

# CALCIFICATION OF AORTA IN FREE LIVING JACKALS (*Canis aureus*)

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**Introduction:** When tissue encountered in postmortem dissection feels gritty and scrapes against the knife, calcification or ossification is perceived. In histologic sections the differentiation between two conditions are made. The calcification tissue appear as granular or amorphous blueblack deposits. The von Kossa stain which detects phosphates associated with calcium is used to establish that the substance is calcium. Pathologic calcification is the deposition of calcium salts in tissues other than bone and teeth. The calcium is usually deposited as calcium phosphate and calcium carbonate. Two forms of pathologic tissue calcification described are: dystrophic calcification in which calcium salts are deposited in degenerated cells and metastatic calcification, in which they are deposited in normal tissues in the presence of hypercalcemia. The latter form is rarely justified. Occurrence of dystrophic calcification is not related to calcium content of blood and may occur in practically any tissue or organ. On the other hand metabolic calcification occurs as the result of a persistently high concentration of calcium in the blood. The tissues affected need not have been previously damaged (Jones *et al.*, 1997). The role of cellular damage is also difficult to assess, but nearly all forms of calcium deposition involves existence of defects in cells. Hence, the dystrophic calcification is observed at sites of scarring, haemorrhage and necrosis. One of the most serious sites of dystrophic calcification is the degenerative smooth muscle layer of arteries. Calcium is deposited on the altered microfibrillar portions of the elastic tissue and calcification occurs in large artery. The calcific metaplasia is a variant of dystrophic calcification.

The present paper describes a large sized calcium mass formation in the aorta of free ranging Jackals (*Canis aureus*).

**Materials and Methods:** Under disease investigation and health monitoring surveys, fresh carcasses of 3 free ranging jackals (*Canis aureus*), which had collided against the speedy vehicles on motor roads and one young female jackal (*C. aureus*) died in captivity, were subjected to investigation. Necropsy examination revealed in case of 2 wild jackals succumbed in accident presence of a irregular plate like mass of gritty/bony consistency in their aortas at the site about 10 cm away from the heart (Fig. 1). From each case small piece of tissue (0.5 cm in size), was cut and preserved in 10% formalin. The formalin

ixed tissue samples were dehydrated through graded ethanol and embedded in paraffin blocks. Sections of 4-5  $\mu$  thickness were cut from paraffin blocks and stained with eosin (HE) and by von Kossa method.

**Results and Discussion:** On gross examination of aorta, there was generalized thickening and hard feeling of plate on palpation (like bony mass) in the aorta near to its origin. On cutting of structure with a knife found to be brittle nature. Histopathological examination of the specimens evidenced deposits of calcium salts as irregular granules of varying sizes ranging from small round to large masses (Fig. 2) mostly in the sub-endothelial layer, particularly in collagen and elastic lamina of tunica interna and to some extent tunica media of the aorta. At most places, calcium salts replaced both collagen and elastic tissues in the sub-endothelial layer. Calcium salts were typically exhibited purplish color and at places predominant eosin color. The depth of color varied from place to place depending upon the thickness of calcium salts. Mostly, center of the deposits was more thickened (purplish color) with progressive decrease toward the periphery (eosin). At places, the massive calcium salt deposits showed bizarre arrangement resembling the any structure. The sections stained by von Kossa procedure revealed calcium deposits as black spheres. To ascertain the composition of calcium salts, stained sections were treated with concentrated hydrochloric acid and the chemical reaction examined microscopically showed dissolution of calcium salts without any effervescence/bubble formation. That confirmed the composition of calcium salt as calcium phosphate. The condition is considered owing to a primary deposition and adsorption of calcium on the elastic tissues of the intima of aorta- may be a kind of gout. The subject warrants further work, to record incidence and *raison d'etre* if any related to food habits in the changing scenario of the species habitats.

#### Reference

Es, T.C., Hunt, R.D. and D.W. (1997). In Veterinary Pathology, 6th Ed. William & Wilkins Publisher. PP 57-61



Fig. 1: Showing hard calcified mass in the aorta

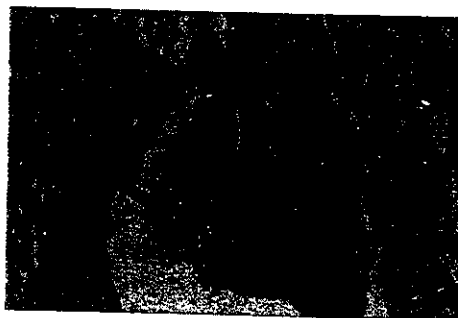


Fig. 2: Calcified plaque in the aorta

