



Intestinal Ulceration in West African Mud Turtle (*Pelusios Castaneus*)

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ABSTRACT

An adult female West African mud turtle (*Pelusios castaneus*) that had been acquired as part of study on the digestive anatomy on the *P. castaneus* presented mild signs of anorexia that had persisted for a week. On radiographic examination of the digestive tract using Barium sulphate contrast agent, a normal study was observed but an area of contrast coating remained at the region of the duodenum following excretion of the contrast agent. The digestive tract was isolated and gross examination of the coated area revealed areas of echymotic hemorrhage and ulcers in this turtle. With not much scientific research available on this wildlife species, this case of a gastrointestinal tract abnormality is probably the first report of a digestive tract pathology seen in this tropical fresh water turtle.

Key words: *Pelusios castaneus*, Duodenum, Echymotic hemorrhage, Ulcer

CASE REPORT
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INTRODUCTION

The West African mud turtle, *Pelusios castaneus* is a small sized turtle of the family Pelomedusidae (Broadley, 1973; TTWG, 2014) known to inhabit the fresh waters of the West African river banks (Kirkpatrick, 1995; Broadley and Boycott, 2009). This turtle is a pleurodiran turtle which retract its head into the carapace by bending its neck to the side hence is called West African side-neck turtle or simply African side-neck turtle (Omonana et al., 2011; Olukole et al., 2014b). This turtle is known to have a massive population boom during the raining season and the International Union for the Conservation of Nature Red List of Threatened Species (IUCN, 2015) has classified them as Least Concern (LN).

Despite this classification, the *P. castaneus* still faces threats of diseases, illegal transportation and threats as well massive killings of the specie in south-western Nigeria for fetish practices (Olukole et al., 2014a). Of recent studies are being done to understand the peculiarities of the *P. castaneus*. Omonana et al. (2011) studied their blood profile to give an insight into their hematology and Olukole et al. (2014a, 2014b and 2014c) has studied their carapace, the reproductive anatomy of the male *P. castaneus* as well as the vertebral formula of this Tropical turtle.

Gastrointestinal tract pathologies have been major accidental findings in large sea turtles. A case of intestinal obstruction in the Loggerhead sea turtle, *Caretta caretta* was reported by Di Bello et al. (2006) while Oros et al. (2005) attributed an integral cause of mortality among sea turtles in the canary islands to gastrointestinal tract disease in which most of these discoveries of perforations and obstructions from monofilament lines and fishing hooks were made on post-mortem. This finding of intestinal tract pathology in the *P. castaneus* was accidentally discovered during a study designed to understand the Digestive anatomy of this specie of turtle.

CASE REPORT

An adult female West African side-necked turtle was recently acquired as part of a research study group. The ethical approval for the study was obtained from the Animal Care and Use Research Ethics Committee, University of Ibadan and reference number assigned as UI-ACUREC/App/2015/041.

The turtle was derived from nature with no discernable malformation. It weighed 1.5kg and was housed in a box cage with a mate. It fed on commercial feed pellets formulated for turtles and was allowed daily swim in a shallow pool. It presented with mild anorexia that was observed to have last for seven days.

On physical examination of the turtle which was carried out by examining the skin for dermatologic lesions, observing the carapace and plastron for signs of cracks as well as the gait for signs of orthopedic abnormalities, it was concluded that the turtle physically appeared to be in good health.

Contrast radiography (Dorso-ventral view) done using 10ml Barium Sulphate and the Allegers® model digital X-ray equipment at radiographic setting 80kv and 200mAs for 0.3seconds (Santos et al, 2010). Dorso-ventral view was

preferred over lateral view to avoid superimposition of the coelomic structures (Valente et al., 2007). The serial radiographs were taken for day 0, 24 hours and 48 hourly till day 16 when the digestive tract was isolated for gross study.

