DIAGNOSTIC CASE REPORT

U. S. GEOLOGICAL SURVEY-BIOLOGICAL RESOURCES DIVISION
NATIONAL WILDLIFE HEALTH CENTER-HONOLULU FIELD STATION
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Case Number: 25905

Submitter Name:

Dr. Bethany Doescher
Sea Life Park
41-202 Kalanianaole Hwy Suite 7
Waimanalo, Hawaii 96795
United States

Species submitted (n):

Turtle: Green (1)

Location:	Sea Life Park	DateCollected:	05/30/2023
Area:	Honolulu	DateSubmitted:	5/30/2023
State:	Hawaii	DateReceived:	5/30/2023
Country:	United States	DateExamined:	5/30/2023

SPECIMENS SUBMITTED: Blood-Chilled

History: Hatched at Sea Life Park in July of 1996. Kiana, a 35 year old adult green sea turtle has been showing positive buoyancy issues in her front end that started several months ago. She seemed to improve with antibiotics, but recently went off feed for 14 days. On exam, she is thin and has lost quite a bit of weight even though she has been reported to be eating normally . We thought she might be gravid, but on ultrasound it appears that she may have only a few underdeveloped ova. No free fluid was seen. A blood sample obtained last week came back with abnormal results and with cells on the differential that clinical pathologists at Idexx could not identify. Earlier samples in January showed basophilia. A blood sample was submitted to HFS to see if findings could be confirmed. Smears taken from the turtles on 29 and 30 May were examined for differential counts. Smears were also sent to Dr. Nicole Stacy at University of Florida who confirmed the cells stained positive for iron and to a lesser extent melanin. Over about 20 days prior to death on 6/21/2023, 5 blood smears showed progressive heterophilia, lymphopenia with persistent monocytosis and elevated numbers of siderocytes indicative of a chronic active inflammatory process. Bethany Doesher and Annie Clift assisted Thierry Work and Chutimon Singhakarn with necropsy.

Findings: Accession 1-green turtle adult female in fair body condition. Significant gross lesions included hemorrhage in inguinal areas, massive chronic active inflammation and mineralization of liver, chronic inflammation of kidney, and pulmonary edema. On microscopy, there were massive infiltrates of granulocytes that stained predominantly positive for iron and to a lesser extent melanin. No infectious agents were seen.

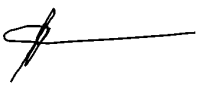
Final diagnosis: Accession 1-Inflammation.

Comments: The animal died from massive inflammation of the kidney, liver, and lungs with localized hemorrhage within inguinal areas. Histology confirmed inflammation with marked infiltrates of cells staining mostly positive for iron and to a lesser extent positive for melanin. No infectious agents were seen.

Management: This is a very odd case, and I have never run into anything such as this, so not sure what to recommend other than stating that there was no evidence of infectious causes.

Report Date (mm/dd/yyyy): 9/13/2023 **Necropy report:** Enclosed

Copies of this report sent to:



If you have questions regarding this case, contact Thierry M.Work MS, DVM, MPVM at 808-792-9520. Include above Case Number. Diagnostic findings may not be used for publication without the pathologist's knowledge and consent.

NOTE: Information in this report supersedes any information from previous reports regarding this case .

N A T I O N A L W I L D L I F E H E A L T H C E N T E R
N E C R O P S Y R E P O R T

Submitter Name:

Dr. Bethany Doescher
Sea Life Park
41-202 Kalanianaole Hwy Suite 7
Waimanalo, Hawaii 96795
United States

Case: 25905
Accession: 1
Date Collected: 05/30/2023
Date Examined: 5/30/2023
Prosector: T. M. Work
Pathologist: T. M. Work

Signalment-Morphometrics-History

CONDITION:(Fair) POSTMORTEM:(Excellent) EUTHANASIA:(Not euthanized)

TAG TYPE:() TAG NO.:()

SPECIES:(Turtle: Green) AGE:(Adult) SEX:(Female)

MORPHOMETRICS: Weight carcass (88.4 kg), Straight carapace length (86.1 cm), Curved carapace length (87.9 cm), Straight carapace width (64.6 cm), Curved carapace width (74 cm).

COLLECTION-SITE:(Sea Life Park) AREA:(Honolulu) STATE:(Hawaii) COUNTRY:(United States)

HISTORY: Hatched at Sea Life Park in July of 1996. Kiana, a 35 year old adult green sea turtle has been showing positive buoyancy issues in her front end that started several months ago. She seemed to improve with antibiotics, but recently went off feed for 14 days. On exam, she is thin and has lost quite a bit of weight even though she has been reported to be eating normally . We thought she might be gravid, but on ultrasound it appears that she may have only a few underdeveloped ova. No free fluid was seen. A blood sample obtained last week came back with abnormal results and with cells on the differential that clinical pathologists at Idexx could not identify. Earlier samples in January showed basophilia. A blood sample was submitted to HFS to see if findings could be confirmed. Smears taken from the turtles on 29 and 30 May were examined for differential counts. Smears were also sent to Dr. Nicole Stacy at University of Florida who confirmed the cells stained positive for iron and to a lesser extent melanin. Date of death is June 21, 2023. Bethany Doesher and Annie Clift assisted Dr. Work and Dr. Chutimon Singhakarn with necropsy.

