NIGERIAN VETERINARY JOURNAL
ISSN 0331-3026
Nig. Vet. J., December 2018 Vol 39 (4): 378 - 382
https://dx.doi.org/10.4314/nvj.v39i4.10
CASE REPORT

Management of Rectal Prolapse in African Dwarf Crocodiles (*Osteolaemus tetraspis)* at the University of Ibadan Zoological Garden.

Ogunro,B.N.[1]; Oguntoye,C.O.[2]; Adebiyi,T.K.[1]; David Eyarefe,O.D.[2*]

[1]Veterinary Teaching Hospital, University of Ibadan. [2]Dept. of Veterinary Surgery and Radiology, University of Ibadan. *Corresponding author email; odeyarefe@gmail.com Phone: +2347064468932

INTRODUCTION

Rectal prolapse is the eversion of the rectal mucosa from the anus (Hedlund and Fossum, 2007). In reptiles, especially, the crocodylia species, it often involves the protrusion of both the rectum and hemi-penis (Stelzner 1994). The condition is life threatening, due to high risk of trauma to the prolapsed tissue with concomitant inflammation, infection, septicaemia, shock and death (Stelzner, 1994 ; Akinrinmade & Eyarefe, 2011). Although the condition has been reported in some crocodylia species, there is a dearth of information in literature on the occurrence of the condition in the African Dwarf Crocodile (ADC). The African dwarf crocodile (*Osteolaemus tetraspis tetraspis* (Cope 1861) is a miniature crocodylia species (18,441.47g), with a maximum life span of 70 years (Ross, 2006). It is found in 23 countries of Africa especially West and Central Africa, in tropical and subtropical moist broad-leaf forest including tropical and subtropical grasslands, savanna and shrub-lands (terrestrial and fresh water biomes) (CSG,1996 ; Trutnau and Summerlad, 2006 ; Ross, 2006). It is listed among threatened crocodylia species by the world wildlife fund (IUCN, 2017).

The University of Ibadan zoological garden introduced African dwarf crocodiles (*Osteolaemus tetraspis tetraspis*) to the captive reptile collection in 2009. In 2012, one of the ADC presenting a gangrenous necrotic limb was surgically managed (Eyarefe *et al*, 2012). A case of scoliosis was also recorded in one of the ADC in 2015 (Otuh and Akioye, 2015). Apart from these two cases, and their failure to breed so far in captivity, this breed of crocodiles has been apparently healthy at the Ibadan zoological garden. This report presents incidence and management of rectal prolapse cases at the University of Ibadan Zoological Garden, which to the best of authors knowledge, is the first report in the African dwarf crocodile in Nigeria.

Case Presentation: Two cases of rectal prolapse occurring at five days' interval were reported among the seven African dwarf crocodiles *Osteolaemus tetraspis* kept at the University of Ibadan Zoological Garden. Three weeks previously, the diet of all the reptiles was changed from fish to beef. One of the crocodiles was found dead with prolapse and necrosis of the rectum and colon. Necropsy findings did not implicate any other disease condition.

The second case occurred in a 2.1 kg body weight, 75cm (snout-tail tip length), male African dwarf crocodile kept alone in a simulated cage. This crocodile has been in the garden for 7 years (acquired as a juvenile).

Clinical Examination and Diagnosis: Following manual restraint with minimal discomfort by a trained reptile handler, the crocodile was physically examined. An 8cm by 3.5cm prolapsed tissue protruding from the cloaca was observed, examined under analgesia, and confirmed as rectal prolapse (Plate 1). A hard faecal material (11g) expressed from the prolapsed segment of the rectum by gentle manipulation was sent for faecal analysis for helminths' eggs or larvae. Blood sample (2ml) obtained via the ventral coccygeal vein (Fowler & Miller, 2003) was also sent for analysis for blood parasites and full haematological profile.

Surgical Management: A topical infiltration of 2% lignocaine (5mg/kg) (Laborate pharmaceuticals, India) to the prolapsed tissue caused a rapid relaxation of the prolapsed segment, and produced analgesia for the surgical management (Lemke & Dawson, 2000; Hall, *et al*., 2001; Mader, 2013). Observed small abrasive wounds were surgically debrided, cleansed with saline and the relaxed tissue was gently, manipulated through the cloaca into the abdominal cavity. A purse-string suture pattern was loosely placed (to allow for defecation) around the cloaca with 2-0 nylon suture (Plate 2), (Hedlund and Fossum, 2007). Amoxicillin (25mg/ml) oral suspension (GlasxoSmithline, Madreich Limited, India) was administered through food at 22mg / kg body weight (Funk, 2000) administered every other for five days. The crocodile's diet was reverted to fish as served previously. Paraffin oil (0.5cc) enema was introduced daily via the cloaca for two weeks to ease stooling process.

