循環器と内分泌

中村 健介
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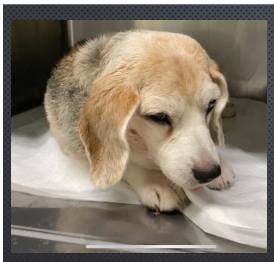


CHAP-
TER 3
Hypothyroidism
J. Catharine Scott-Moncrieff

犬

An echocardiographic and electrocardiographic study of cardiovascular function in hypothyroid dogs

David L. Panciera, DVM, MS

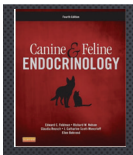
JAVMA, Vol 205, No. 7, October 1, 1994

Results

The mean age of the dogs was 7.4 ± 2.3 years. Mean weight was 25.3 ± 10.1 kg before and 23.6 ± 8.9 kg after levothyroxine supplementation. Breeds represented included Golden Retriever (n = 3), mixed (2), Alaskan Malamute (1), Chow Chow (1), West Highland White Terrier (1), Cairn Terrier (1), Labrador Retriever (1), and Shetland Sheepdog (1). The duration of clinical signs of hypothyroid-

Table 1—Echocardiographic measurements before and after levothyroxine supplementation in hypothyroid dogs

	Before treatment		After treatment	
	Median	Range	Median	Range
RVID	0.65	0.6 to 1.0	0.7	0.6 to 1.0
IVS (dias)	0.8	0.7 to 1.1	0.9	0.6 to 1.0
IVS (syst)	1.0	0.8 to 1.3	1.1	0.8 to 1.5
IVS (th fr; %)	14	9 to 43	25	1 to 75
LVPW (dias)	0.9	0.6 to 1.2	0.9	0.7 to 1.2
LVPW (syst)	1.2	0.8 to 1.35	1.2	0.8 to 1.55
LVPW (th fr; %)	33	9 to 44	28	14 to 56
IVS/LVPW	1.0	0.88 to 1.22	0.95	0.67 to 1.13
LVEDD	3.4	2.1 to 4.4	3.1	2.1 to 4.6
LVESD	2.4*	1.4 to 3.6	2.0*	1.4 to 3.6
FS (%)	29*	18 to 35	33*	20 to 45
EPSS	0.5	0.2 to 0.9	0.3	0.2 to 0.7
Aorta	2.2	1.4 to 2.9	2.0	1.4 to 3.1
Left atrium	2.0	1.5 to 2.8	2.1	1.4 to 3.1
LA/Ao	0.97	0.84 to 1.23	1.0	0.93 to 1.2
PEP (msec)	70*	50 to 90	50*	40 to 80
LVET (msec)	150	110 to 180	160	100 to 170
PEP/LVET	0.44	0.33 to 0.64	0.36	0.24 to 0.52
Vcf (circ/sec)	1.64*	1.14 to 2.67	2.31*	1.28 to 4.40



Cardiovascular Signs

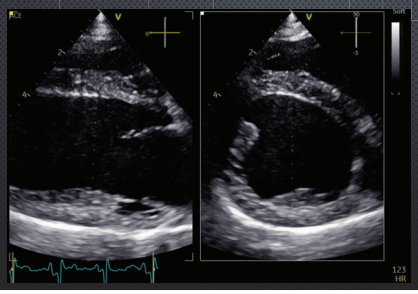
It is important to emphasize that although hypothyroidism can induce echocardiographic changes, thyroid hormone deficiency alone rarely causes heart failure. In most cases heart

