Avian Air Sac Rupture

Agent

The avian respiratory system includes the trachea, lungs and a network of air sacs, which function as bellows to ventilate the lungs. These air sacs consist of a very thin membrane that can be punctured by physical trauma such as predator attack or a collision injury. Avian air sac rupture can also occur spontaneously. Several factors may predispose an individual bird to avian air sac rupture including infectious agents, either directly by damaging the air sac wall or by predisposing the bird to predation.

Species affected

All avian species can be affected by air sac rupture. It is unknown whether any garden bird species are more prone to air sac rupture than others.

Signs of disease

When an air sac has ruptured, the air that it would usually contain is able to escape through the tear and into the subcutaneous space, just beneath the skin. This leads to abnormal air flow which can create an air pocket that stretches the skin taut and may disrupt the plumage, appearing as a large, bulbous swelling that is easily mistaken for a tumour or an infectious disease. This swelling may take only a few minutes to inflate and does not fluctuate with the bird's breathing. Depending on the location of the air pocket, the bird may struggle to eat, or it may interfere with flight and locomotion.

Disease transmission

Confirmed causes of avian air sac rupture are typically non-infectious (for example trauma or predation) and therefore air sac rupture is not considered to be transmissible between birds. Whilst it is believed that infectious diseases may predispose birds to avian air sac rupture, the frequency of this occurring as an underlying cause is unknown.

Distribution and origin

Avian air sac rupture is an uncommon and sporadic finding in wild birds and may occur across Great Britain. Further research into the causes, prevalence and distribution of avian air sac rupture in wild British birds is required.

Risk to human health

There are no known risks posed to human health by avian air sac rupture.

Risk to domestic animal health

Avian air sac rupture poses no known risks to domestic animal health.

However, we recommend following sensible hygiene precautions as a routine measure when feeding garden birds and handling bird feeders and tables. Following these rules will help avoid the risk of transmitting any infection and help safeguard the birds in your garden against disease.

- Clean and disinfect feeders/feeding sites regularly. Suitable disinfectants include a weak solution of domestic bleach (5% sodium hypochlorite) and other specially-designed commercial products. Always rinse feeders thoroughly and air-dry them before re-use.
- Dampen surfaces with water before cleaning them to reduce the chance of breathing in dry dust or aerosolised secretions.
- Brushes and cleaning equipment for bird feeders, tables and baths should not be used for other purposes and should not be brought into the house but be kept and used outside and away from food preparation areas.
- Wear rubber gloves when cleaning feeders and thoroughly wash hands and forearms afterwards with soap and water, especially before eating or drinking.
- Avoid handling sick or dead birds directly. For instance, use disposable gloves or pick a carcass up through an inverted plastic bag.

Diagnosis

The signs of avian air sac rupture are fairly characteristic, however, diagnosis of the condition in garden birds requires veterinary or *post-mortem* examination.

If you wish to report finding dead garden birds, or signs of disease in garden birds, please visit **www.gardenwildlifehealth.org**. Advice on what best to do if you find a sick or dead garden wildlife can also be found on our website on www.gardenwildlifehealth.org/what-if. Alternatively, if you have further queries or have no internet access, please call the **Garden Wildlife Health** vets on **0207 449 6685.**

Prevention and control

Whilst avian air sac rupture in captive birds can often be treated by veterinarians, effective treatment of free-living birds under field conditions is not possible.

Given that predation is a potential cause of air sac rupture in garden birds, measures to avoid cat predation in domestic gardens are recommended as routine. Since cats rely on cover to approach prey and to launch surprise attacks, bird feeders and baths should be positioned in the open away from trees/bushes to give birds the space they need to spot a rushing predator.

Scientific publications

Greenacre, C., 2017. Avian and Exotic Animal Dermatology Fourth Edition, Chapter 15: 508-574. https://doi.org/10.1016/B978-0-323-37651-8.00015-8

Jung, B., 2001. Surgical repair of air sac rupture in a parrot. Tierärztliche Umschau, **56**(1):35-37.

Browning, G.R., Eschar, D., Tucker-Mohl, K. and Berke, K., 2019. Diagnosis and Surgical Repair of a Chronic Ruptured Cervical Air Sac in a Double Yellow-headed Amazon Parrot (*Amazona Ochrocephala Oratrix*), Journal of Exotic Pet Medicine **29**(1): 45-50. https://doi.org/10.1053/j.jepm.2018.07.008

Clippinger, T.L., 1997. Diseases of the lower respiratory tract of companion birds, Seminars in Avian and Exotic Pet Medicine, **6**(4):201-208. https://doi.org/10.1016/S1055-937X(97)80006-0

Acknowledgements

Current funding for the GWH comes in part from Defra, the Welsh Government and the Animal and Plant Agency (APHA) Diseases of Wildlife Scheme (DoWS) http://ahvla.defra.gov.uk/vet-gateway/surveillance/seg/wildlife.htm ; and from the Esmée Fairbairn Foundation and the Universities Federation for Animal Welfare.

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Date of factsheet update: November 2019