External/Internal

EXTERNAL: NAF on dorsal surface. Ventral surface is concave.

INTERNAL: Very edematous fat throughout. Heart has no abnormal findings. Liver right lobe has multifocal variably sized areas of mineralization surrounded by fibrosis. Pulmonary edema present in trachea down into the small airways of the lungs. Parenchyma is edematous, but spongy on the left side. Right side has a 2 cm abscess in the middle of the lobe. There is fibrosis present consistent with chronic inflammation. Kidney has increased foci of fibrosis in the medullary area of the kidneys. Spleen is enlarged but with a normal texture. Fat pad right inguinal area has multiple variably sized encapsulated cavities filled with clotted blood and surrounded by connective tissue. Left side has one encapsulated area filled with clotted blood. GI and esophagus are full of food. 1 piece of plastic wrapper was removed from the proximal esophagus. Mucosa of esophagus and mucosa and serosa throughout GI were unremarkable. Plant material present in the intestines. Bladder is normal.

PRELIMINARY DIAGNOSIS: Inflammation.

Samples

SECIMENS RECEIVED: Blood-Chilled, Blood smear-Fresh.

HISTO: Lung [Periodic acid schiffs] (A); Heart (B); Liver [Fontana Masson, Iron ferric hemosiderin, Von Kossa Calcium] (C); Spleen, Liver [Fontana Masson, Iron ferric hemosiderin, Von Kossa Calcium] (D); Skeletal muscle (E); Kidney [Fontana Masson, Iron ferric hemosiderin, Von Kossa Calcium] (F); Kidney (G); Intestine large, Intestine small, Skeletal muscle (H).

Laboratory Results

HEMATOLOGY:

Date	%Hetero	%Lympho	%Mono	%Sidero	%Eos	PCV	ETS
5/29/2023	36	25	14	25			
5/30/2023	21	18	28	33		17	4.4
6/14/2023	48	6	7	39			
6/20/2023	49	3	17	29	3		
6/21/2023	45	3	22	30		18	3

HISTOPATHOLOGY

Kidney: Proximal tubules contain intraluminal clumps of granular brown material. Glomeruli are shrunken or have hypertrophied epidermis and reside in markedly enlarged bowmans capsules. Scattered interstitial lymphoid infiltrates are seen as are extracellular deposits of granular dark brown pigment. Near the edge of the sections are marked thickened connective tissue capsules into which are embedded distal tubules. The granular brown cells stain positive for iron and lesser numbers stain positive for melanin. They stain negative for calcium.

Skeletal muscle: In one section (E), a connective tissue capsule surrounds aggregates of red cells and fibrin. In another section (H) there is extensive multifocal rhabdomyolysis.

Spleen: Architecture is occupied by numerous nests and trabeculae of fibroblasts mixed with clusters of granular brown cells (siderophages) with sparse islands of lymphocytes. Localized deposites of extracellular dark granular pigment are noted. The granular brown cells stain positive for iron and lesser numbers stain positive for melanin. They stain negative for calcium.

Liver: Massive infiltrates of large granular brown cells (siderophages) surrounded by trabeculae of fibroblasts interspersed with small nests of hepatocytes. The granular brown cells stain positive for iron and lesser numbers stain positive for melanin. They stain negative for calcium.

Heart: Epicardium has locally extensive areas of papillary hyperplasia. Numerous large cells with granular brown cytoplasm (siderocytes) are within vasculature.

Lung: Within lumina of parabronchiolar lumina are clumps of red cells and eosinophilic debris. Localized areas of parabronchiolar mucosa are necrotic with lesion exending into underlying smooth muscle. Within smooth muscle are multiple variably sized nidi of necrosis surrounded by granulocytes and fibroblasts. Large numbers of large cells with granular brown cytoplasm (siderocytes) are within vasculature.

All other Organs: No remarkable lesions are seen.

COMMENTS:The animal died from massive inflammation of the kidney, liver, and lungs with localized hemorrhage within inguinal areas. Histology confirmed inflammation with marked infiltrates of cells staining mostly positive for iron and to a lesser extent positive for melanin. No infectious agents were seen.

Final Diagnosis (in order of importance)

Diagnosis	Topog	Morpho	Etiol	Funct	Dis	Link
1. Inflammation	( )	(M42100)	( )	( )	( )	( )

Diagnostic findings may not be published without the knowledge and consent of the

pathologist. Milt Code: (Other)