甲状腺低下に伴うFS低下は放っておきましょう

FS低下を見たら甲状腺を気にしましょう

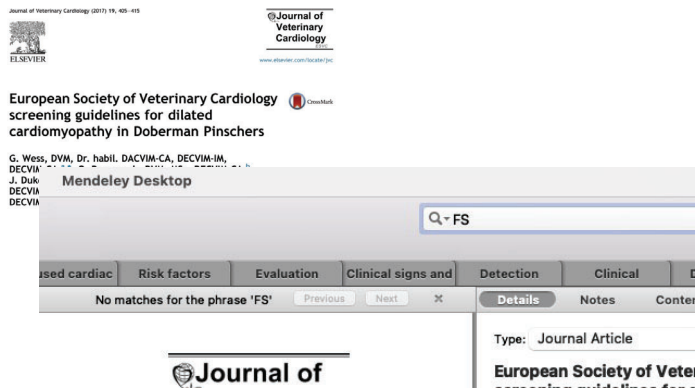
ドーベルマン２歳、雌、31kg

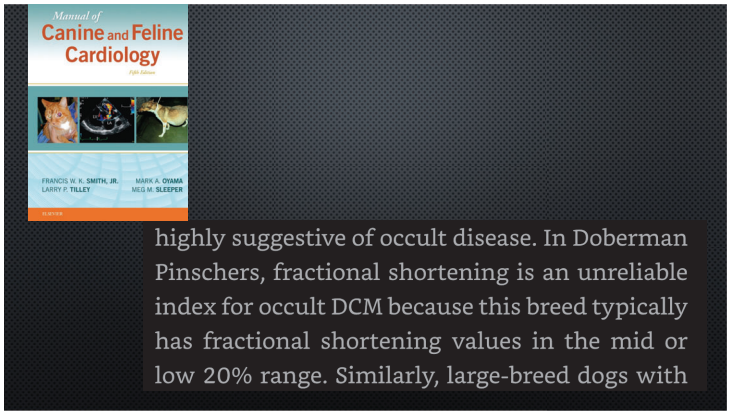
■術前検査でFSが低かったのでDCMを疑って紹介

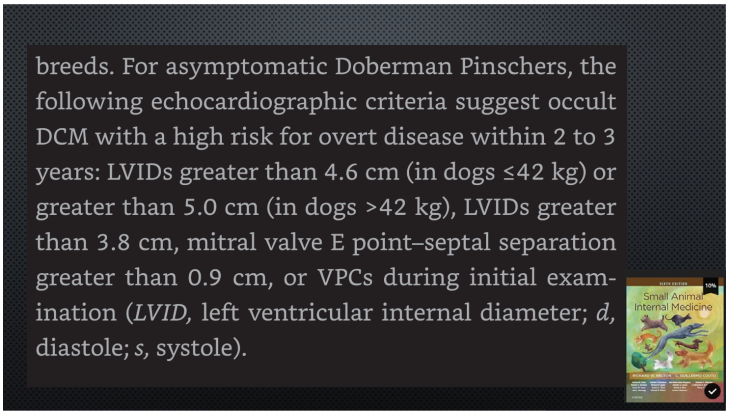


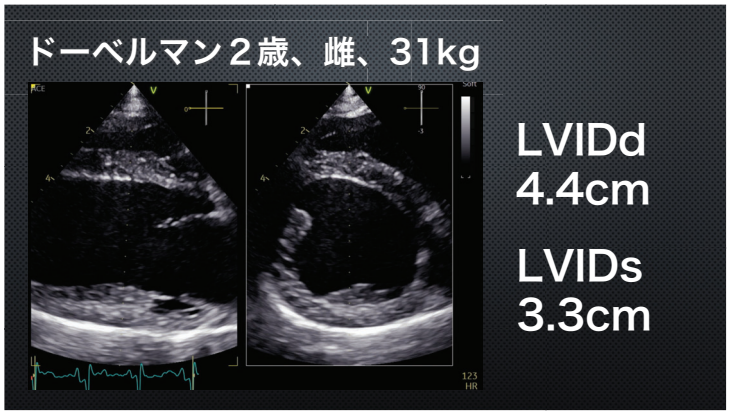
FS 25%

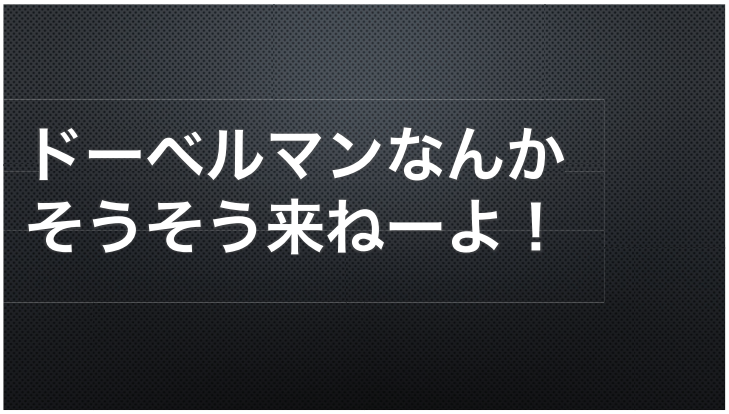
協賛：GEヘルスケアジャパン株式会社、ベーリンガーインゲルハイムアニマルヘルスジャパン株式会社











