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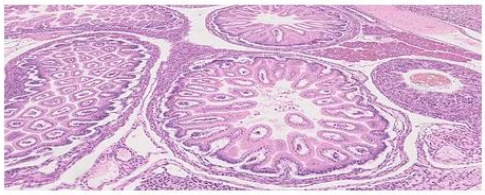
Informações das atividades do GT +Coelho

*Participação do Grupo +Coelho no **XXIII Encontro da Sociedade Portuguesa de Patologia**, realizado em Coimbra, a 9 e 10 de Junho de 2018*



Nos passados dias 9 e 10 de junho, a Sociedade Portuguesa de Patologia Animal celebrou o seu XXIII Encontro em Coimbra, na Escola Universitária Vasco da Gama, fechando o círculo de encontros realizados nos diferentes institutos de Educação em Medicina Veterinária em Portugal.

Fábio Abade dos Santos (estudante de doutoramento FMV/INIAV), Margarida Duarte (Investigadora do INIAV) e Conceição Peleteiro (Professora Catedrática da FMV), levaram a este encontro uma apresentação em forma de painel intitulada "***Establishment of Histopathological Patterns for Rabbit Haemorrhagic Disease caused by RHDV2***" (Estabelecimento de padrões histopatológicos para a doença hemorrágica causada por RHDV2).

Este estudo teve como objetivo estabelecer padrões de lesões histopatológicas em vários órgãos (fígado, timo, baço, traqueia, pulmão, intestino, coração e rim) de coelhos-bravos vitimados por RHDV2 e relacioná-los com as cargas virais associadas. Esta co-relação permitirá compreender melhor o significado dos resultados do PCR em tempo real (Duarte et. al, 2015) utilizado no diagnóstico molecular.

A maioria das lesões anatomopatológicas identificadas estão geralmente de acordo com o descrito na literatura.

Este estudo teve a participação do Projecto +Coelho.

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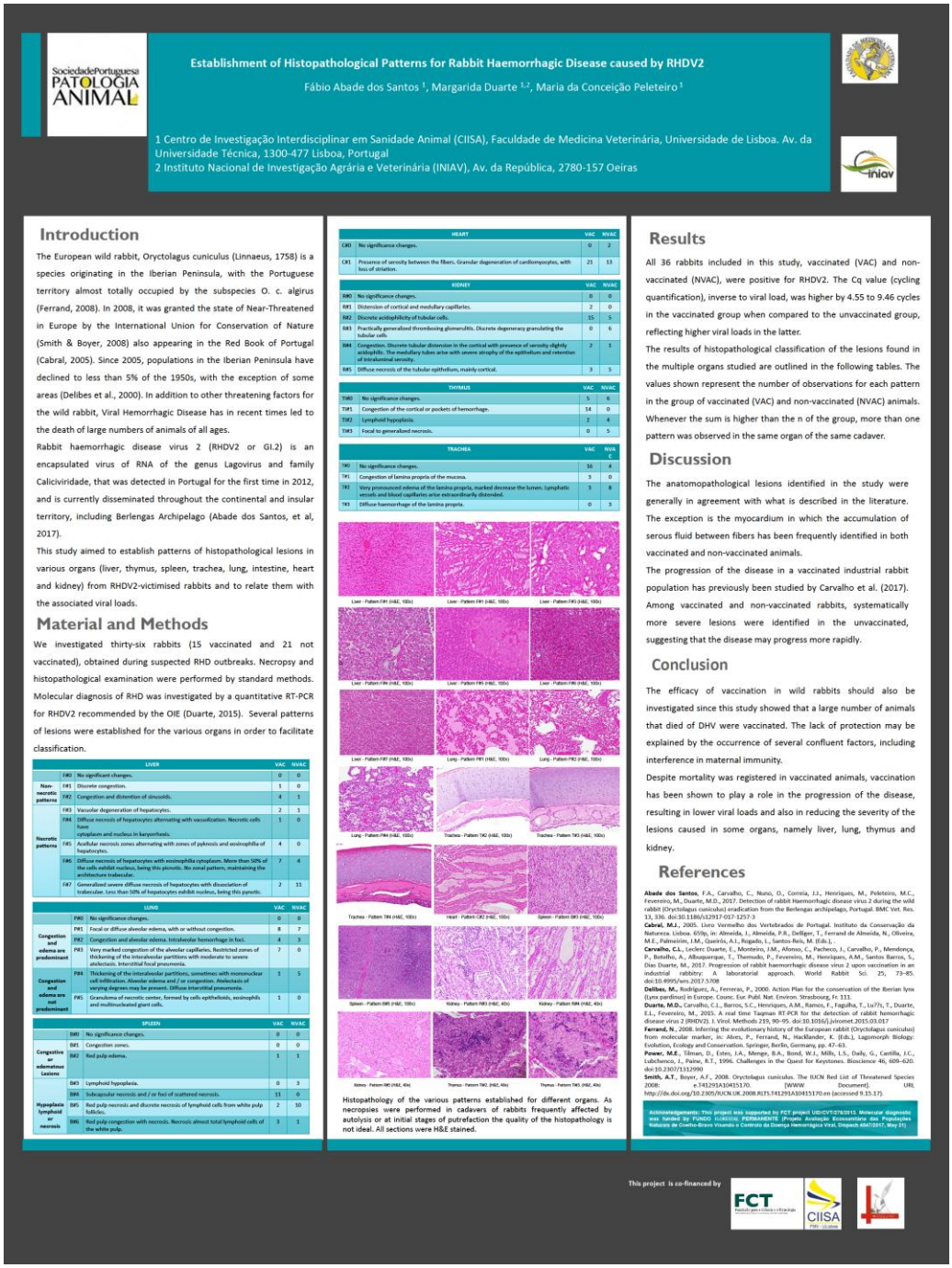

