MORPHOLOGICAL ASPECTS OF SOME ORGANOPATHIES IN WILD BOARS FROM NORTH MOLDAVIA

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Summary

Well represented in the territories involved in this study, the boar (Sus scrofa ferus) is already subject of the national surveillance programme for diseases of epidemiological and sanitary importance, such as trichinellosis and classical swine fever.

The research conducted in 2010 – 2011 on 32 boars prelevated from north Moldavia (Suceava, Neamt and Iasi counties) showed the presence in the populations of several parasitic invasions, largely (sarcocystosis) or moderately (trichinellosis) spread, and of some organopathies with an infectious etiology (pasteurellosis). Morphologically, tissular reactivity is similar to the one observed in the domestic pig (Sus scrofa).

The predominance of parasitic invasions, some of them with major epidemiological impact, suggests the necessity of some prophylactic antiparasitic programmes that should be implemented.

Key words: boar, organopathies, parasitic invasions

Wildlife pathology is one of the latest interest subjects in veterinary medicine, due to the major epidemiological and economic impact that different disease of wildlife may have on livestock and humans and, last but not least, on natural ecosystems biodiversity (2).

Wild boar is a wide spread species in North East Romania; its ecobiological similarities to the domestic pig make it a focus point of administrative institutions enabled to maintain animal health status. Direct contact between wildlife and livestock has become more and more frequent, and the role different vectors have in disease transmission is indisputable (1).

In this context, this paper aims at giving a clear objective image of the health status of wild boar populations in the study area.

Materials and methods

Study material was represented by organs prelevated from 32 wild boars, 20 males and 12 females, extracted from the populations during 2010 and 2011 hunting seasons in Iasi, Suceava and Neamt, Counties and examined in the Pathology Department of the Veterinary Medicine Faculty in Iasi.
Macroscopical and histological examinations were performed, prior to which tissue fragments prelevated were paraffine embedded and stained in the general orientation method Hematoxilin – Eosin – Methyl blue.

Results and discussions

Cardiac lesions
In a 5 year old female, histological examination of the heart showed an interfibrillar dissociation by a serous material. In some areas, this miocardicocyte separation is accompanied by a slight vacuolisation, indicating an evolutive pathological process (most probably, a toxic syndrome) (Fig. 1 and 2).

In a 3 years old male, a fibrous epicarditis was diagnosed, with a diffuse hyperplasia of the subepicardic connective tissue (Fig. 3).

Fig. 1. Boar. Heart. Interfibrillar disjunction, transverse section. HEA, x400

Fig. 2. Boar. Heart. Interfibrillar disjunction. Miocardicocyte vacuolization. HEA, x400

Fig. 3. Boar. Heart. Fibrous epicarditis. HEA, x400
Pulmonary lesions

In one of the examined individuals, a 5 years old male, a nonspecific lymphohistiocytic bronchopneumonia was caught in its evolutive stage; the lesion is common to several pulmonary virrosis. Histologically, a lymphohistiocytic hyperplasia was noticed around bronchioles and arterioles. Hyperplasia of the Reissenssen muscle indicates chronic lung impairment (Fig 4 and 5).

In the same case, besides bronchopneumonia lesions, parasites were evidenced inside bronchioles, which were identified as *Metastrongyllus* spp. (Fig. 6).

In a 7 years old female, similar lymphohistiocytic lesions were identified, associated to the presence of intrapulmonar parasites that caused important haemorrhages in the parenchyma and relatively wide spread emphysema. The parasites present in the bronchiolae are a persistent irritant factor that leads to epithelial degradation and hyperplasia of the Reissenssen muscle (Fig. 7 and 8).
In a 3 years old male, pulmonary congestion and haemorrhages were associated to the presence of multiple, small size, mature abcesses (Fig. 9) (4).

Fig. 7. Boar. Lung. Intrabronchiolar parasite. Flattened bronchiolar epithelium. HEA, x400

Fig. 8. Boar. Lung. Hyperplasia of the Reissessen muscle. Descuamation of the bronchiolar epithelium. HEA, x400

Fig. 9. Boar. Lung. Pulmonary abcess. HEA, x40

Another individual, a 4 years old male, showed all the characteristic lesions of the fibrinous bronchopneumonia, with all its evolutive stages. (Fig. 10, 11, and 12).

Fig. 10. Boar. Lung. Minor septal congestion. Free pulmonary alveolae. HEA, x400

Fig. 11. Boar. Lung. Reticular deposits in the alveolae. HEA, x400
In a 5 years old male, pseudonodular lymphohistiocytic hyperplasia areas were identified. (Fig.13 and 14) (3).

