

# **ANATOMO-HISTOPATHOLOGICAL OBSERVATION ON THE RENAL PATHOLOGY IN THE WILD BOAR (*Sus scrofa*)**

Caramelli M. \*, Bozzetta E. \*, Mignone W. \*, Bisso M. C. \*, Scanziani E. \*\*, Giusti A. M. \*\*, Castagnaro M. \*\*\*

\* Istituto Zooprofilattico Sperimentale del Piemonte, Liguria e Valle d'Aosta, Via Bologna 148, 10100, Torino, Italy.

\*\* Università degli Studi di Milano, Istituto di Anatomia Patologica Veterinaria e Patologia Aviare, Via Celoria 6, 20100, Milano, Italy.

\*\*\* Università degli Studi di Torino, Facoltà di Medicina Veterinaria, Dipartimento di Patologia Animale, Via Nizza 52, 10100, Torino, Italy.

**Abstract:** In order to describe and to better define the prevalence of renal pathology in the Wild boar in natural conditions, the authors collected the kidneys of 248 wild boars, between 1 and 3 years old, hunted in the area of Appennino Ligure, in Imperia province.

Following the observation of the macroscopic lesions, the kidneys were fixed and embedded for the histopathological evaluation. The predominant lesion, seen in 19.75% of the animals, was the interstitial nephritis characterized by scattered foci of mononuclear cell infiltration, often localized around the blood vessels. The immunohistochemical examination for the presence of leptospiral antigen, carried out on animals with interstitial nephritis, was negative.

**Keywords:** Wild boar, *Sus scrofa*, Suidae, Kidney, Nephritis.

IBEX J.M.E. 3:90-91

## **1. Introduction**

In Italy, the pathology of Wild boar (*Sus scrofa*) has been increasingly studied because of its important relationship with human and animal health (Mignone *et al.*, 1990; Biolatti *et al.*, 1992; Ferrari *et al.*, 1992).

Renal pathology in the Wild boar is not very well documented: we know there are no reports on this topic in the veterinary literature of the last twenty years. However, since a large part of renal pathology in other mammals is due to infective microorganisms such as *Leptospira* sp., it seems important to evaluate the incidence of renal pathology in the Wild boar.

## **2. Material and methods**

Tissue samples were collected from 248 kidneys during three hunting seasons (1990, 1991, 1992) in Imperia province (Liguria, Italy). Shot animals were between 1 and 3 years old. Although both sexes were represented, no data on the sex were available.

Kidneys were excised after death as soon as possible, fixed in 10% buffered formalin and finally sent to the Diagnostic Laboratory at the Istituto Zooprofilattico Sperimentale, Turin, for further tissue processing and histopathological evaluation. After macroscopic evaluation of the kidney, representative fragments were sampled and embedded in paraffin.

Four µm sections were stained with Hematoxylin and Eosin, and PAS method for histopathological examination.

The immunohistochemical technique with primary antiserum raised against *Leptospira interrogans* serovar *pomona*, was carried out according to a previously published procedure (Scanziani *et al.*, 1991).

## **3. Results**

Macroscopic lesions were found in 36 animals (14.5%). Six animals showed renal pelvis urolithiasis with mild hyperemia and catarrhal inflammation. 30 animals showed 1-3 focal lesions consisting of 1-2 mm white spots. In one case a single, white, firm, 4 mm thick nodule was observed. No other macroscopic lesions were found. Histopathological evaluation of sections from macroscopically-affected and non affected kidneys revealed the presence of subacute to chronic interstitial nephritis in 49 animals (19.75%). Histological lesions were more severe in macroscopically affected kidneys and consisted in nodular and/or diffuse foci of mononuclear cells infiltration. Epithelial tubules cells surrounded by inflammatory cells showed mild degenerative changes while no interstitial fibrosis was observed. Histopathological analysis of the single nodule revealed a proliferation of pleomorphic atypical

lymphocytes and some large lymphoblasts with hyperchromatic and non-cleaved or -folded nuclei associated with degeneration and necrosis of surrounded epithelial tubules cells.

Renal pelvis urolithiasis was characterized histologically by diffuse plasma cells and few neutrophils infiltration under the pelvis epithelium.

Immunohistochemical studies performed on kidneys with interstitial nephritis for the detection of leptospiral antigens were all negative.

#### 4. Discussion

The presence of light mononuclear infiltrations in renal lesions, as we observed, is not suggestive of leptospiral infection (Scanziani *et al.*, 1990); moreover immunohistochemical findings on pathologic kidneys tested with primary antiserum against *Leptospira* sp. were absolutely negative. Ponti *et al.* (1991) report that in Sardinia 10.6% of wild boars are serological positive for *Leptospira* serovar. *pomona*, *grippotyphosa* and *bratislava*; on the contrary our results indicate that in Liguria the disease is not so widespread.

It is noteworthy that sardinian wild boars were reared, while our animals were hunted. It's likely that the closer relationship between sardinian Wild boar and domestic pig is responsible for the serologic positivity.

In one case, the histological finding of a focal localization of pleomorphic lymphoid cells with numerous atypical mitosis, suggests the presence of a lymphoma. However, the unavailability of other parenchymal organs, such as visceral lymphonodes, liver, spleen, bone marrow and lungs, commonly involved in swine lymphoma (Moulton & Harvey, 1990) and the absence of clinical history, preclude any further classification of lymphoma.

#### 5. Acknowledgements

The authors thank Mrs Anna Maria Moderiano for her precious technical assistance.

#### REFERENCES

- BIOLATTI B., BOLLO E., MIGNONE W., CARAMELLI M. & SCHROEDER C., (1992) - Tuberculosis in wild boars (*Sus scrofa*) in Liguria (Italy). *Verh. ber. Erkr. Zootiere*, 34: 55-59.
- FERRARI A., BIOLATTI B., POGGI M., ERCOLINI C. & MIGNONE W., (1992) - A survey of wild boars' disease in Liguria hinterland (Italy). *Proc. 12th Inter. Pig Vet. Soc.*, The Hague, August 17-20, 1992.
- MIGNONE W., GIACCONE V. & DECASTELLI L., (1990) - Controllo microbiologico delle carni di cinghiali

abbattuti nella stagione venatoria 1988 in Piemonte e Liguria. *Microbiol. Alim. Nutr.*, 8: 149-155.

MOULTON J.E. & HARVEY J.W., (1990) - Tumors of the Lymphoid and Hematopoietic tissues. In: *Tumors in Domestic Animals*, Moulton J.E. (ed), University of California Press, Berkeley, CA., 3rd ed., 258 pp.

PONTI N., ADDIS G., MELE P., MANIGA A. & SCARANO C., (1991) - Diffusione della Leptospirosi in Sardegna: indagine sierologica su cinghiali cacciati negli anni 87-90. *Atti S.I.S.Vet. XLV*: 897-901.

SCANZIANI E., SIRONI G. & CANIATTI M., (1990) - Granulomatous-like reaction in renal leptospirosis of swine. *Schweiz. Arch. Tierheilk.*, 132: 471-472.

SCANZIANI E., LUINI M., FABBRI M. & PIZZOCARO P., (1991) - Comparison between specific immunoperoxidase staining and bacteriological culture in the diagnosis of renal leptospirosis of pig. *Res. in Vet. Sc.*, 50: 229-232.