ATLAS OF PATHOLOGY OF CAMEL DISEASES

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ABU DHABI FOOD CONTROL AUTHORITY

Overview

- Atlas of Pathology of Camel Diseases is a reference and diagnostic guide for veterinarians and researchers to identify major pathological changes of camel diseases.

- The Atlas is also an educational guide for veterinarians and veterinary students, veterinary assistants and all stakeholders in the livestock sector.

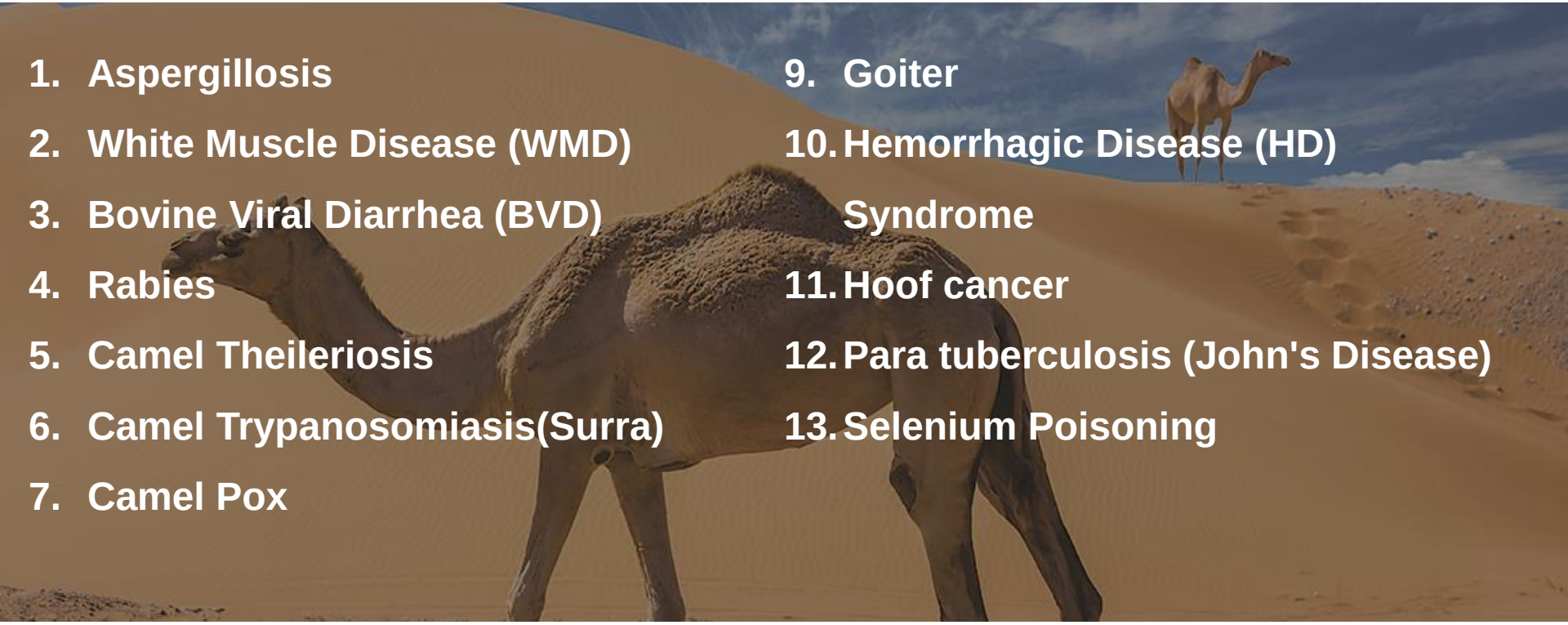
Objectives

- Transformation & interpretation data in to information.
- Gathering knowledge in pathology filed in it’s both types tacit and explicit.
- Serve as diagnostic and educational guide.
- Strengthening a technical capacities capabilities in camel disease.