Establishment of Histopathological Patterns for Rabbit Haemorrhagic Disease caused by RHDV2

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Introduction

The European wild rabbit, Oryctolagus cuniculus (Linnaeus, 1758) is a species originating in the Iberian Peninsula, with the Portuguese territory almost totally occupied by the subspecies O. c. algirus (Ferrand, 2008). In 2008, it was granted the state of Near-Threatened in Europe by the International Union for Conservation of Nature (Smith & Boyer, 2008) also appearing in the Red Book of Portugal (Cabral, 2005). Since 2005, populations in the Iberian Peninsula have declined to less than 5% of the 1950s, with the exception of some areas (Delibes et al., 2000). In addition to other threatening factors for the wild rabbit, Viral Hemorrhagic Disease has in recent times led to the death of large numbers of animals of all ages.

Rabbit haemorrhagic disease virus 2 (RHDV2 or GI.2) is an encapsulated virus of RNA of the genus Lagovirus and family Caliciviridade, that was detected in Portugal for the first time in 2012, and is currently disseminated throughout the continental and insular territory, including Berlengas Archipelago (Abade dos Santos, et al, 2017).

This study aimed to establish patterns of histopathological lesions in various organs (liver, thymus, spleen, trachea, lung, intestine, heart and kidney) from RHDV2-victimised rabbits and to relate them with the associated viral loads.

Material and Methods

We investigated thirty-six rabbits (15 vaccinated and 21 not vaccinated), obtained during suspected RHD outbreaks. Necropsy and histopathological examination were performed by standard methods. Molecular diagnosis of RHD was investigated by a quantitative RT-PCR for RHDV2 recommended by the OIE (Duarte, 2015). Several patterns of lesions were established for the various organs in order to facilitate classification.

LIVER			VAC	NVAC
Non-necrotic patterns	FAN0	No significant changes.	0	0
	FAN1	Discrete congestion.	1	0
	FAN2	Congestion and distention of sinusoids.	4	1
Necrotic patterns	FAN3	Vacuolar degeneration of hepatocytes.	2	1
	FAN4	Diffuse necrosis of hepatocytes alternating with vacuolization. Necrotic cells have cytoplasm and nucleus in karyorrhexis.	1	0
	FAN5	Acellular necrosis zones alternating with zones of pyknosis and eosinophilia of hepatocytes.	4	0
	FAN6	Diffuse necrosis of hepatocytes with eosinophilia cytoplasm. More than 50% of the cells exhibit nucleus, being this picnotic. No zonal pattern, maintaining the architecture trabecular.	7	4
	FAN7	Generalized severe diffuse necrosis of hepatocytes with dissociation of trabeculae. Less than 50% of hepatocytes exhibit nucleus, being this pynotic.	2	11

