, respectively.

Numerous circlet feather follicles and lamellar corpuscles (Fig. 2) were noticed at the tip of the papilla as reported in ducks (Sunanda et al., 2001) and various species of domestic birds (Farner et al., 1982). The authors have also opined that the longitudinal muscle bundles pull the circlet feather follicles into the papilla to enable these feathers to bring into direct contact with the glandular secretion.

REFERENCES