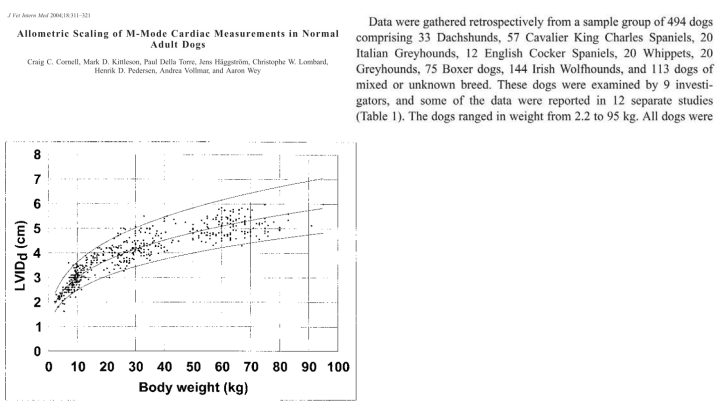


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Table 3. Constants for indexing M-mode variables and calculating prediction intervals.

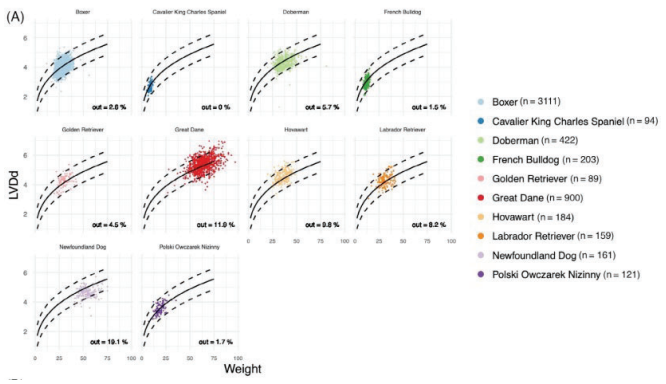
Measurement	97.5 Percentile	95 Percentile	75 Percentile	50 Percentile	25 Percentile	5 Percentile	2.5 Percentile	Exponent
$LVID_d$	1.85	1.73	1.63	1.53	1.43	1.35	1.27	0.294
$LVID_s$	1.26	1.14	1.05	0.95	0.86	0.79	0.71	0.315
LVW_d	0.60	0.53	0.47	0.42	0.37	0.33	0.29	0.232
LVW_s	0.87	0.78	0.71	0.64	0.58	0.53	0.48	0.222
$IVST_d$	0.59	0.52	0.46	0.41	0.36	0.33	0.29	0.241
$IVST_s$	0.79	0.71	0.64	0.58	0.52	0.48	0.43	0.240
Ao	0.96	0.89	0.84	0.78	0.73	0.68	0.63	0.341
LA	0.97	0.90	0.83	0.76	0.70	0.64	0.59	0.345

Table 3. Constants for indexing M-mode variables and calculating prediction intervals.

approximate construction of the prediction intervals of the group *all nonsighthound dogs* (n = 6097)

Variable	97.5 Percentile	95.0 Percentile	75.0 Percentile	50.0 Percentile	25.0 Percentile	5.0 Percentile	2.5 Percentile	Exponent
LVDd	1.63	1.59	1.46	1.38	1.30	1.20	1.17	0.322
LVDs	1.09	1.05	0.94	0.87	0.81	0.72	0.70	0.346
IVSd	0.49	0.47	0.40	0.36	0.33	0.28	0.27	0.289
IVSs	0.68	0.65	0.56	0.51	0.46	0.40	0.38	0.276
LVWd	0.53	0.51	0.44	0.40	0.36	0.31	0.30	0.261
LVWs	0.78	0.75	0.65	0.60	0.55	0.48	0.46	0.247

Abbreviations: IVSd, interventricular septum in diastole; IVSs, interventricular septum in systole; LVDd, left ventricular diameter in diastole; LVDs, left ventricular diameter in systole; LVWd, left ventricular free wall in diastole; LVWs, left ventricular free wall in systole.



