

# GENERALISED AMYLOIDOSIS IN A BEECH MARTEN (*Martes foina*)

Bollo, E.\* , Mignone W.\*\* , Ferrero E.\*\*\* , Donn A.\* , Poggi M.\*\*\*\* , Biolatti B.\*

\* Dipartimento di Patologia Animale, Università degli Studi di Torino, Via Nizza 52 - 10126 Torino

\*\* Istituto Zooprofilattico del Piemonte, Liguria e Valle d'Aosta - Sezione di Imperia

\*\*\* Unità Sanitaria Locale n. 1 - Ventimigliese

\*\*\*\* Medico veterinario, libero professionista

**Riassunto** - Gli Autori descrivono i reperti anatomico-istopatologici di un caso di amiloidosi in una faina (*Martes foina*). Le lesioni principali, caratterizzate da deposizione di sostanza amiloide, sono state riscontrate a carico di

IBEX J.M.E. 1:34-36

## 1. Introduction

The generalised amyloidosis of Beech marten (*Martes foina*) is a metabolic alteration characterised by a diffuse accumulation of amyloid.

The disease is well known, nevertheless, it has been described only in some hundreds of animals submitted to *post mortem* examination in Switzerland and Bavaria (Wandeler & Pauli, 1969; Wandeler *et al.*, 1970; Müller & Rapp, 1977; Sabolic, 1980; Geisel, 1982).

The incidence of the disease ranges from 7.7% to 17% of the animals submitted to anatomopathological examination, without apparent predilection for sex or age (Geisel, 1982). Even if a genetic predisposition has been hypothesised the etiology of the disease is still uncertain (Geisel, 1982). This report describes a case of amyloidosis in a marten captured in Liguria. The animal subsequently died in captivity.

## 2. Materials and methods

The animal was a young female, about one year of age and was found in a garden in Ventimiglia in September 1991. The animal was in a poor condition, depressed and with evident respiratory difficulties. After 24 hours of symptomatic therapy the animal died.

At *post mortem* samples from the liver, kidney, heart and spleen were taken for histo-pathological examination and specimens of bone marrow, spleen and liver were collected for bacteriological tests which were performed on blood-agar. Moreover, a direct immunofluorescent test for rabies virus was applied on impression smears from nervous tissues. For the histo-pathological examination tissue samples were fixed in 10% buffered formalin, embedded in paraffin wax, 4µm sections were cut and stained with Haematoxylin-Eosin and Congo red.

## 3. Results

The animal was in a poor condition. The liver was enlarged with irregular white-greyish areas

slightly protundent (Fig. 1).

Cut section reveals that such lesions largely involved the parenchyma (Fig. 2).



Fig. 1 - Liver: irregular white-greyish areas slightly protundent

The myocardium was pale and in the ventricular walls there were some well defined whitish



Fig. 2 - Liver: cut section

areas (0.2-0.4cm x 0.5-1cm). At the apex there was a white-greyish fibrous area (2cm) protruding from the surface (Fig. 3).

At the cross section the lesion extended throughout the wall of the left ventricle and part of



Fig. 3 - Heart apex: white-greyish fibrous areas protruding from the surface

the right one. The kidneys were pale with a wrinkly surface. The right one showed a large white-yellowish fibrous lesion at the cranial pole (Fig. 4).

The spleen was also swollen with rounded edges (Fig. 5).

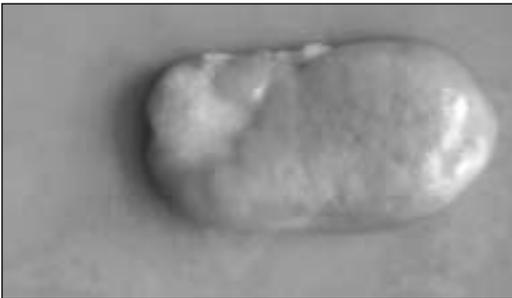


Fig. 4 - Kidney: large white-yellowish fibrous lesion at the cranial pole

At the surface there were some slightly raised, whitish areas similar to the ones described in the liver.



Fig. 5 - Spleen: this is swollen with rounded edges

Upon the histopathological examination the most important lesions were found in the liver, with abundant deposition of homogeneous material uniformly distributed under the capsule, into the walls of the blood vessel and in the portal areas. The hepatocytes showed diffuse degeneration with homogeneous and often vacuolised cytoplasm (Fig. 6 and 7).

