

## Anatomo-histopathological and histometric survey of verminous arteritis caused by *Strongylus vulgaris* in naturally infected horses in Sardinia (Italy)

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**AIM:** This investigation has been carried out to assess the pathological importance of *Strongylus vulgaris*, whose larvae are responsible of arteritis of the cranial mesenteric artery (McCraw BM, Slocombe JOD, 1976, Can Vet J, 17: 150-157; English AW, 1979, Aust Vet J, 55: 310-314; DeLay J *et al*, 2001, Can Vet J, 42: 289-291).

**METHODS:** From 46 horses, with age ranging from 10 to 24 months, born, bred and butchered in Sardinia, it has been removed the cranial mesenteric artery and its main branches, and an anatomo-pathologic examination was performed; moreover, on 26 of these horses it has been carried out an histopathologic and micro-metric examination/study of the various components of the arteries.

**RESULTS:** Lesions from larvae of *S. vulgaris* have been found in all monitored horses, particularly on the greater caliber vessels ileo colic artery (ICA) (28.5%), colic branch (16.4%), common trunk of the colic arteries (TCAs) (13.8%); the lesions were localized mainly on the origin of the vessels (41.8%) affecting the whole caliber of them (75.6%). The consistency was almost always altered and predominantly increased (67.2%). The wall of the lesions showed to a large extent an increase in its thickness (87.6%). The endothelium was often altered (51.5%). The lesions of greater dimensions have been observed in the cranial mesenteric artery and in the ileocolic artery with mean values of 3.6 cm for length and 2.8 and 2.1 cm for width, respectively. The arteries of 18 horses (39.1%) were harbored by larvae of *S. vulgaris* in the fourth and fifth stadia. The wall thickness and the thickness of each of the three tunicae of the ICA and of the TCAs (where this comparison has been possible) was significantly increased ( $p < 0.001$ ) in the arteries that harbored larvae of *S. vulgaris* (L<sup>+</sup>) compared to those that were negative (L<sup>-</sup>). The mean  $\pm$  sd values ( $\mu\text{m}$ ) were in the table below:

Artery		Tunica intima ( $\mu\text{m}$ )	Tunica media ( $\mu\text{m}$ )	Tunica adventitia ( $\mu\text{m}$ )	Total ( $\mu\text{m}$ )
ICA	L <sup>+</sup>	1799.7 $\pm$ 1178.3	3260.4 $\pm$ 1719.7	2810.0 $\pm$ 1834.3	7806.6 $\pm$ 3362.4
	L <sup>-</sup>	989.1 $\pm$ 571.2	1958.5 $\pm$ 809.5	2263.3 $\pm$ 1364.7	5210.9 $\pm$ 1769.1
TCAs	L <sup>+</sup>	3132.1 $\pm$ 1648.9	4238.3 $\pm$ 1542.5	2832.5 $\pm$ 1456.0	10202.9 $\pm$ 3058.1
	L <sup>-</sup>	709.9 $\pm$ 538.0	1322.4 $\pm$ 443.9	1213.6 $\pm$ 853.1	3245.9 $\pm$ 12772.8

The histological investigation has allowed to detect two main inflammatory pictures both characterized by a lymphoplasmacellular infiltrate, of which one with a moderate or no presence of eosinophils, called chronic in the strict sense (58.6% tunica intima; 60.6% tunica media; 66.4% tunica adventitia), and the other one with an abundant presence of eosinophils, called chronic-active (31.7% tunica intima; 23.1% tunica media; 28.3% tunica adventitia). Acute pictures characterized by the presence of neutrophil and eosinophil granulocytes were nearly absent (0.6% tunica intima and tunica media; 0.0% tunica adventitia). 9.2%, 15.8% and 5.3% of the sections of tunica intima, media and adventitia, respectively, were devoid of inflammatory infiltrate.

The observed degenerative phenomena were: necrosis and/or calcification areas (40.3%), localised or wide-spread thickenings of the tunica intima (90.3%), signs of discontinuity of the internal elastic lamina (86.7%), and macrophages containing hemosiderin in 21.1%, 36.7% and 30.6% of the sections of tunica intima, media and adventitia, respectively.

**CONCLUSION:** The finding in the 100% of the monitored horses of lesions ascribable to the pathogenic action of the *S. vulgaris* and their characteristics, would show above all the pathological importance of this parasite and its pathogenetic power for the onset of the abdominal colics in the horse, despite the current opinion according to which *S. vulgaris* should have lost its importance in horse' pathology due to the drastic reduction of parasite's prevalence (Pietrobelli M *et al*, 1995, Arch Vet Ital, 46: 225-232; Lyons ET *et al*, 2001, Vet Parasitol, 97: 113-121; Bucknell DG *et al*, 1995, Int J Parasit, 25: 711-724). Therefore, considering the important equine livestock of Sardinia, *S. vulgaris* doesn't have to be neglected in the formulation of prophylactic-therapeutic plans against horse gastrointestinal parasites.