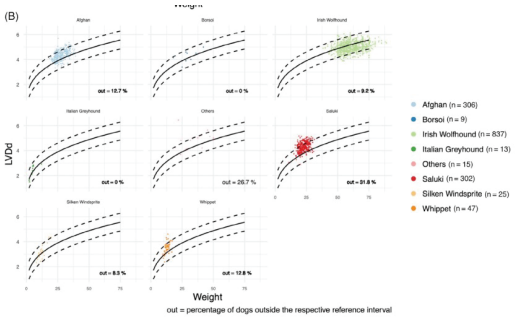


FIGURE 1 Scatter plots with superimposed regression lines (solid lines) and 95% prediction intervals (broken lines) by breed for the LVDd as a function of body weight for breeds in the nonsighthound breed group (A) and for breeds in the sighthound group (B). The plots show how observed values fit inside the 95% PIs. LVDd, left ventricular diameter in diastole; PI, prediction interval

STANDARD ARTICLE

Journal of Veterinary Internal Medicine ACVIM

Electrocardiographic and echocardiographic evaluation in dogs with hypothyroidism before and after levothyroxine supplementation: A prospective controlled study

Carlo Guglielmini[1] | Michele Berlanda[1] | Federico Fracassi[2] | Helen Poser[1] | Shani Koren[2] | Marco Baron Toaldo[2]

Variable	Hypothyroid T0 (n = 40)	Control group (n = 20)	*P* value	Hypothyroid T60	*P* value
Electrocardiography					
HR (bpm)	**80 (50–160)**	**100 (80–200)**	**.04**	**120 (67-180)**	**<.001**
P-wave amplitude (mV)	**0.15 (0.05–0.35)**	**0.20 (0.10-0.40)**	**.002**	**0.20 (0.10-0.45)**	**.004**
P-wave duration (ms)	40 (30-50)	40 (30-50)	.91	40 (0.15-50)	.09
PQ (ms)	100 (70-140)	100 (40-130)	.98	98 (30-160)	.06
QRS (ms)	60 (30-100)	70 (60-81)	.10	65 (40-90)	.67

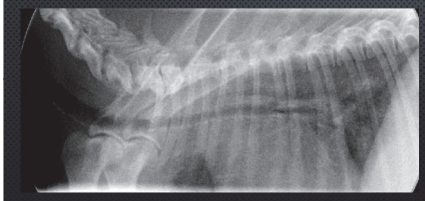
甲状腺低下に伴うHR低下は放っておきましょう

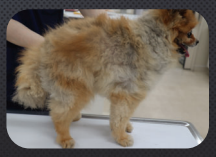
協賛：GEヘルスケアジャパン株式会社、ベーリンガーインゲルハイムアニマルヘルスジャパン株式会社

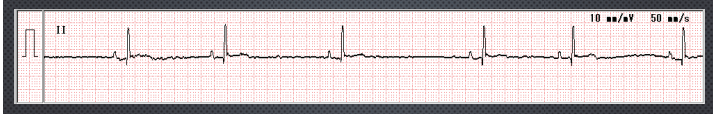
ポメラニアン、15歳、避妊雌

咳の後に失神する

T 37.5 P 84 R 40 心雑音III/VI







診断

➢失神の原因

①咳嗽失神

②不整脈

~~③器質的心疾患(重度MR, PH)~~

➢方針

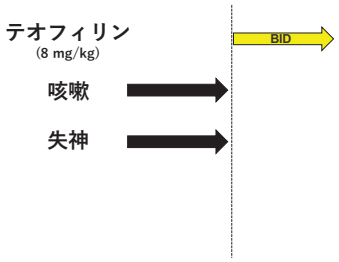
✓ 咳嗽治療強化＋心拍数増加：テオフィリン追加

✓ 徐脈, 低体温：遊離T4, TSH外注

✓ Holter心電図の検討

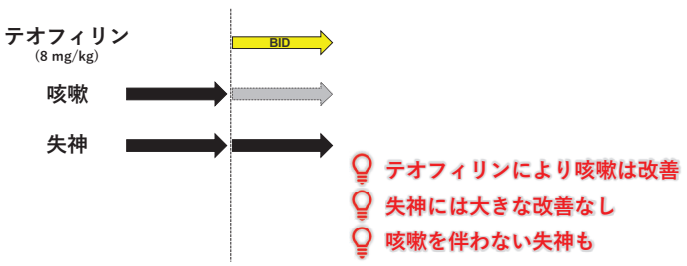
経過

第1病日



経過

第1病日



経過　第202病日

➢外注検査結果

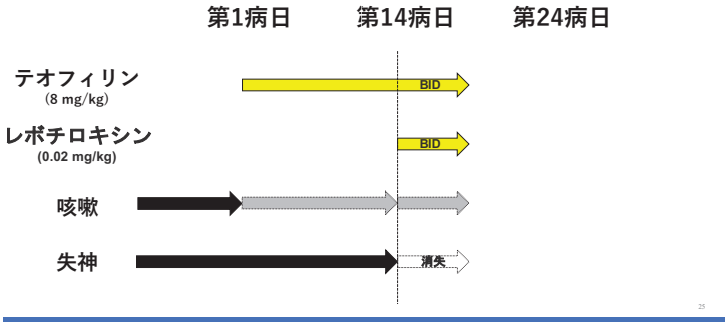
遊離T4：<3.86 pmol/L　(基準範囲 7.7-47.6)

