

# Subcutaneous Emphysema in a Bantam Fowl

L. Lokesh, Mohitha Sree Didugu\*, J. Radhakrishna Rao, R. Srujan

*Ind J Vet Sci and Biotech* (2024): 10.48165/ijvsbt.20.1.28

Subcutaneous emphysema, also known as wind puff (Sankar and Mohammed, 2015; Saif *et al.*, 2003), is a condition characterized by accumulation of air beneath the skin. This dramatic ailment is rarely noticed in poultry (Kaboudi, 2019). It is a physiological condition among pelicans, while it is a pathological alarm among parrots and hawks (Petevinos, 2006). Birds possess a unique feature of intercommunicating air sacs extending into bones and body cavities (Duncker, 2013) and when they rupture, it results in collection of air pockets under the skin (Sundaram *et al.*, 2018). Various conditions predispose air sac rupture such as injury or developmental anomaly in respiratory tract (Kaboudi, 2019), self-mutilated injuries due to severe ectoparasitic infestation resulting in damage to tissue overlying an air sac, fracture of pneumatic bones such as coracoid, humerus and sternum due to trauma, which results in diffusion of air and accumulation in subcutaneous tissue (Crespo and Shivaprasad, 2013). Cannibalism among poultry is another condition which results in subcutaneous emphysema. Chicks living together with adults in dense colonies are predisposed to this condition due to the aggressive behavior of adults (Sundaram *et al.*, 2018). It can also be seen due to infectious causes such as gas producing anaerobic bacteria (Kamani *et al.*, 2009). This paper presents the surgical and medical therapeutic management of a rare case of subcutaneous emphysema in a Bantam fowl.

## CASE HISTORY AND OBSERVATIONS

A 6-month-old male Bantam fowl was presented to Veterinary Clinical Complex, Bhoiguda, College of Veterinary Science, P.V. Narsimha Rao Telangana Veterinary University, Hyderabad (India) with the history of anorexia, staggering gait, reduced activity and swelling under the right wing for 2 days. On palpation, the swelling (between right wing and leg) was pale, soft, balloon-like with no pain (Fig. 1). There were no ectoparasites present or history of injury over the body or no crepitation was felt on palpation of pneumatic bones. Based on the above clinical findings the case was tentatively diagnosed as subcutaneous emphysema of unknown etiology.

## TREATMENT AND DISCUSSION

On day 1 and 2, the bird was restrained, and a sterile 21 G hypodermic needle was used to extract the accumulated air

Veterinary Clinical Complex, Bhoiguda, College of Veterinary Science, Hyderabad, P.V. Narsimha Rao Telangana Veterinary University, Telangana, India

**Corresponding Author:** Dr. Didugu Mohitha Sree, Veterinary Clinical Complex, Bhoiguda, College of Veterinary Science, Hyderabad, P.V. Narsimha Rao Telangana Veterinary University, Telangana, India e-mail id.: drmothasree@gmail.com,

**How to cite this article:** Lokesh, L., Didugu, M. S., Rao, J. R., & Srujan, R. (2024). Subcutaneous Emphysema in a Bantam Fowl. *Ind J Vet Sci and Biotech*. 20(1), 129-130.

**Source of support:** Nil

**Conflict of interest:** The authors have no conflict of interest.

**Submitted** 10/08/2023 **Accepted** 14/10/2023 **Published** 10/01/2024

in the subcutaneous tissue by taking all aseptic measures before and after the skin puncture (Fig. 2). There was recurrence of emphysema the next day in the same area. On day 3 after extraction of air, 0.1 mL (24,000 International Units) of benzathine penicillin was diluted with 0.4 mL sterile water and was injected into the affected area. There was no recurrence of emphysema thereafter. Benzathine penicillin was injected into the affected area for the next 2 consecutive days (day 4 and 5). The bird was given B<sub>1</sub>, B<sub>6</sub> and B<sub>12</sub> injection for 5 days. The bird recovered uneventfully without any complications (Fig. 3).

In the present case, initially, the accumulated air in subcutaneous tissue was relieved by paracentesis, but the bird was not treated with any antibiotic. There was recurrence of emphysema on the next day. After injecting antibiotic at the site on day 3, emphysema did not recur. Hence, for the next two consecutive days, antibiotic benzathine penicillin was injected into the affected area. Based on the response of bird to the treatment, the case was diagnosed as subcutaneous emphysema of bacterial origin. It is a fatal condition and causes economic loss to the farmer if not diagnosed and treated early. Immunosuppression due to environmental stressors also may result in secondary bacterial infections and deterioration of the bird's condition.

The gas accumulated in subcutaneous tissue causes great discomfort to the bird (Petevinos, 2006). In the present case, gas was accumulated between the body and right leg and resulted in staggering gait, which



**Fig. 1:** The bird presented with an emphysematous swelling between right wing and leg.



**Fig. 2:** Paracentesis performed using a sterile 21 G needle to extract the accumulated air in the s/c tissue.



**Fig. 3:** On day 5 of treatment, the bird recovered uneventfully.

became normal after the antibiotic therapy. Control of ectoparasites, providing perches, reducing overcrowding, preventing cannibalism, providing balanced diet, regular cleaning and disinfection etc., are helpful in preventing or controlling the incidence of subcutaneous emphysema in poultry.

In brief, the paper describes clinical and therapeutic approach of a rare condition of subcutaneous emphysema between the right wing and leg in a Bantam fowl. Benzathine penicillin and B-complex injections successfully resolved the condition.

### ACKNOWLEDGEMENTS

The authors are thankful to University authorities for providing necessary facilities.

### REFERENCES

Crespo, R., & Shivaprasad, H.L. (2013). Developmental, metabolic, and other noninfectious disorders. *Diseases of Poultry*, 13th edn., John Wiley and Sons, Hoboken, New Jersey, United States, p.1233-1270.

- Duncker, H.R. (2013). *The lung air sac system of birds: A contribution to the functional anatomy of the respiratory apparatus* (Vol. 45). Springer Science & Business Media, p. 1-171.
- Kaboudi, K. (2019). A rare case of subcutaneous emphysema in a 28 weeks old rooster. *International Journal of Veterinary Sciences and Animal Husbandry*, 4(5), 23-25.
- Kamani, J., Tijjani, A., Yidawi, J.P., Gana, A.L., Egwu, O. K., & Gusi, A.M. (2009). Subcutaneous emphysema (Windpuff) in a 13 weeks old pullet: A case report. *International Journal of Poultry Science*, 8(11), 1121-1122.
- Petevinos, H. (2006). A method for resolving subcutaneous emphysema in a Griffon vulture chick (*Gyps fulvus*). *Journal of Exotic Pet Medicine*, 15(2), 132-137.
- Saif, Y.M., Barnes, H.J., Glisson, J.R., Fadly, A.M., McDougald, L.R., & Swayne, D.E. (2003). *Diseases of poultry*. 11th Edn., Iowa State University Press: Ames.
- Sankar, P., & Mohammed, P.S. (2015). Subcutaneous emphysema in a deshi chicken - A case report. *International Journal for Agro-Veterinary and Medical Sciences*, 9(3), 74-76.
- Sundaram, A.S., Rajkumar, K., Arunkumar, S., & Gnanaraj, P.T. (2018). Subcutaneous emphysema in a domesticated fantail pigeon caused by *Columbicola columbae* infestation: A case report. *Journal of Entomology and Zoology Studies*, 6(4), 983-985.