Key Content

- Introduction
- Etiology and Host Range
- Pathological lesions
- Diagnosis of Field Cases

Disease List



1. Aspergillosis
2. White Muscle Disease (WMD)
3. Bovine Viral Diarrhea (BVD)
4. Rabies
5. Camel Theileriosis
6. Camel Trypanosomiasis(Surra)
7. Camel Pox
9. Goiter
10. Hemorrhagic Disease (HD) Syndrome
11. Hoof cancer
12. Para tuberculosis (John's Disease)
13. Selenium Poisoning

Example

White Muscle Disease (WMD)

WMD is an acute nutritional degenerative disorder of cardiac or skeletal muscles mostly affecting young, rapidly growing calves, lambs and kids as well as adult animals can be affected. WMD is responsible for acute clinical signs including sudden death due to myocardial necrosis, dysphagia, lameness, stiffness and paralysis when skeletal muscles are involved

Etiology and Host Range:

WMD is caused by selenium - vitamin E deficiency which resulting in oxidative degeneration or necrosis of cellular membranes and proteins. The disease is distributed where the soil and feedstuff are deficit in selenium as well as if vitamin E is not adequately provided to animals. WMD is a non-contagious syndrome occurs mostly in healthy, rapidly growing young animals while adults and newborns are also at risk. Camel calves can also be extensively affected. WMD degenerative and necrotic changes are mostly occur in cardiac or skeletal myocytes due to oxidative reactions.

Clinical signs

Clinically WMD has two forms acute cardiac and acute or chronic myoskeletal disorder. The cardiac form is often acute, short termed and incompatible with life and is characterizes by acute respiratory failure which may be proceeded or followed by sudden death due to cardiac arrest. The skeletal form is less life threating and may respond to injectable selenium products. The signs of latest form may include painful muscle stiffness, ataxia, tremors, hind or fore paralysis, torticollis and dysphagia, brown chocolate urine, intrauterine fetal deaths and abortion (Chauhan, 2010, Faye and Seboussi, 2009). When respiratory muscles are involved, animal shows severe dyspnea, labored abdominal breathing.

Pathological lesions:

- Pathological features of degenerative myodystrphy are, pallor discoloration with white streaking, coagulation and firmness of muscles. Fibrosis and calcification may develop in chronic cases. Congestive heart failure as a sequence of cardiac failure is accompanying the acute cardiac form. Rarely fatty liver syndrome (hebatosis dietetica) due to direct vitamin E and selenium deficiencies have been noticed (Zachary 2017).

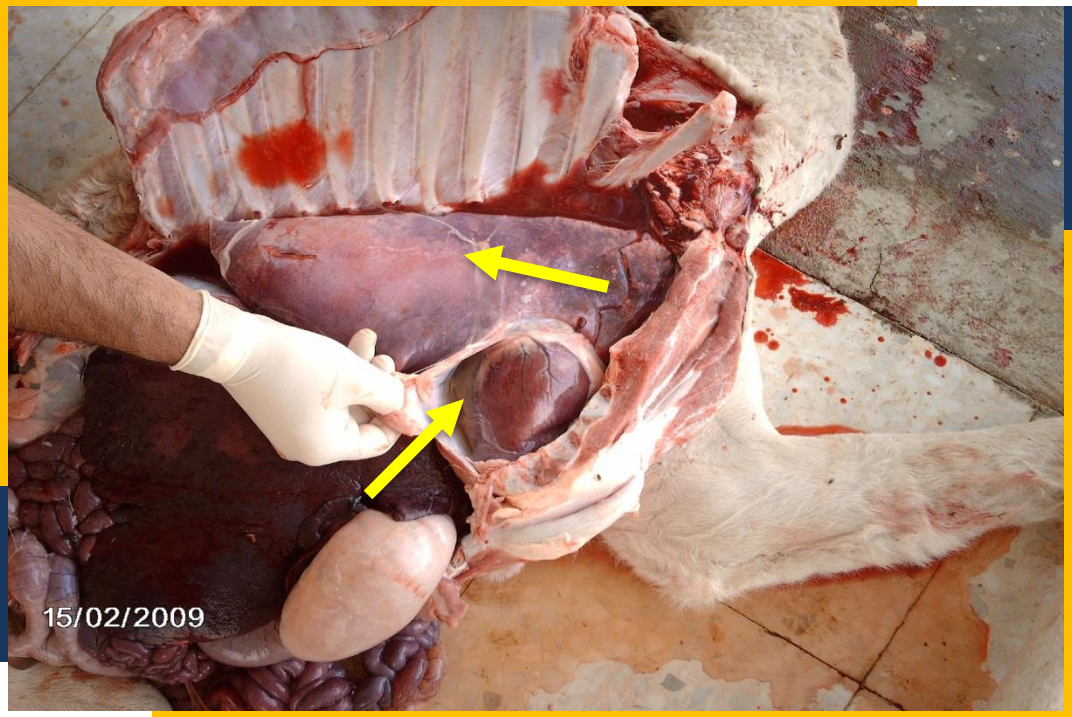
- Clinico-pathologically, the blood chemistry of WMD often has increased CK, AST and LDH enzyme levels (Valberg, 2016).