TSH　：　0.65 ng/mL　(基準範囲 0.05-0.42)

“甲状腺機能低下症”

協賛：GEヘルスケアジャパン株式会社、ベーリンガーインゲルハイムアニマルヘルスジャパン株式会社

経過



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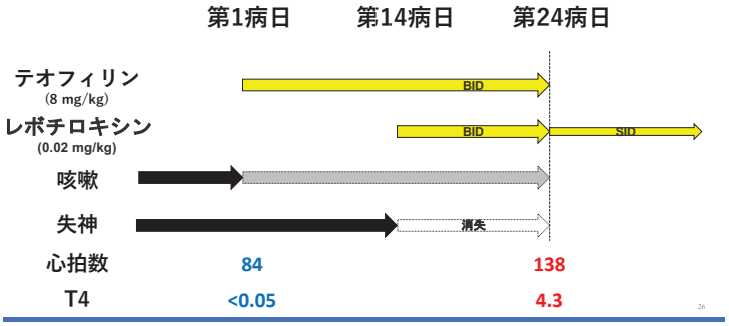

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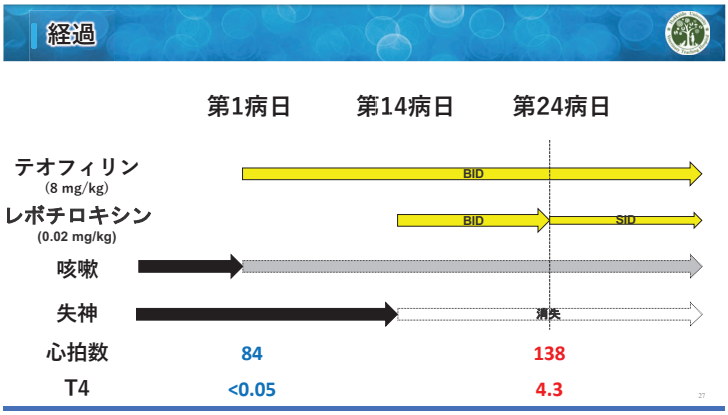
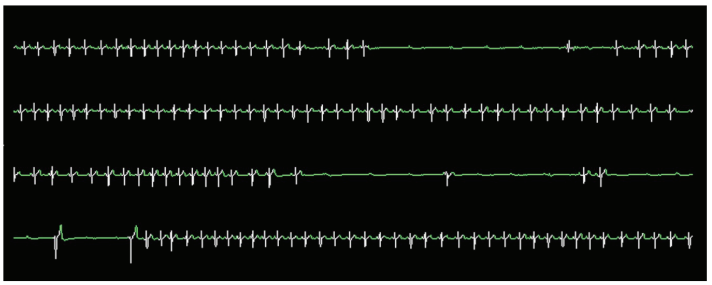




Journal of Veterinary Cardiology (2016) 18, 199–212
ELSEVIER
Journal of Veterinary Cardiology
www.elsevier.com/locate/jvc

Outcome and survival in canine sick sinus syndrome and sinus node dysfunction: 93 cases (2002–2014)

J.L. Ward, DVM , T.C. DeFrancesco, DVM , S.P. Tou, DVM , C.E. Atkins, DVM , E.H. Griffith, PhD , B.W. Keene, DVM, MS*

43%で迷走神経緊張に影響を与えうる基礎疾患

眼疾患(n=16), 呼吸器疾患(n=9), 甲状腺機能低下症(n=7), 神経疾患(n=6), 消化器疾患(n=4), 褐色細胞腫疑い(n=2)

