

**DYSECDYSIS SECONDARY TO ANAPHYLACTIC REACTION IN A CAPTIVE ROYAL PYTHON (*Python regius*) AT THE ZOOLOGICAL GARDEN, IBADAN, NIGERIA**  
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**Abstract**

Dysecdysis in a royal python is reported. Clinical observation included pruritus, gasping and urticarial rash with massive local circumscribed spontaneous swellings which later developed into moist and inflamed wheals culminating into foci of blisters with extensive skin shedding affecting mostly two third of the hind quarters. Bacteriological examination of blister swabs revealed *Escherichia coli* and haematology stressed neutrophils, eosinophilia with massive mast cell degranulation. Stressful conditions from captive environment associated with prolong anorexia and the provisioning of a new prey different from those obtained in wild may precipitate immune mediated reactions. This is a rare documentation of dysecdysis with anaphylaxis from a captive facility in Nigeria.

**Key words:** Royal python, anaphylactic reaction, dysecdysis

**Introduction**

Royal pythons (*Python regius*) are popular exhibit in zoological gardens and are displayed in most zoological gardens in Nigeria belong to the Python /Boa family, it is domesticated pet and can be easily handled (Ajuwape *et al.*, 2003, Sonibare *et al.*, 2010). Ecdysis or shedding of the skin of royal python occurs continuously throughout their lifetime (Goodman, 2007). Age of pythons influences the frequency and duration of shedding. (Harkewicz, 2001) The young snakes especially those rapidly growing usually shed their skin every 5-6 weeks while the adults only molt quarterly (Mader, 2006).

Dysecdysis or abnormal shedding of the reptilian skin is common in snakes, with multifactorial origin rather than being a primary problem (Goodman, 2007). Sonibare *et al.*, 2010 reported that in captive snakes such as those in the Zoo their immunological status may be easily affected due to restricted movement couple with stressful conditions such as underfeeding and malnutrition. It has however been observed that dysecdysis is often a sign of inadequate provisioning for husbandry especially as observed in most zoological garden. It is common knowledge that snakes when in their natural environment

in most instances have perfectly adapted to choice of their prey through animal instinct and selective feeding habit, which is not likely to precipitate any negative reactions. (Fowler, 1986). This phenomenon must have informed the reason why there is dearth information on incidence of dysecdysis precipitated by anaphylactic reaction in captive royal python.

**Case History**

A newly acquired wild caught Royal Python from the Reptiles Unit of the Zoological Garden, University of Ibadan was reported to have refused the preys on offer. The python occasionally lapped water but turned aggressive whenever attempts were made to handle it. Three days after acceptance of a 2 week old chick prey was previously treated with Aniciline<sup>R</sup> (Penicillin and Streptomycin) the handlers noticed unusual movements and peeling of the skin of the snake. The animal developed listlessness visible skin swelling, wriggling (evidence of itching) and frequent opening of the mouth.

On clinical examination, the python was lethargic, dehydrated gasped intermittently, with evidence of throat constriction and. The conjunctival membrane was congested while the urticaria with massive local circumscribed spontaneous swellings later developed into

vesicles. The vesicles which were moisten and inflamed, culminated in foci of blisters. There was extensive skin shedding affecting mostly two third of the hind quarters (Plate 1).

#### **Case Management:**

The royal python was screened for haemoparasites, bacterial isolation and helminth infection. Blood sample was collected with a sterile needle via the caudal tail vein of the royal python. Thereafter, thin blood films were made on clean microscopic glass slides and stained with Giemsa stain. The packed cell volume was also determined using standard procedures as described by Jain 1986. Sterile swab was used to collect samples from the inflamed and moisten skin for bacteriological culture by cultural characteristics, microscopy, biochemical test as describe by Barrow and Feltham 1993. Antimicrobial susceptibility testing was by disk diffusion method and interpretation of breakpoint was based on the guidelines provided by Clinical and laboratory standards institute (2000). Feacal samples collected directly from the rectum, with sterile swab were screened for helminth ova by floatation technique Cole, 1986, Hansen and Perry 1991.

#### **Treatment**

Snake was placed on top of clean and dry old newspapers to prevent excessive cold from the ground and pending shock. Slightly warm iodine povidone 1% solution was applied topically, thereafter anti anaphylactic drugs adrenaline 0,1 mg/ml with hydrocortisone 5mg/kg administered intra muscularly and oxytetracycline spray applied topically. Six hours later adrenaline was repeated and 24 hours after oxytetracycline 5% injection commenced for three day at 5 mg/kg dosage.

#### **Discussion**

It is not uncommon for wild and captive held snakes to undergo skin shedding under normal environmental and nutritional circumstances. However stress associated with management and malnutrition as seen in most zoological garden may precipitate dysecdysis. The evidence of dysecdysis as observed in this report was based the abnormal skin shedding following the

itching (wriggling), gasping (throat constriction) and subsequent urticaria rash observed in the course of clinical examination. These signs evident in this royal python are consistent with anaphylactic reactions as reported by Harkewicz (2001) and Goodman (2007). Similarly dysecdysis observed in the python can be attributed to stress associated with captivity in the Zoological garden due restricted movement, coupled with stressful condition such as underfeeding and malnutrition (Sonibare *et al.*, 2010).