Diagnosis of Field Cases:

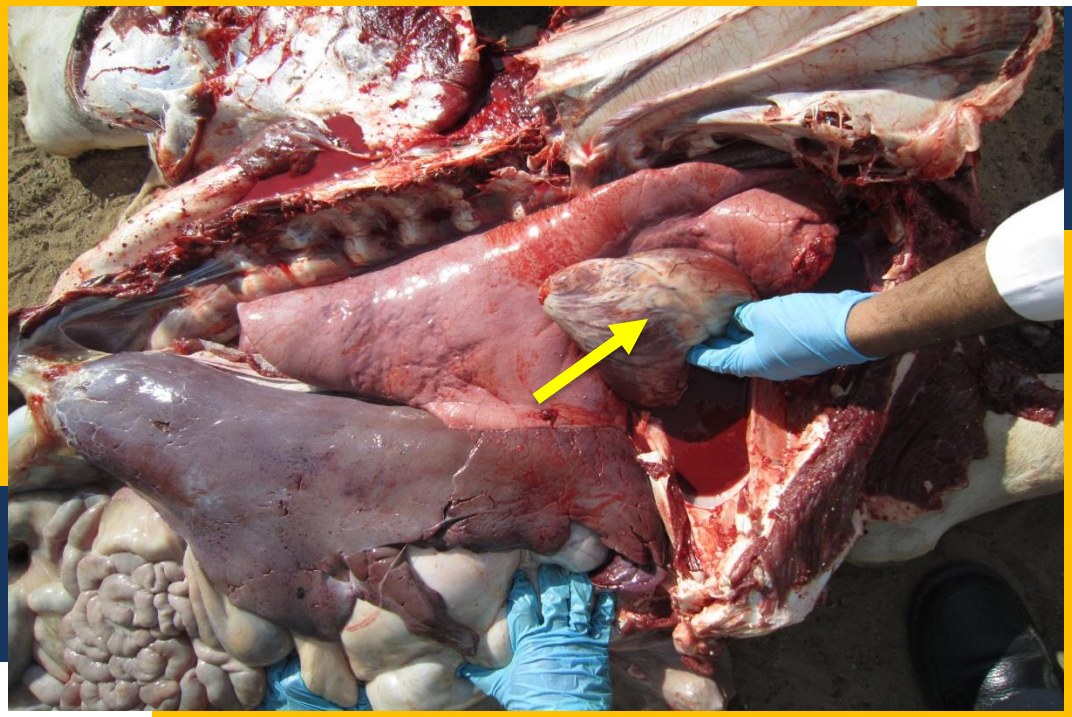
WMD clinical cases were extensively diagnosed in adfca laboratory based on clinical, laboratory analysis and necropsy investigation as noticed in the below figures