甲状腺低下に伴うHR低下は放っておきましょう

HR低下を伴う失神症例では甲状腺を気にしましょう

協賛：GEヘルスケアジャパン株式会社、ベーリンガーインゲルハイムアニマルヘルスジャパン株式会社

CHAPTER 10

Canine Hyperadrenocorticism

Ellen N. Behrend

TABLE 10-4

Clinical Manifestations of Canine Hyperadrenocorticism±

COMMON	LESS COMMON	UNCOMMON
Polyuria/polydipsia	Lethargy	Bruising
Polyphagia	Hyperpigmentation	Thromboemboli
Panting	Comedones	Ligament rupture
Abdominal distention	Pyoderma	Facial nerve palsy
Endocrine alopecia	Thin skin	Calcinosis cutis
Hepatomegaly	Poor hair regrowth	Pseudomyotonia
Muscle weakness	Urine dribbling	Testicular atrophy
Muscle wasting	Insulin-resistant diabetes mellitus	Persistent anestrus
Systemic hypertension		

± Categorization of frequency is based on identification at the time of initial presentation.

Modified from Behrend EN, et al.: Diagnosis of spontaneous canine hyperadrenocorticism: 2012 ACVIM consensus statement (Small animal),*J Vet Int Med* 27:1292, 2013.

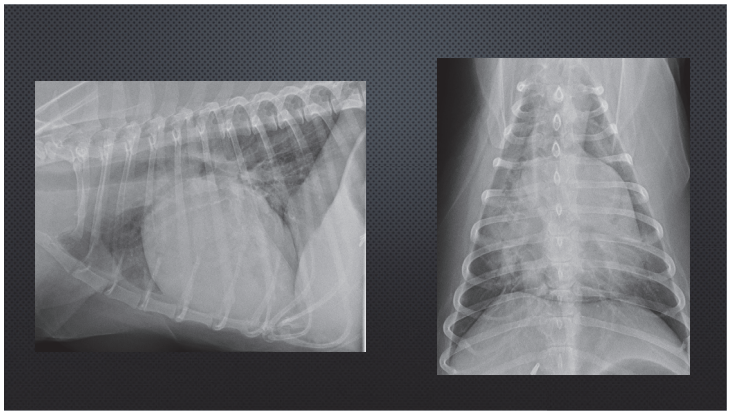
クッシング症候群

胆嚢摘出（粘液嚢腫、膵炎）（６日前）

退院（２日前）

急性呼吸促迫

12歳、避妊雌、9.9 kg



State-of-the-Art-Review

Journal of Veterinary Emergency and Critical Care 19(1) 2009, pp 30–52
doi: 10.1111/j.1476-4431.2009.00388.x

Pulmonary thromboembolism

Robert Goggs, BVSc, DACVECC, MRCVS; Livia Benigni, DVM, DECVDI, MRCVS; Virginia Luis Fuentes, MA VetMB, PhD, DVC, DACVIM, DECVIM-CA, MRCVS and Daniel L. Chan, DVM, DACVECC, DACVN, MRCVS

肺塞栓

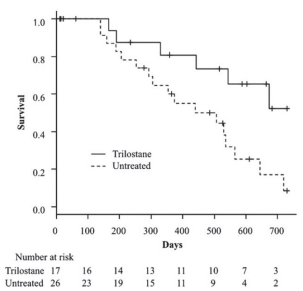
Disease process/ risk factor	Hyper-coagulable state	Vascular flow abnor-malities/ stasis	Endothelial injury/ dysfunction
Corticosteroid administration[e4,8,9]	√		
Diabetes mellitus[10]	√		
Dirofilariasis[11,12]	√		√
DIC[e3,4,12] (secondary to other disease)	√		
Endocarditis[3] (tricuspid/ pulmonic)	√		√
Feline infectious peritonitis[e5]	√		√
Hyperadrenocorticism[3,12–14]	√		
Hypothyroidism[10]	√		
IMHA[e3,4,15,16]	√		?
Indwelling venous catheters[e3,4,12]		√	√
Myocardial disease[3,5,8]	√	√	√
Neoplasia[e3–5,8,9]	√	√	
Pancreatitis[e4,5,9]	√		√
Protein-losing enteropathy[e4]	√		
Renal amyloidosis/ PLN[e3,4,10,14,17–19]	√		
Sepsis[e3,4,8,9]	√		√
Surgery[20]	√	√	√
Trauma[e21]		√	√

Standard Article

J Vet Intern Med 2017;31:22–28

Comparison of Survival Times for Dogs with Pituitary-Dependent Hyperadrenocorticism in a Primary-Care Hospital: Treated with Trilostane versus Untreated

