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Pathology of calcification of aorta in sheep (*Ovis aries*)

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Abstract
The present study was undertaken to elucidate the occurrence of calcification of aorta in sheep. In the present study a total number of 587 specimens of cardiovascular system of sheep were examined. Specimens from sheep of different age groups, sex and breeds were examined. Out of total 587 specimens, 161 specimens (147 specimens of heart and 14 specimens of aorta, coronary arteries and major arteries), suspected for pathological abnormalities, and were further processed for histopathological examination. Calcification of aorta was recorded in 6 cases. Macroscopically, thickened and irregular areas were seen on the inner wall of aorta. On microscopic examination aorta showed deposition of calcium granules in the tunica layer of aorta, especially in tunica intima.

Keywords: Sheep, cardiovascular system, aorta, calcification, histopathology

Introduction
Sheep plays important role in livestock farming industry in the rural and urban area of world as well as in India. The total livestock population in the country is 535.78 Million (20th livestock census). The total population of sheep in India is 74.26 Million, with an increase by 14.1% over previous census (20th Livestock census). Sheep contributes to the tune of 13.87 per cent to the total livestock population of the country. Rajasthan with 7.9 million sheep population, is the 4th largest sheep rearing state of the country (20th livestock census).
The cardiovascular system is responsible for circulation of oxygenated and deoxygenated blood. It also helps in transporting nutrients and removing gaseous waste from the body. Various endocrine hormones, excretory products are also transported by cardiovascular system.

Materials and Methods
In the present study, out of total 587 specimens, 161 specimens (147 specimens of heart and 14 specimens of aorta, coronary arteries and major arteries), suspected for pathological abnormalities, and were examined grossly for pathological conditions. Blood vessels and aorta showing gross lesions were collected in 10 per cent formal saline and processed for histopathological examination. The processing of tissues was done by paraffin embedding using acetone and benzene technique (Lillie, 1965) [2]. The tissue sections of 4-6 micron thickness were cut by help of hand operated microtone and stained with routine staining method haematoxylin and eosin staining method (Luna, 1968) [4]. Special stain for calcium granules (von-kossa) was also used.

Results and Discussion
Calcification of aorta was recorded in 6 cases from total of 14 samples of blood vessels, major arteries and aorta. Macroscopically, thickened and irregular areas were found on the inner wall of aorta. These findings are in close approximation with the findings of Kwatra *et al.* (1974) [1]. Affected arteries and aortas appeared as solid and dense.
On microscopic examination affected aorta showed deposition of calcium granules in the tunica layer of aorta, particularly in tunica intima. Thickening of tunica intima layer was observed. Thickening of tunica intima of aorta are in close approximation with the findings of Kwatra *et al.* (1974) [1]. Calcium granules appeared black coloured when stained with haematoxylin and eosin staining method (Fig.1).
This calcification of aorta might be due to grazing on different plants containing excessive amounts of vitamin-D or toxic substances causing hypercalcemia resulting into the calcification of arteries. (Sastry and Rao, 2001) [5].

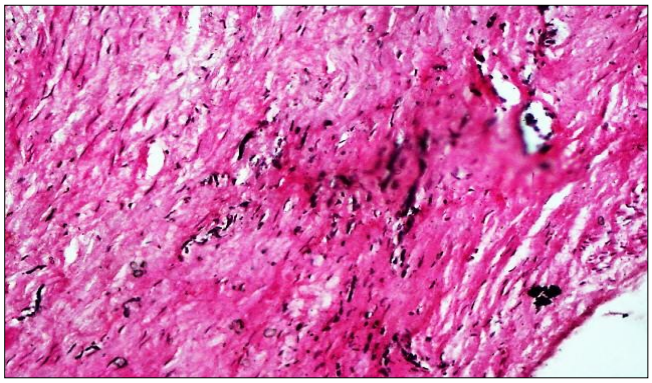

Fig 1: Microphotograph of aortic wall of sheep showing deposition of calcium granules (H&E, 200X).

Conclusion

The study considering the severity of calcification of aorta and arteries of heart.it can be concluded that this condition is serious pathological condition in domestic animals resulting in economic loss of the farmers and villagers.

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