Young Whole Carcass

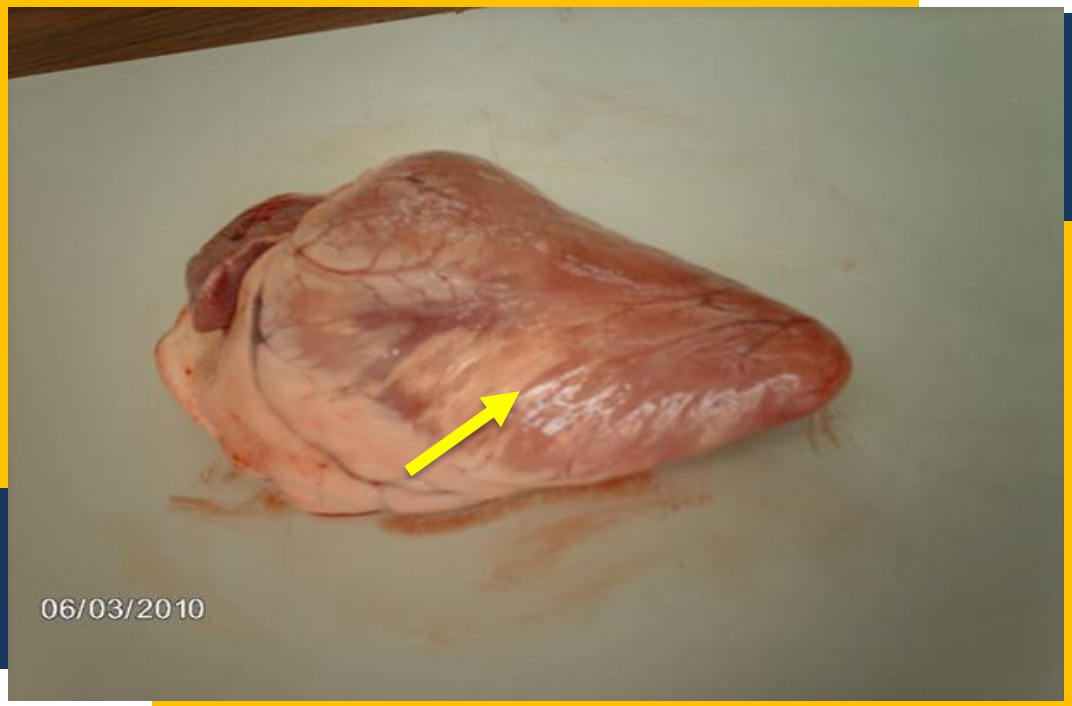
Sudden death occur due to cardiac muscle necrosis.



There were severe pulmonary edema and Fibrinous flakes in pericardium sac (arrows).

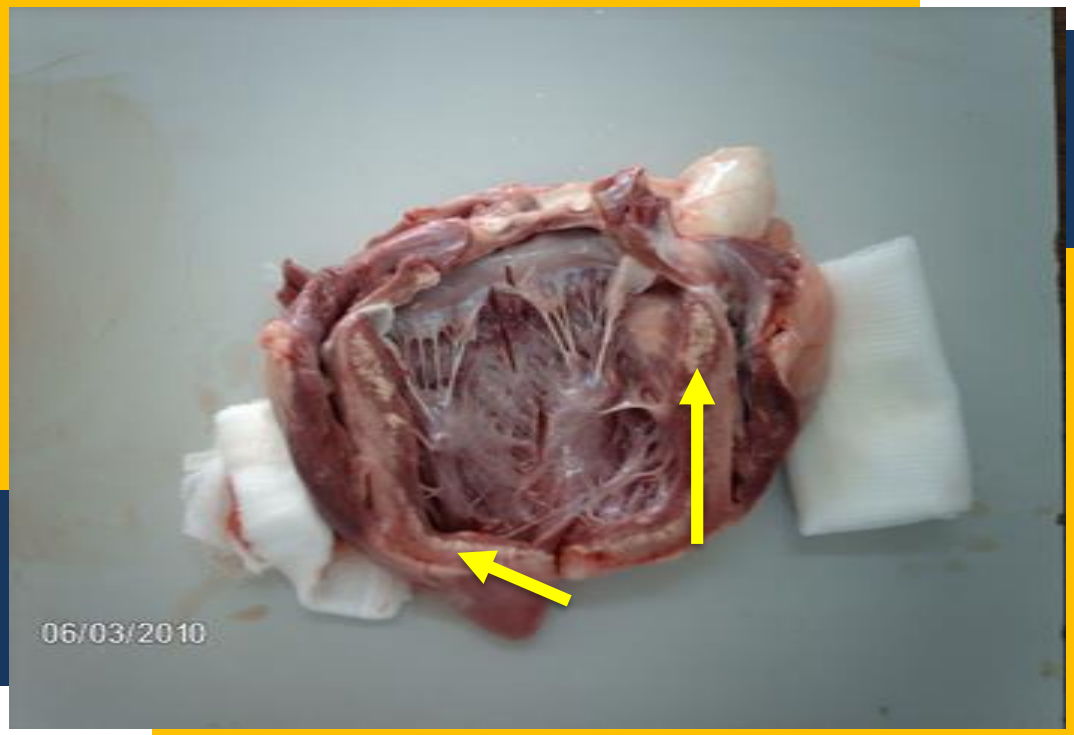


Cardiac muscle shows coagulative necrosis (arrows).