N. Nagata, K. Kojima, and M. Yuki



	Trilostane (n=6)	Untreated (n=17)
死因		
呼吸不全	1	4
糖尿病	1	
粘液嚢腫	1	
CKD	1	
腫瘍	1	2
IMHA		1
IBD		1
神経疾患		2
心疾患		1
膵炎		1
不明	1	5

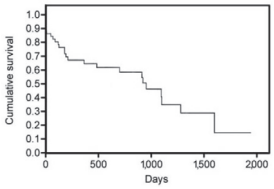
Adrenalectomy in dogs with adrenal gland tumors: 52 cases (2002–2008)

Federico Massari, DVM; Stefano Nicoli, DVM; Giorgio Romanelli, DVM; Paolo Buracco, DVM; Eric Zini, DVM, PhD

腺腫25、腺癌18、
褐色細胞腫7、骨髄脂肪腫2

(*J Am Vet Med Assoc* 2011;239:216–221)

10日以内に7例死亡（13.5%）



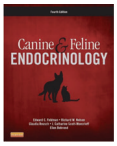
原因の判明した5例のうち3例（皮質腫瘍）で

肺塞栓PTE

協賛：GEヘルスケアジャパン株式会社、ベーリンガーインゲルハイムアニマルヘルスジャパン株式会社

Preoperative Evaluation and Management

Cortisol-secreting AT are challenging to manage following adrenalectomy, in part, because of concurrent immunosuppression, impaired wound healing, systemic hypertension, and a hypercoagulative state; frequent tumoral infiltration into surrounding blood vessels and soft tissues; potential postoperative development of pancreatitis (especially with a right-sided adrenal mass); and existence of hypoadrenocorticism following removal of the mass. The most worrisome complication of adrenalectomy is thromboembolism, which typically develops during or within 24 hours of surgery and carries a high mortality rate (see Postoperative Complications and Survival). Several steps may help minimize this complication. Medical control of the HAC prior to surgery for 3 to 4 weeks can reverse the metabolic derangements and minimize many of the complications associated with surgical removal of a cortisol-secreting AT. Because the treatment is expected to be short-term, tril-



Anticoagulant Prophylaxis Markedly Reduces Thromboembolic Complications in Cushing's Syndrome

MARCO BOSCARO, NICOLETTA SONINO, ALESSANDRO SCARDA, LUISA BARZON, FRANCESCO FALLO, MARIA T. SARTORI, GIOVANNI M. PATRASSI, AND ANTONIO GIROLAMI

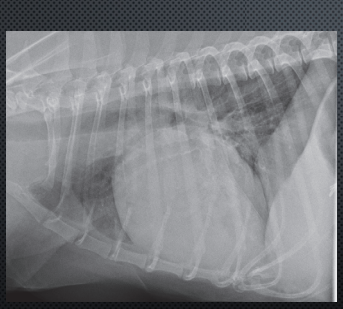
Department of Internal Medicine (M.B.), Division of Endocrinology, University of Ancona, 60100 Ancona, Italy; and Department of Medical and Surgical Sciences, Division of Endocrinology (N.S., A.S., L.B., F.F.), and Second Chair of Medicine (M.T.S., G.M.P., A.G.), University of Padova, 35128 Padova, Italy

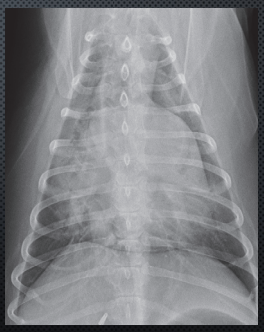
(J Clin Endocrinol Metab 87: 3662-3666, 2002)

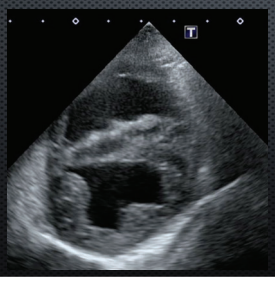
副腎or下垂体切除を行ったcushing患者のPTE発症率

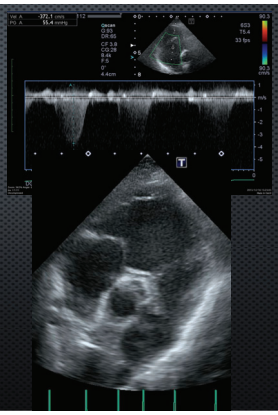
Group 1 術後ヘパリンなし	Group 2 あり
発症：15例（20%） 死亡：8例（10.7%）	発症：14例（6%） 死亡：1例（0.4%）

