EXCISION OF THE UROPYGIAL GLAND IN THE HOUSE SPARROW

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Summary

The aim of the current study was to experimentally remove the uropygial gland in house sparrow (Passer domesticus). Therefore we made the excision of the preen gland in 33 healthy birds. All individuals were anaesthetised with a combination of an α2-adrenoceptor agonist (xylazine) and a dissociative anaesthetic (ketamine). During anaesthesia and surgery they were monitored for vital signs parameters. All of them breathed air spontaneously during anaesthesia. Surgery was performed within 10–15 minutes. 31 birds had good survival prognosis and 2 birds died.

Key words: uropygial gland, excision, house sparrow, Passer domesticus.

Nearly all the bird species have an uropygial gland, also known as preen gland, which can be considered the unique holocrine gland of the avian skin. The oily secretions from the gland are spread over the plumage with birds’ bill during plumage maintenance (preening). The biological function of the preen waxes have been debated for many centuries and agreed in the multiple function of these, like water-repellent agent (4), regulator of the feather microbial flora and parasites (2, 3, 9, 6), reducing the risk of predation (8), enhances birds’ plumage appearance, etc.

House sparrow (Passer domesticus) is one of the most widely distributed avian species on the planet and one of the most abundant songbirds in Western Palearctic. The house sparrow was introduced into North and Central America, South Africa, Australia and New Zealand. The house sparrow is a member of the Old World sparrow family Passeridae, considered by some to be a relative of Weaver Finches (1, 10).

Our objective was to experimentally remove the uropygial gland in house sparrows. We consider that this surgical procedure is important in birds with gland traumatisms (rupture), abscessation, and tumors of the gland (squamous cell carcinomas, adenomas and carcinomas (5)) and has also experimental importance in testing the role of preen gland in different species of birds.

Materials and methods

The biological material was represented by 33 house sparrows – 14 females and 19 males – caught with a mist net at a farm situated near Cluj-Napoca.
The birds were hospitalized in individual cages for 15 days. We consulted the birds during this period as follows: In the first day of the hospitalization, at the day of surgery/anaesthesia, in the next day after the excision of the uropygial gland and then after every 48 hours. All birds received during these 15 days food (the same diet) and water ad libitum. Prior to surgery they were normally fasted.

Preoperative management was represented by depluming the birds in the uropygial gland area and one cm around after the anaesthesia had been installed, positioning the bird in sternal recumbency and local application of antiseptic solution.

Surgical technique used first was the classic incision made along the dorsal midline to incorporate the papillae of the gland. Thus, the skin was incised via the interlobular septum, including the oil gland papilla. The second step was the isolation of the gland, debridement of the skin and the excision of the gland. Because the uropygial gland in this type of bird is very well developed, and is extended deeply to the synsacrum and caudally to the insertion point of the tail feathers, using this technique has the disadvantage that extensive dissection and debridement are necessary. Thus, the skin is highly predisposed to secondary ruptures, making in this way the skin closure more difficult and sometimes impossible.

For the rest of the birds we made a perpendicular skin incision on the interlobular septum, incorporating the cranial margin of the oil gland papilla. The skin from the top of the gland and from around was carefully debrided and the papilla was excised. Then we made the excision of the gland and haemostasis. Skin closure was made with absorbable material (Dexon) using a “U” suture and before closure the wound was treated with antibiotic powder (Baneocin).

Concerning anaesthesia, we performed general anaesthesia following a protocol based on ketamine 100 mg/ml (Ketaminol 10, Intervet) and xylazine 20 mg/ml (Narcoxyl 2, Intervet), previously diluted in a saline solution 0.9% and given via intramuscular route in the pectoral muscles. The protocol used was xylazine 0.5 mg/bird and ketamine 2 mg/bird (xylazine 20 mg/kg and ketamine 80 mg/kg, i.m.) (4, 7).

All birds were monitorized for vital sign parameters during surgery (cardiac and respiratory parameters, the color of the mucous membranes and the response to pressure and to pain during surgery).

In addition, for all patients we took measures against hypothermia (they were kept in individual small textile bags, close to a heat source). After surgery, all birds received antibiotics via P.O. (Enrofloxacin, 2 ml sol. 10%, dissolved in 1 liter drinking water) for 10 days consecutively.

**Results and discussions**

We performed the excision of the uropygial gland in 33 healthy home sparrows. Of these, the majority of the patients (31 birds – 93.9%) had a good
survival prognostic. One patient (3.0%) died shortly after the administration of the anaesthetic medication and another patient (3.0%) developed an acute fatal hemorrhage during surgery and died 10 minutes later.

We used the classic incision (made along the interlobular septum, including the oil gland papilla) for 3 birds (9.1%). In all 3 cases we couldn’t make the skin closure properly so the wound healed “per secundam” in a longer period of time compared with other birds and also required further medical management. As we described previously, we consider that was due to the fact that in house sparrow the uropygial gland is well developed and has a specific anatomy, so the skin closure is usually impossible by using this technique. In contrast with the songbirds, in pigeons both classic technique and the incision with bipolar electrosurgery can be used with good results (Muresan et al. unpublished data).

For the rest of the birds (30 individuals, 90.9%) we used a skin incision perpendicular on the interlobular septum. Using this method we made the skin closure properly and we had no surgical complications (hemorrhage, infection of the wound, dehiscence) in the patients who recovered from anaesthesia. Postoperative care was represented by the maintenance of warmth and enrofloxacin oral therapy.

Conclusions

The excision of the uropygial gland has important clinical applications and also experimental significance.

The method used by us is a good alternative, particularly in birds like house sparrows, and in our case, it was the best way in removing the preen gland and preserving the skin for closure of the wound, making in this way the postoperative management more slight and, in the same time, less stressful for the studied birds.

References