Result and Discussion: Faecal material was negative for helminths' eggs or larvae. The haematologic parameters were within normal values for the ADC (Table 1) (Fowler & Miller, 2003). The animal resumed feeding two days after the procedure. Purse string sutures were removed after 5 days and defecation resumed two days later. The animal was placed under close daily observation. The animal has remained in good health without recurrence of the prolapse for over four months' post intervention.

Rectal prolapse is a surgical emergency in the crocodilian species, because of the risk of trauma to the prolapsed tissue due to the animal's proximity to the ground surface. Topical infiltration of lidocaine with manual restraint was sufficient for conservative surgical management of this case. Local anaesthesia with manual restraint has been recommended for minor surgical procedures in reptiles; as it decreases the overall requirements for systemic anaesthesia, in addition to providing sufficient localized desensitization (Lemke & Dawson, 2000), in addition to low cost, minimal side effects, and brief recovery period (Mader, 2013). A simple surgical technique and dietary correction were useful in the management and prevention of rectal prolapse in these captive African Dwarf Crocodiles. Diet, dehydration and the intrinsic nature of the rectum are predisposing factors to the occurrence of rectal prolapse in crocodilians (Stelzner, 1994). Daily application of paraffin oil (as lubricant) par rectum ensured easier passage of faecal material across the sore area of the rectum. Since our simple surgical technique was effective at managing the prolapse, we deemed it unnecessary to carry out the more complex recto-sigmoid resection described by Stelzner (1994). Unlike the Nile crocodile, a more aggressive crocodilian, whose diet is versatile, the African dwarf crocodile prefers easily

digestible preys such as frogs, fish and crustaceans (Luiselli *et al.*, 1999; Pauwels *et al.*, 2007). Therefore, strict attention must be paid to the diet of the African Dwarf Crocodile when kept in captivity to prevent incidence of rectal prolapse.

Table 1: Showing the Haematological Profile of the African Dwarf Crocodile

Blood parameters	Values	Reference*
Packed cell volume (%)	23	12–33
Haemoglobin (g/dl)	7.4	5.3–11
Red blood cells (x10^6/ µl)	0.125	0.03–0.45
MCV (fl)	1840	600–7700
MCHC (g/dl)	32.2	32–42
Platelet counts(/µl)	140000	–
Total white cell counts(/µl)	5.6	2–6
Lymphocytes (/µl)	3.56	0.4–6.6
Heterophils (/µl)	1.86	0.8–9.2
Azurophils(/µl)	–	0.07–0.98
Monocytes (/µl)	0.11	0.08–1.13
Eosinophils (/µl)	0.17	0.03–0.43
Basophils (/µl)	0	0.14–1.89
Total protein (g/dl)	7.2	4–8
Albumin (g/dl)	2.4	–
Globulin (g/dl)	4.8	–

*Reference values (Fowler & Miller, 2003)
Note: PCV=Packed cell volume; RBC=Red blood cells; MCV=Mean corpuscular volume; MCHC= Mean corpuscular haemoglobin concentration.

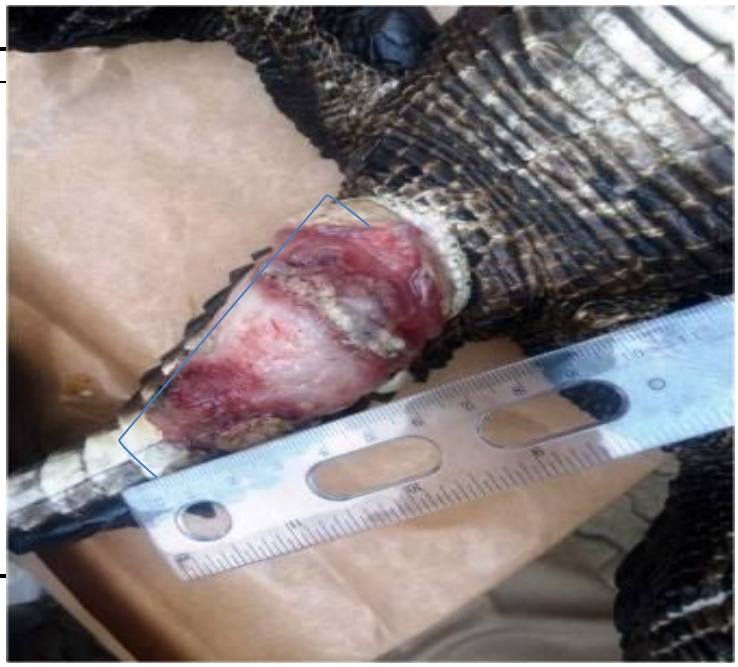

PLATE I: African Dwarf Crocodile with prolapsed rectum

PLATE II: The crocodile following reduction of prolapse and placement of sutures**.**

