

*Case Report*

**SPONTANEOUS CARDIOPATHY IN A GUINEA PIG**

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**Abstract:** The present report puts on record a case of spontaneous cardiopathy in a guinea pig. Grossly, the heart revealed multiple linear whitish necrotic streaks on the myocardium. Microscopically, heart showed multiple areas of necrosis along with infiltration of mononuclear cells in the myocardium.

**Keywords:** cardiac necrosis; guinea pig.

Guinea pig (*Cavia porcellus*) is an important laboratory animal for studying many bacterial diseases, immunological reactions, exogenous vitamin C requirements and delayed type hypersensitivity reactions (Padilla-Carlin et al., 2008; D' Erchia et al., 1996; Ganguly et al., 1976). It is proven as a more representative model for studying human diseases than mouse (Dascher et al., 1999). In animals, this laboratory animal is also used as an alternative model for checking the vaccine potency for many diseases like Infectious Bovine Rhinotracheitis (Parreno et al., 2010). This animal is a typical model for toxins studies like lantadene toxicity (Sharma et al., 2007). Seasonal overproduction of oxidative species like superoxide free radicals etc. leads to stress and supposed to cause cardiac infarctions and endothelial activation in guinea pigs (Konior et al., 2011).

In a colony of 40 guinea pigs maintained at ICAR-IVRI, Regional Station, Palampur, one of the guinea pig died suddenly. The age of the animal was around 60 days. These animals were kept in polypropylene cages and were provided with necessary standard laboratory conditions like required temperature ( $23\pm 2^{\circ}\text{C}$ ), humidity ( $55\pm 10\%$  RH) and 12 h light and dark cycle. This animal showed reduction in body weight, depression, sleepiness and loss of appetite. At necropsy, the animal revealed fragile and enlarged liver, congested kidneys and linear necrotic streaks in heart (Fig. 1). The histopathological examination (Luna, 1968) revealed characteristic lesions comprising of necrotic areas in liver along with accumulation of heterophils and mononuclear cells. The heart showed diffuse areas of coagulative necrosis

along with infiltration of mononuclear cells admixed with heterophils (Fig. 2). The present report puts on record a case of spontaneous cardiopathy in a guinea pig.

### References

- [1] D'Erchia AM, Gissi C, Pesole G, Saccone C, Arnason U. 1996. The guinea pig is not a rodent. *Nature* 381:597–600.
- [2] Dascher CC, Hiromatsu K, Naylor JW, Brauer PP, Brown KA, Storey JR, Behar SM, Kawasaki ES, Porcelli SA, Brenner MB, Le Clair KP. 1999. Conservation of a CD1 multigene family in the guinea pig. *J Immunol* 163:5478–5488.
- [3] Parreno V, María VL, Rodriguez D, Venac MM, Izuel M, Filippi J, Romeraa A, Faverind C, Bellinzoni R, Fernandez F, Maranguniche L. 2010. Development and statistical validation of a guinea pig model for vaccine potency testing against Infectious Bovine Rhinotracheitis (IBR) virus. *Vaccine* 28: 2539–2549
- [4] Ganguly R, Durieux MF, Waldman RH. 1976. Macrophage function in vitamin C-deficient guinea pigs. *Am J Clin Nutr* 29:762–765.
- [5] Luna LG. 1968. *Manual of Histologic Staining Methods of the Armed Forces Institute of Pathology*, 3<sup>rd</sup> ed. McGraw-Hill, New York.
- [6] Konior A, Klemenska E, Brudek M, Podolecka E, Czarnowska E, Beręsewicz A. 2011. Seasonal superoxide overproduction and endothelial activation in guinea-pig heart; seasonal oxidative stress in rats and humans *Journal of Molecular and Cellular Cardiology* 50: 686–694
- [7] Padilla-Carlin DJ, McMurray DN & Hickey AJ (2008). The guinea pig as a model of infectious diseases. *Comparative medicine* 58(4): 324-340.

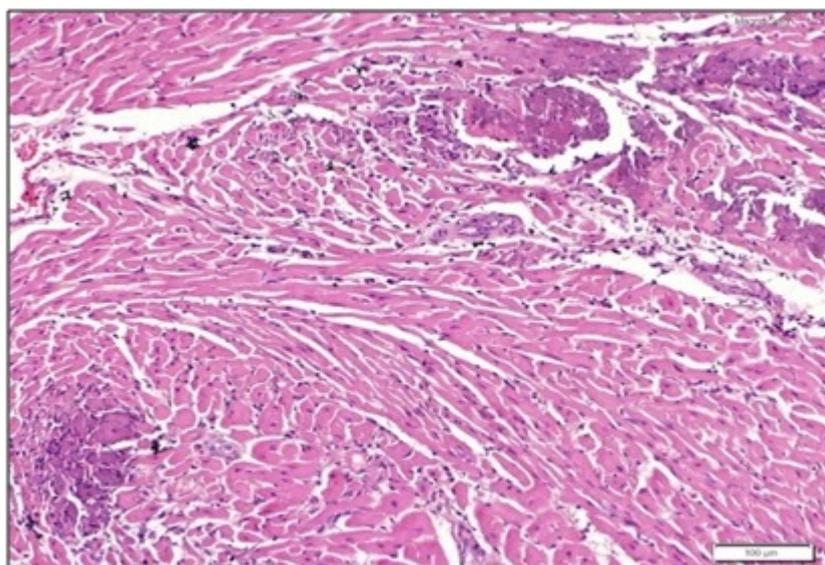
**Figure legends**

**Fig 1.** Heart showing areas of linear necrotic streaks.

**Fig 2.** Heart showing areas of necrosis of myocardiocytes admixed with inflammatory cells. H&E x100



**Fig 1.**



**Fig 2.**