The turtle was placed on deep sedation using Ketamin HCL at a dosage of 25mg/kg intramuscularly via the thigh muscle after which cervical decapitation was done (Olukole et al., 2014a and 2014b). The plastron was separated from the carapace and then the digestive tract was separated for gross examination and laboratory analysis (Wyneken, 2001). A swab of the tract and a fine needle biopsy of the affected portions were taken for culture and cytology respectively.

RESULTS

Administration of the contrast reviewed a radio-opaque outline of the tract and the turtle excreted the contrast 48hours after administration. Following excretion of the agent, there remained a radio-opaque portion of retained contrast coating in the intestine (Figure 1). This region of coating was localized to the proximal portion of the intestine. Gross examination of the tract revealed this region was the proximal one-third of the duodenum. This intestinal mucosa in this region was ulcerated and had ecchymotic hemorrhages. The swab results showed solely the presence of the normal intestinal micro flora and on cytology the mild presence of inflammatory cells and duodenal mucosa cells.

DISCUSSION

Digestive tract abnormalities are the most common disorders often identified in turtles (Valente et al., 2007). This is because most often the causes are usually man-made activities that encroach on the habitat and life patterns. These man-made activities include habitat disruption, pollution of their habitat with harmful objects like fishing hooks and line and the extreme conditions they face during illegal transportation and trade (Maran et al., 2002; Oros et al., 2005). Gastro intestinal tract abnormalities have been reported in the sea turtles where they were discovered either by diagnostic imaging or as accidental findings on post-mortem examinations (Di Bello et al., 2006).

There are few reports on the West African mud turtle (*Pelusios castaneus*) and of these none described the digestive tract in this specie. Apart from mild anorexia, the turtle described in this study showed no clinical signs despite this pathology. This lack of clinical signs and symptoms is generally expected in turtles that have also been described as exothermic and hardy. It is for this reason that even the most skilled exotic pet veterinarian turn to additional diagnostic tools like imaging for definitive diagnosis (Banzato et al., 2013).

The serial radiographs of this turtle hinted of an intestinal lesion that was confirmed on post-mortem to be duodenal ulcers (Figure 1 and Figure 2).



Figure 1. Radiograph showing contrast coating of the duodenum 48hours after contrast excretion in the *Pelusios castaneus*



Figure 2. Ulcerated duodenum and ecchymotic hemorrhage on day 16 after contrast excretion in the *Pelusios castaneus*

Reports show that ulcers generally have different etiopathologies. They can result from the imbalance of digestive fluids; they could be triggered by stress, bacterial infection (*Helicobacter pylori*) and neoplasia (gastrinomas) (Najm et al., 2011 and Milosavljenic et al., 2011). In turtles, foreign body ingestion is another etiology (Oros et al., 2005 and Valente et al., 2007). This case of an ulcer observation in this turtle is an accidental discovery and the diagnostic methods employed to investigate the cause of this lesion yielded no specific result. No foreign object was identified in the tract on post-mortem and no obstruction or tissue growths were observed. Furthermore the swab and biopsy taken of the lesion yielded no incriminating pathogenic agent.

This ulcer most possibly was triggered by stress factors such as capturing, handling and transporting on acquisition or the recent change in habitat of the turtle from the riverbanks to the veterinary facility. In conclusion, this finding may also be case of an idiopathic ulcer in this West African mud turtle.

CONCLUSION

The fact that this discovery was made accidentally further presses on the authors opinion that diagnostic imaging should be done as routine checks for turtles and reptiles when they are presented at veterinary centers whenever there is suspicion of disease or if they are presented in apparently 'good health'. This would be most useful not only in diseases diagnosis and therapy but also as a prophylactic measure to maintain health and institute prompt treatment when accidental findings are discovered via radiography. To the authors' knowledge, this is the first report of intestinal ulceration in the West African mud turtle and there are no conflicts of interest regarding the publication of this paper.

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Competing interests

The authors have no competing interests to declare.

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