REFERENCES

AKINRINMADE, J.F. and EYAREFE, O.D. (2011) : Rectal prolapse in an emu (*dromaius novaehollandiae*): A case report. *Nigerian Veterinary Journal*. **32** (3) : 249–251.

COPE, (1861)**:** Recent species of emydosaurian reptiles represented in Museum of the Academy proc. Academy of Natural Science. Philadelphia, **1860** :549-551.

CROCODILE SPECIALIST GROUP (1996). ‘Osteolamus tetraspis” The International

Union for Conservation of Nature (IUCN) Red List of Threatened Species **1996.**

HEDLUND, C.S. and FOSSUM, T.W. (2007): Surgery of the digestive system. In Small Animal Surgery, 3rd Edition. Mosby Elsevier pp. 726.

EYAREFE, O.D., OGUNTOYE, C.O. and OMOBOWALE, T.O. (2012): Managing a necrotic limb of African dwarf crocodile (*Osteolaemus tetraspis*) in Ibadan Zoological garden. *Nigerian Veterinary Journal* **33** (1): 395–398.

FOWLER, M.E. and MILLER, R.E. (2003): Zoo and Wildlife Medicine, Elsevier science USA, 5: 65.

Funk, R.S. (2000): A formulary for Lizards, Snakes, and Crocodilians. *Veterinary Clinics of North America:Exotic Animal Practice,* (1):333-358.

HALL, L. W., CLARKE, K. W and TRI-M, C. M. (2001): Veterinary Anaesthesia. 10th ed. W. B. Saunders, London. pp. 315-339.

INTERNATIONAL UNION FOR CONSERVATION OF NATURE, (2017) :Crocodile Specialist Group (1996). *"Osteolaemus tetraspis IUCN Red List of Threatened Species.* Retrieved 9 November, 2017.www.iucnredlist.org.

LEMKE KA, DAWSON SD. (2000): Local and regional anesthesia. *Veterinary Clinics North America: Small Animal Practic*e **30**:839–857.

LUISELLI, L, AKANI, G.C, and CAPIZZI, D. (1999): Is there any interspecific competition between dwarf crocodiles *(Osteolaemus tetraspis)* and Nile monitors *(Varanus niloticus ornatus)* in the swamps of central Africa? A study from south-eastern Nigeria". *Journal of Zoology*. **247** (1): 127–131.

MADER DR. (2013): Practical use of loco-regional analgesia in reptile medicine, in proceedings. Presentation presented at the 12th Annual Meeting of the Association of Reptilian and Amphibian Veterinarians, Indianapolis, Indiana, 14–19 September 2013. *Proceeding Association Amphibian Reptile Veterinarian* **1**:61–65.

OTUH, P. and OLATUNJI-AKIOYE, A. (2015): Multiple spinal curvatures in a captive African Dwarf Crocodile *Osteolaemus tetraspis* (Cope, 1861). *Sokoto Journal of Veterinary Sciences.***13** (3): 56-60.

PAUWELS, O.S., BARR, B. SANCHEZ, M.L. and BURGER, M. (2007): Diet

Records for the Dwarf Crocodile, *Osteolaemus tetraspis tetraspis* in: Rabi Oil fields and Loango National Park, southwestern Gabon. *Hamadryad.* **31** (2): 258–264.

ROSS, F.D. (2006): Osteolaemus syntype head count requested. Crocodile Specialist Group Newsletter **25** (1):21

STELZNER, F. (1994): Etiology and therapy of rectal prolapse. Experiences with 308 cases 1956–1991 *Der Chirurg: Zeitschrift fur Alle Geiete der Operativen Medizen*. **65** (6):533–545.

TRUTNAU L & SOMMERLAD R, (2006): Crocodilian: their natural history and captive husbandry. Chimaira edition, Frankfurt, 546 pp Review in Reptilia GB **48**:8-10).