Wlasciciel / Owner	**Kus, Joanna**	Numer identyfikacyjny / Order ID	**70340628**
Zwierze / Animal	**Dog Horus – Phoenix Paradise Tromelin**	Numer laboratoryjny / Laboratory No.	**HI292435/04.06.2014**
Material	**tissue material, tissue material**		

Test	Wynik / Result	Sign	Wartosc referencyjna / Reference value	Jednostka / Unit	Uwagi / Remark
Pathologisch-histologische Untersuchung					1)

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SUBMITTED MATERIAL:
Nine vials.
1.) "Mitral valve":
Circular specimen with valve and adjacent part of myocardium.
At the valve leafelets there are multiple 1-2 mm nodular, beige thickenings.
No macroscopic endocardial lesions; endocardium smooth.
2.) "left atrium":
50 x 35 x approx. 3 mm wall thickness piece of tissue with overall segmental
circular sample preparation. Smooth unremarkable endometrial surface.
3.) "left ventriculum":
40 x 14 x wall thickness approx. 10 mm piece of tissue.
4.) "aorta":
40 x 37 x 28 mm circular specimen comprising the entire circumferential
aortic valve. There are subvalvular multiple, mostly circumferential oriented
beige, irregular to linear thickenings of the endocardial/subendocardial
tissue.
5.) "septum":
28 x 20 mm wall thickness 12 mm piece of tissue with an irregular, beige-pale
myocardial area on cut section.
6.) "P. left ventriculus":
30 x 13 wall thickness 13-17 mm piece of tissue including parts of papillary
muscle.
7.) "liver": 60  x 30 x 40 mm piece; central tissue parts not-well fixed.
8.) "lung": 60 x 42 x 40 mm partial sample with foamy fluid oozing
upon sectioning.
9.) "kidney": 20 x 45 x 45 mm partial kidney sample; inconspicuous cut section
The capsule detached easily.
HISTOLOGY:
Ad 1.) Mitral valve:

- valve leaflet:
Nodular expansion by spindeloid to stellate mesenchymal cells within variably
abundant myxomatous matrix. Scattered throughout few lymphocytes
and neutrophils.

- subendocardial region, at the level of valve insertions:
Mild to moderate lipoid-type infiltration, areas with lipoid deposits and
occasional vacuolar myofibre degeneration.
2.) left atrium:
Multifocal small clusters of lipoid-type infiltration and lipoid deposits.
Multifocal mild vacuolar myofibre degeneration.
3.) left ventriculus:
Multifocal areas with moderate lipoid-type infiltration and deposits.
Multifocal myofibre degeneration, vacuolar, and areas with mild fibrosis.
Mild fibre attenuation.
4.) aorta:
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Subaortic valvular endocardial and subendocardial fibrosis with mixomatous matrix corresponding with the macroscopically observed subaortic ridges.
At the base of the fibrosis at the interface to the myocardium with mild neutrophilic and lymphohistiocytic infiltration, perivascular.
Within the adjacent/subjacent myocardial tissue focal area of necrosis and degeneration with mixed, predominantly neutrophilic-granulocytic inflammatory demarcation and deposition of fine granular, basophilic calcium-type material.
In addition similar type and severity myocardial changes as reported for # 3.

Your sample was examined by: **Dr. Martin Busch**
Dipl. ACVP
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Histopathology examination 1)

5.) septum:
Similar changes as # 3.), but with moderate fibrosis (confirmed by Elastica van Giesson staining), fibre attenuation, and mild lymphohistiocytic infiltration.
6.) P. left ventriculus:
Similar to # 3.), overall low grade.
7.) liver:
Periacinar to intermediate accentuated sinusoidal distension and congestion. Concurrent attenuation of hepatic cords and mild to moderate hepatocytic vacuolar degenerative changes.
Iron stain: rare staining in scattered Kupffer cells.
Elastica-van-Gieson stain: minimal periacinar collagen deposition perisinusoidal.
8.) lung:
Mild to moderate hyperemia/congestion with, scattered throughout alveoli, alveolar macrophages and erythrocytes. The macrophages exhibit occasional erythrocytosis.
Iron stain: scattered hemosiderophages, intraalveolar and interstitial.
9.) kidney:
Mild to moderate hyperemia. Tubular epithelium with mild to moderate cytoplasmic vacuolation (cannot rule out fixation artifact).
DIAGNOSIS:
Ad 1.) Heart, mitral valve:
Endocardiosis (artrioventricular valvular disease), subendocardial myofibre degeneration, lipid infiltration, and lipid deposits.
Ad 4.) Heart, aortic region:
Subaortic endocardial and subendocardial fibrosis (compatible with subaortic stenosis). Corresponding focal myocardial degeneration and necrosis with demarcating inflammation and dystrophic mineralization.
Ad 2.), 3.), 4.), 5.), 6.) Heart, multiple samples (see above):
Multifocal mild to moderate myofibre degeneration, lipid infiltration and lipid deposits, as well as multifocal mild to moderate fibrosis and fibre attenuation.
Ad 7.) liver:
Moderate to severe, periacinar to intermediate sinus distension and hepatic cord attenuation with hepatocellular degeneration and minimal fibrosis.
Ad 8.) lung:
Hyperemia and congestion with alveolar macrophage activation, occasional erythrophagia and hemosiderosis.
Ad 9.) kidney:
Mild to moderate tubular cytoplasmic vacuolation (cannot rule out fixation artifact).
COMMENT:
Histological findings are, as already clinical suspected, indicative of subaortic stenosis, which is among the more commonly seen cardiac anomalies in dogs. A frequent association with left atrioventricular valvular disease is reported in various dog breeds.
In addition findings throughout the examined samples suggest an early stage

of dilatative cardiomyopathy. The focal myocardial necrosis, adjacent to the aortic/subaortic lesion is most likely secondary and may reflect myocardial damage due to local ischemia. Conclusive arterial wall alteration were not noted though.
With regard to evaluation of the degree of valvular insufficiency and cardial dilation in vitam, post mortem gross findings and measurements need to be correlated.
Based on the young age of the dog and the reported findings in relatives of this dog in combination with the Doberman breed underlying genetic and breed association is to be considered.
The findings in the hepatic and pulmonary tissue indicate passive congestion, due to heart failure/insufficiency. Based on the low degree of fibrosis in the liver the congestion may have been a more recent sequela.
Please note that no right atrial, valvular, or free wall ventricular tissue was submitted and therefore evaluation was limited to the left heart.
Please let me know via e mail, whether you're still planning on publication with histo images.

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Dipl. ACVP
(e-mail-Adresse: martin-busch@idexx.com)

Uwagi / Note:
1)
Histopathology and cytology results can be discussed
Monday to Friday, 11:00 h to 16:00 h.

***** Wynik koncowy / Final report ***** validated by Dr. U.-J. Dumke **(Specialist vet, Histopathology)**
our printed reports are valid without signature.
Jesli ZAMIAST WYNIKU pojawi sie informacja "Quantity not sufficient" bedzie to znaczyc ze otrzymalismy za malo materialu do badania.
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