Fig. 13. Lung. Boar. Pseudonodular lymphohistiocytic hyperplasia. HEA, x400

Fig. 14. Lung. Boar. Pseudonodular lymphohistiocytic hyperplasia. Col. HEA, x400

Renal lesions
In a 2 years old male pathological processes characteristic to nephrosis were identified (Fig. 15).

Intratissular haemorrhages were also noticed. Fraglization and breakdown of renal capillaries often indicates a toxic process, of endogenous origin (Fig. 16) (6).

In another male, compression atrophy of the urinifer tubes was identified (Fig. 17).
A 3 years old female, already diagnosed with fibrous epicarditis was also identified a fibrous nephritis, with medium interstitial hyperplasia and tubular lysis in the cortical area. Fibrous perinephritis was also diagnosed. (Fig. 18 and 19).
In a 4 years old male, a severe degradation of the epithelium of the urinifer tubes was noticed, accompanied by vasculitis and perivasculitis, the whole lesional aspect indicating an evolutive chronic nephritis. (Fig. 20 and 21).

Fig. 20 Boar. Kidney. Vasculitis and perivasculitis. Chronical nephritis. HEA, x400

Fig. 21 Boar. Kidney. Lysis of the epithelium of urinifer tubes. Chronical nephritis. HEA, x400

In an approximately 5 years old male, tubular lysis was noticed, accompanied by diffuse lymphohistiocytic hyperplasia and glomerular hyperplasia, with the thickening of the Bowmann membrane. (Fig. 22 and 23).

Fig. 22. Boar. Kidney. Tubular lysis. Diffuse lymphohistiocytic hyperplasia. HEA, x400

Fig. 23. Boar. Kidney. Glomerular hyperplasia. Thickening of the Bowmann capsule. HEA, x400

In a 2 years old female, wide spread areas of congestion and dislocation of the tubular epithelium were noticed (Fig. 24 and 25).
Hepatic lesions
In a 7 years old male with an important hepatic congestion, the presence of microhaemorrhages and haemorrhages that lead to a displacement of Remak cords was noticed. (Fig. 26, 27, and 28)
In a 6 years old female, chronic macrovacuolar hepatosteatosis was noticed. Predominant centrolobular localisation of the lesion indicates chronic intoxication (Fig. 29).

Another 6 years old female shows lymphohistiocytic hepatitis which generally involves Salmonella germs. Sublobular proliferation foci are not visible macroscopically; histologically, intense lymphohistiocytic infiltration is mainly localised in the interstitium, whose growth compresses the parenchyma. (Fig. 30 and 31)

![Fig. 29. Boar. Liver. Hepatic steatosis. HEA, x100](image1)

![Fig. 30. Boar. Liver. Hepatic steatosis. HEA, x400](image2)

![Fig. 31. Boar. Liver. Lymphohistiocytic hepatitis. Hepatic congestion. HEA, x100](image3)

The 2 years old female diagnosed with fibrous epicarditis, pericarditis and perinephritis, hepatocytic displacement was noticed, with nuclear hyperchromatosis and microscopical foci of lymphohistiocytic hyperplasia. (Fig. 32 and 33).
Muscle lesions

In 28 of the 32 cases examined, sarcocysts were identified in striated muscle. Invasion degree of scheletic muscles varied between 3 to 15 sarcocysts per 10 microscopical fields. Histologically, on longitudinal section, Miescher tubes were identified inside muscle fibers; transverse sections evidentiate Rainey's corpuscles, sized 12-15 x 6-9 µm (Fig. 34 and 35) (5).

Conclusions

Etiologically, infectious disease diagnosed were salmonellosis, leptospirosis and pasteurellosis; parasitic invasions are represented by sarcocystosis and metastrongyllosis.

In one of the examined individuals, the coexistence of chronical epicarditis and perinephritis indicate an old poliserositis with a most probable bacterian etiology.
Coexistence of microfoci and foci of lymphohistiocytic hyperplasia indicate an etiologic diagnosis of salmonellosis.

Toxic hepatic involvement associated to chronical renal lesions plead in favour of a leptospiric infection.

Fibrinous bronchopneumonia diagnosed in one of the examined boars is characteristic to pasteurellic infections.

In two of the examined individuals, metastrongyllosis with severe pulmonary impairment was noticed.

Sarcocysts were present in 28 of the 32 examined cases.

Predominance of parasitic invasions suggest the necessity for antiparasitic prophylactic programmes implementation.

References