LUNG			VAC	NVAC
	PAN0	No significant changes.	0	0
Congestion and edema are predominant	PAN1	Focal or diffuse alveolar edema, with or without congestion.	8	7
	PAN2	Congestion and alveolar edema. Intralveolar hemorrhage in foci.	4	3
	PAN3	Very marked congestion of the alveolar capillaries. Restricted zones of thickening of the interalveolar partitions with moderate to severe atelectasis. Interstitial focal pneumonia.	7	0
Congestion and edema are not predominant	PAN4	Thickening of the interalveolar partitions, sometimes with mononuclear cell infiltration. Alveolar edema and / or congestion. Atelectasis of varying degrees may be present. Diffuse interstitial pneumonia.	1	5
	PAN5	Granuloma of necrotic center, formed by cells epithelioids, eosinophils and multinucleated giant cells.	1	0

SPLEEN			VAC	NVAC
	BAN0	No significance changes.	0	0
Congestive or edematous Lesions	BAN1	Congestion zones.	0	0
	BAN2	Red pulp edema.	1	1
Hypoplasia lymphoid or necrosis	BAN3	Lymphoid hypoplasia.	0	3
	BAN4	Subcapsular necrosis and / or foci of scattered necrosis.	11	0
	BAN5	Red pulp necrosis and discrete necrosis of lymphoid cells from white pulp follicles.	2	10
	BAN6	Red pulp congestion with necrosis. Necrosis almost total lymphoid cells of the white pulp.	3	1

HEART			VAC	NVAC
CAN0	No significance changes.		0	2
CAN1	Presence of serosity between the fibers. Granular degeneration of cardiomyocytes, with loss of striation.		21	13

KIDNEY			VAC	NVAC
RAN0	No significance changes.		0	0
RAN1	Distension of cortical and medullary capillaries.		2	0
RAN2	Discrete acidophilicity of tubular cells.		15	5
RAN3	Practically generalized thrombosing glomerulitis. Discrete degeneracy granulating the tubular cells		0	6
RAN4	Congestion. Discrete tubular distension in the cortical with presence of serosity slightly acidophilic. The medullary tubes arise with severe atrophy of the epithelium and retention of intraluminal serosity.		2	1
RAN5	Diffuse necrosis of the tubular epithelium, mainly cortical.		3	5

THYMUS			VAC	NVAC
TAN0	No significance changes.		5	6
TAN1	Congestion of the cortical or pockets of hemorrhage.		14	0
TAN2	Lymphoid hypoplasia.		2	4
TAN3	Focal to generalized necrosis.		0	5

TRACHEA			VAC	NVAC
TAN0	No significance changes.		16	4
TAN1	Congestion of lamina propria of the mucosa.		3	0
TAN2	Very pronounced edema of the lamina propria, marked decrease the lumen. Lymphatic vessels and blood capillaries arise extraordinarily distended.		3	8
TAN3	Diffuse haemorrhage of the lamina propria.		0	3

Histopathology of the various patterns established for different organs. As necropsies were performed in cadavers of rabbits frequently affected by autolysis or at initial stages of putrefaction the quality of the histopathology is not ideal. All sections were H&E stained.

Results

All 36 rabbits included in this study, vaccinated (VAC) and non-vaccinated (NVAC), were positive for RHDV2. The Cq value (cycling quantification), inverse to viral load, was higher by 4.55 to 9.46 cycles in the vaccinated group when compared to the unvaccinated group, reflecting higher viral loads in the latter.

The results of histopathological classification of the lesions found in the multiple organs studied are outlined in the following tables. The values shown represent the number of observations for each pattern in the group of vaccinated (VAC) and non-vaccinated (NVAC) animals. Whenever the sum is higher than the n of the group, more than one pattern was observed in the same organ of the same cadaver.

Discussion

The anatomopathological lesions identified in the study were generally in agreement with what is described in the literature. The exception is the myocardium in which the accumulation of serous fluid between fibers has been frequently identified in both vaccinated and non-vaccinated animals.

The progression of the disease in a vaccinated industrial rabbit population has previously been studied by Carvalho et al. (2017). Among vaccinated and non-vaccinated rabbits, systematically more severe lesions were identified in the unvaccinated, suggesting that the disease may progress more rapidly.

Conclusion

The efficacy of vaccination in wild rabbits should also be investigated since this study showed that a large number of animals that died of DHV were vaccinated. The lack of protection may be explained by the occurrence of several confluent factors, including interference in maternal immunity.

Despite mortality was registered in vaccinated animals, vaccination has been shown to play a role in the progression of the disease, resulting in lower viral loads and also in reducing the severity of the lesions caused in some organs, namely liver, lung, thymus and kidney.

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