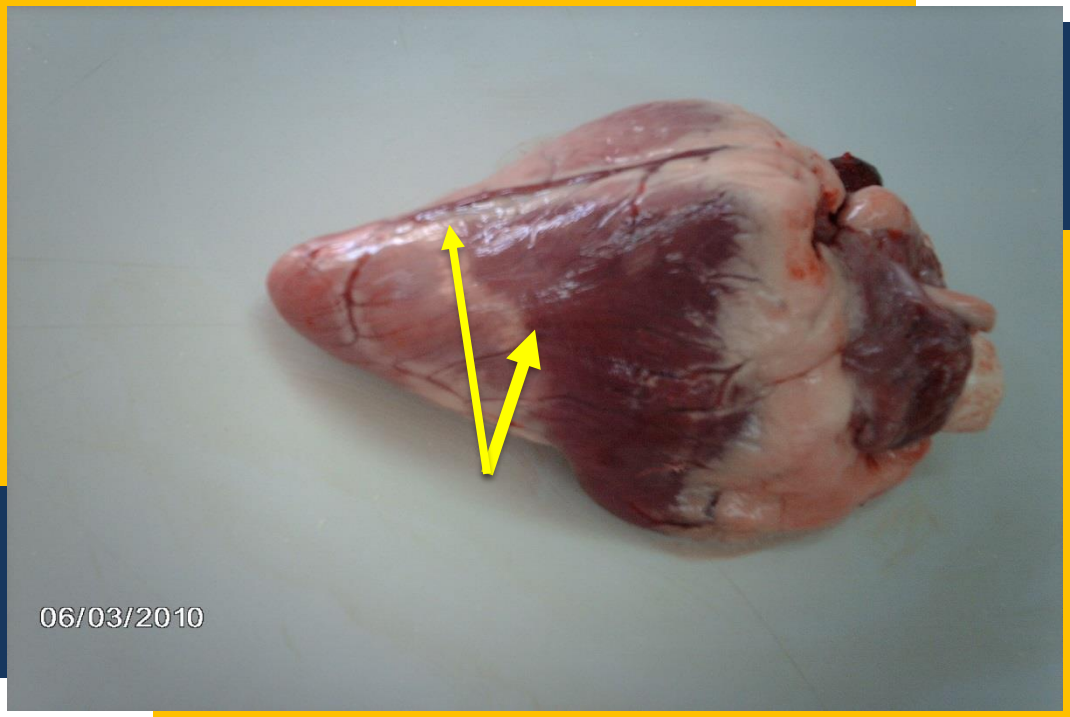
Heart

Cardiac muscle shows coagulative necrosis (arrows).