In the heart a deposition of homogeneous matter within the walls of the arterial and venous vessels of the myocardium was found. In proxi-

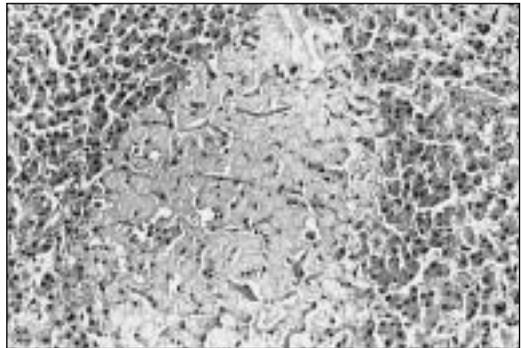


Fig. 6 and 7 - Liver: Hepatocytes showed diffuse degeneration with homogeneous and vacuolised cytoplasm

mity of the apex of the left ventricle there was a large area of necrotic tissue, surrounded by a thick connectival capsule; the arterial vessels around the lesion had a subendothelial deposition of homogeneous matter which in some cases was eccentric while in some others it involved the whole of the vessel wall (Fig. 8). In the kidney there was a deposition of homogeneous matter especially in the glomeruli, while, in the epithelium of the tubules degene-

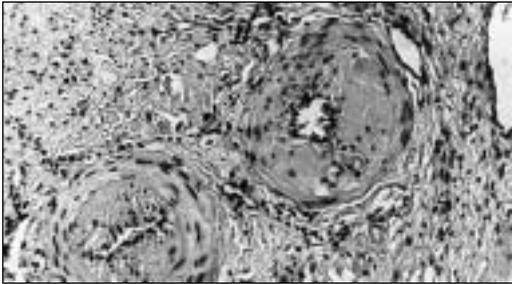


Fig. 8 - Heart: large area of necrotic tissue. The arterial vessels around the lesion had a subendothelial deposition of homogeneous matter

relative alterations were more evident (Fig. 9). With the Congo red staining it was possible to identify the nature of the homogeneous matter which had a characteristic pale pink colour

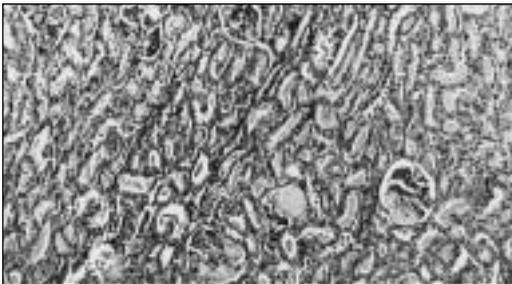


Fig. 9 - Kidney: deposition of homogeneous matter in the glomeruli. In the epithelium of the tubules degenerative alterations were more evident

and, therefore, was classified as amyloid. The bacteriological tests and the direct immunofluorescence for rabies virus were negative.

#### 4. Discussion

In the present report the authors describe the anatomo-histopathological findings of a case of generalised amyloidosis in a Beech marten. Although occasionally described in the literature, the disease has a remarkable incidence as recorded during investigations conducted on a large number of animals. In the case reported the anatomo-histopathological findings of amyloid deposition in various organs, especially in the liver, spleen and heart which are considered the target organs in generalised amyloidosis are in agreement with the description of the disease given by other authors. Of particular interest are the heart lesions characterised by a large area of necrosis surrounded by a con-

nectival reaction around the myocardial arterial vessels infiltrated by amyloid. Such lesions, probably of ischemic origin, could be due to the occlusion of the afferent vessels.

The etiology of this case of amyloidosis cannot be ascertained on the basis of the anatomo-histopathological findings only.

Therefore, the nature of the disease is uncertain, even if the cause of death may be due to the serious lesions found in the organs.

#### REFERENCES

- GEISEL O. (1982) - Die idiopathische generalisierte Amyloidose der Marder. *Tierärztl. Prax.*, 10: 535-547.
- MÜLLER B. & J. RAPP (1977) - Beitrag zur Pathologie des Steinmarders (*Martes foina*). *Tierärztl. Umsch.*, 32: 650-652.
- SABOLIC M. (1980) - Todes- und Krankheitsursachen beim Steinmarder (*Martes foina*) in Baden Württemberg. Einzugsgeb. Staatl. Tierärztl. Untersuchungsamt Aulendorf. Vet Diss. München.
- WANDELER A. & B. PAULI (1969) - Amyloidose bei Steinmardern. *Schweiz. Arch. Tierheilk.*, 111: 532-539.
- WANDELER A., PAULI B. & R. FANKHAUSER (1970) - Hirnveränderungen bei generalisierter Amyloidose des Steinmarders (*Martes foina*). *Verh. ber. Erkr. Zootiere*, Budapest.