The anaphylactic reaction reported in this case was based on the Giemsa stained thin blood film of the royal python which showed marked eosinophilla and massive mast cell degranulation coupled other clinically observed signs. This reaction could have resulted from the prey offered python which was different from its usual prey in the wild. The unusual prey led to refusal of the python take its prey for 42 days. Ideally newly acquired snake usually do not accept newly introduced prey but refusal does not exceed 30 days period (Casudale, 1962). It is very important to note type of preys offered newly acquired snakes which should be close to those obtainable in the wild. The feeding of previously medicated domesticated livestock as prey may have negative effects on the captive royal python as this could have precipitated anaphylactic reactions.

Abstinence from food in recently captured or relocated snakes are not unusual. This can however be compounded by degrees of variations in the former and current environment. Dysecdysis observed in this report was typical of abnormal shedding. The reactions were however unusual and best described as idiosyncratic; itching (wriggling), gasping (throat constriction) urticaria observed in the course of clinical examination are typical of anaphylaxis in snakes (Goodman, 2007). The stress of captivity which includes location and feeding alterations (Sonibare *et al.*, 2010) and attendant disparity in noise or vibration levels (Owen, 2004) may have contributed to the levels of histaminic responses. The marked eosinophilia and massive mast cell granulation on Giemsa-stained thin blood film of the Royal python corroborated the emphasis on

anaphylaxis.

The acceptance of a previously medicated chick as a prey after a period of abstention from food could have exacerbated the stress of relocation and resultant histaminic responses.

It is recommended that suitable housing be made available for incoming snakes to reduce the level of stressors around the animals. The quarantine space should be away from excessive human traffic to allow proper

Plate 1

settling down. The level of humidity in the herpetarium must be close to what is obtainable in the wild through the use of foggers or improvised water sprays and make water pool available for the animal to wade in during ecdysis. The quarantine period is essential not just for health reasons but to study the food preferences of a newly acquired animal especially in wild caught wildlife; caution is advised in the types of prey provisioned for the animals.



Plate 1: The royal python with showing urticarial rash with foci of blisters with extensive skin shedding affecting mostly two third of the length of the snake extending to the tail

#### References

- Ajuwape, A.T.P, Sonibare, A.O, Adedokun R.A.M, Adedokun O.A, Adejinmi, J.O and Akinboye G.B. (2003). Infestation of Royal Python (*Python regalis*) with tick *Amblyomma hebraeum* in Ibadan Zoo, Nigeria. *Tropical Veterinarian* 21(1): 38-41.
- Barrow, G.I and Feltham, R.K.A. (1993). Cowan and Steel's Manual for Identification of Medical Bacteria. 3<sup>rd</sup> Edition Cambridge University Press.
- Clinical and Laboratory Standards Institute (CLSI) (2008). Performance

standard for antimicrobial disk and dilution susceptibility tests for bacteria isolated from animals; Approved standard – Third edition 28(8):1-112. Clinical and laboratory Standards Institute, 940 West Valley Road, Wayne Pennsylvania., United States of America.

- Cole, H., (1986). Veterinary Clinical Pathology 4<sup>th</sup> Edition Cole Hanson, Editor. W.B. Saunders Company Philadelphia, USA 205-215
- Fowler, M.E. (1986). Zoo and Wildlife

- Animal Medicine 2<sup>nd</sup> Edition W.B. Saunders Company Philadelphia.162-186.
- Goodman, G. (2007).** Common dermatoses in Reptiles. In *Practice: Journal of Veterinary Postgraduate Clinical Study* 29:288-293.
- Hansen, J. and Perry, B. (1991).** The epidemiology, diagnosis and control of gastro intestinal parasites of ruminants in Africa. Published by International Laboratory Research on Animal Disease (ILRAD) Hansen and Perry Editors Nairobi Kenya 47-62.
- Harkewicz, K.A. (2001).** Dermatology of reptiles: a clinical approach to diagnosis and treatment. *Veterinary clinics of North America. Exotic Animal Practice* 4:441-461.
- Jain, N. C (1986).** Veterinary Haematology 4<sup>th</sup> Edition Volume III. Lea and Febiger Company Philadelphia pp 285.
- Mader, D.R. (2006).** Reptile medicine and surgery. 2<sup>nd</sup> edition St Louis Saunders Elsevier.
- Owen, M.A., Swaisgood, R.R., Czekala, N.M., Steinman, K. and Lindburg, D.G. (2004).** Monitoring stress in captive giant pandas (*Ailuropoda melanoleuca*): Behavioral and hormonal responses to ambient noise. *Zoo Biol* 23:147-164
- Sonibare, A.O, Kumshe, H.A., Adejinmi, J.O., Ajuwape, A.T.P., Adedokun, O.A., Adedokun, R.A.M., Ayoade, G.O. and Akinboye, G.B. (2010).** Eperythrozoonosis in Royal python (*Python regius*) in Zoological garden in Ibadan, Nigeria. *Sokoto Journal of Veterinary Science* 8:56-60.

ABDENDUM