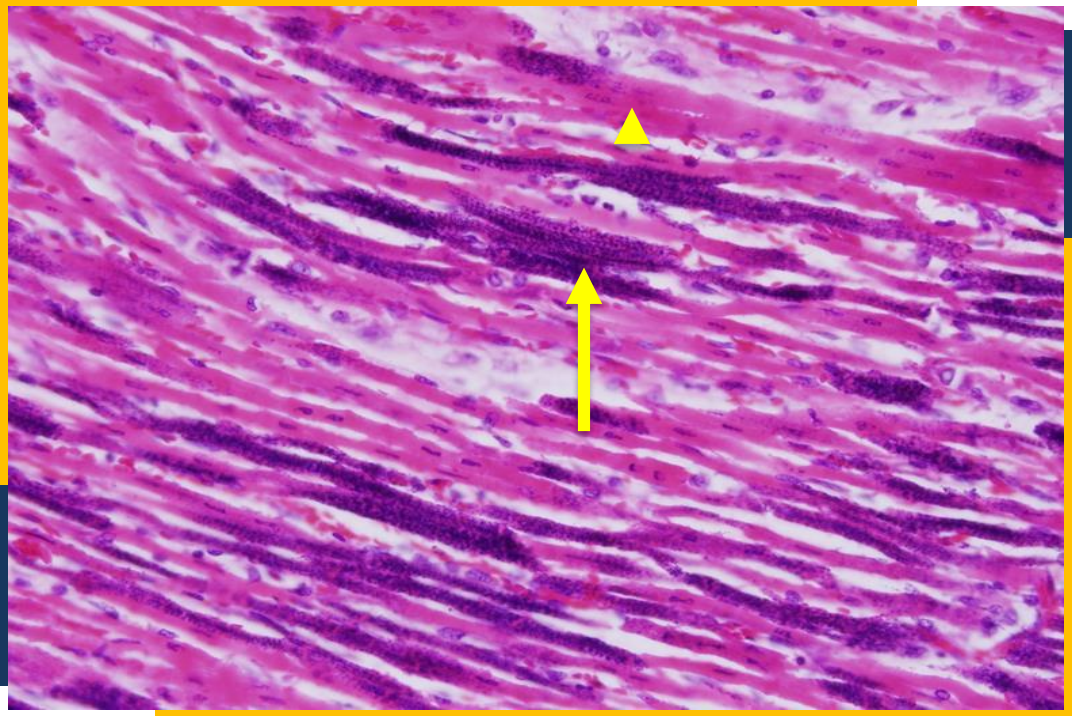
Heart Cut Section

Severe cardiac degenerative changes on the left side of the heart (white muscle disease necrosis) arrows.



Heart

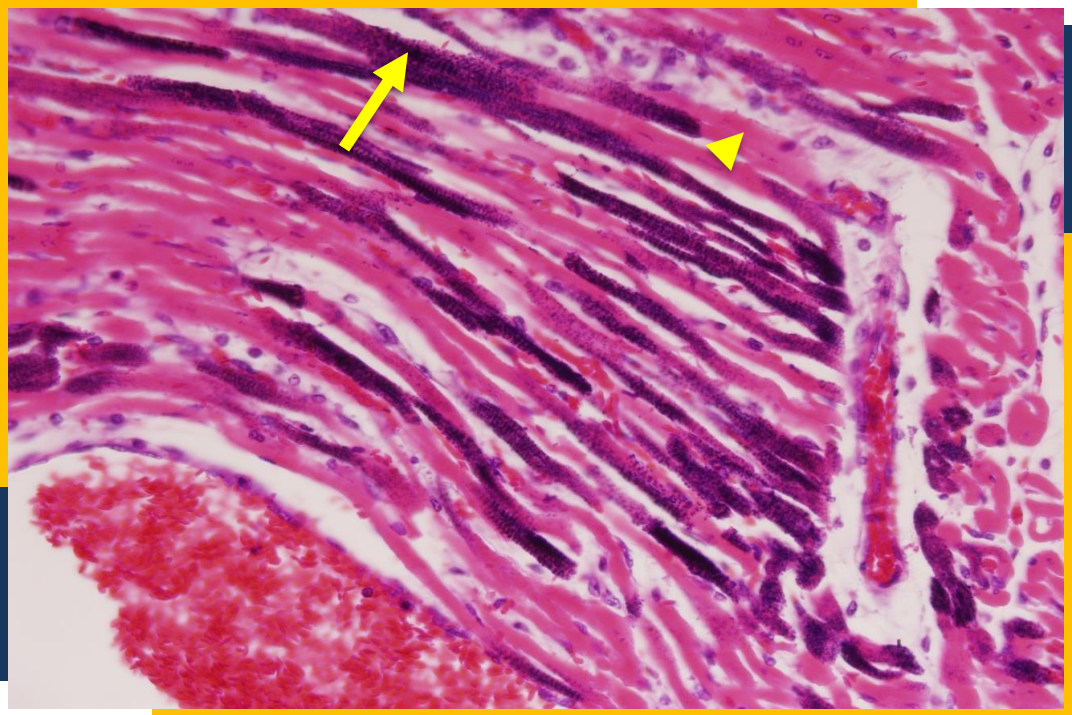
Cardiac muscle denote clear demarcation between healthy red cardiac muscles and diseased cardiac muscles (arrow).



Heart, H&E, 20X

Heart Tissue

Myocardium section shows necrotic muscle fibers (arrowhead) and calcified precipitations (arrow)



Heart, H&E, 40X

Heart Tissue

Myocardium section shows necrotic muscle fibers (arrowhead) and calcified precipitations (arrow).

Clinically infected dromedary with WMD shows weakness, stilted gait or stiffness and recumbency

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