特に周術期は注意が必要です

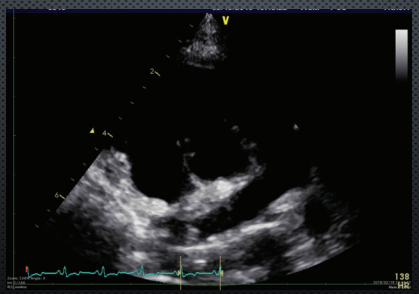








ごくまれに



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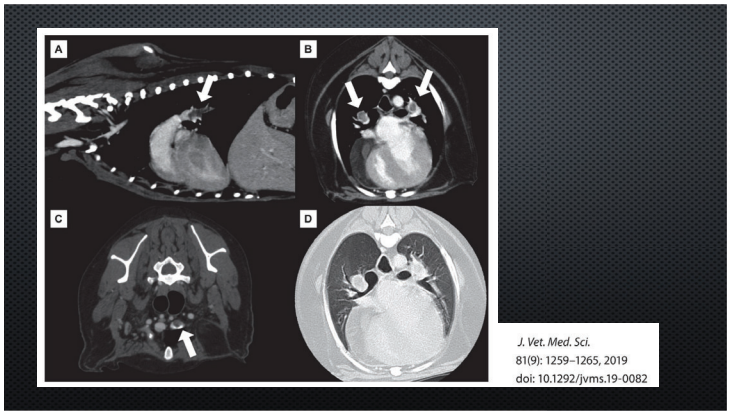


The NEW ENGLAND JOURNAL of MEDICINE
ESTABLISHED IN 1812 JUNE 1, 2006 VOL. 354 NO. 22

Multidetector Computed Tomography for Acute Pulmonary Embolism

Paul D. Stein, M.D., Sarah E. Fowler, Ph.D., Lawrence R. Goodman, M.D., Alexander Gottschalk, M.D., Charles A. Hales, M.D., Russell D. Hull, M.B., B.S., M.Sc., Kenneth V. Leeper, Jr., M.D., John Popovich, Jr., M.D., Deborah A. Quinn, M.D., Thomas A. Sos, M.D., H. Dirk Sostman, M.D., Victor F. Tapson, M.D., Thomas W. Wakefield, M.D., John G. Weg, M.D., and Pamela K. Woodard, M.D., for the PIOPED II Investigators*

CTで肺動脈の血栓がみつかる精度

感度83%　　特異度96%

NOTE
Internal Medicine

Change in right ventricular function in an American cocker spaniel with acute pulmonary thromboembolism

Tomoya MORITA[1], Kensuke NAKAMURA[2]*, Tatsuyuki OSUGA[2], Kiwamu HANAZONO[2], Keitaro MORISHITA[2] and Mitsuyoshi TAKIGUCHI[1]

J. Vet. Med. Sci.
81(9): 1259–1265, 2019
doi: 10.1292/jvms.19-0082

Table 1. Echocardiographic variables in present case on days 1 and 9

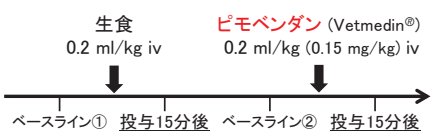
Variables	Day 1	Day 9	Reference interval [13, 14]
LVIDd (mm)	22.6	25.2	
RVIDd (mm)	15.1	8.4	
RV/LV	1.17	0.67	
RVWTd (mm)	3.4	4.4	
PA/Ao	1.24	1.15	0.93 ± 0.09
Transmitral E velocity (m/sec)	0.55	0.57	
Transmitral A velocity (m/sec)	0.69	0.9	
Transmitral E/A	0.8	0.6	
TR velocity (m/sec)	4.6	2.9	<3.0
Estimated systolic PAP (mmHg)	93.4	38.2	<41.0
AT (msec)	35	46	93 ± 16
ET (msec)	204	219	
AT/ET	0.17	0.21	0.46 ± 0.06
S'$_{TV}$ (cm/sec)	10.5	16.2	12.8 ± 3.4
TAPSE (mm)	7.9	11.4	13.0 ± 2.4
FAC (%)	24.7	42.8	38.3 ± 6.8
Tei index by TDI	0.62	0.47	0.53 ± 0.05
Free wall longitudinal strain (%)	−7.3	−18.4	−19.0 ± 2.6
Septal longitudinal strain (%)	−6.0	−13.4	−15.7 ± 2.0
RV-SD6 (msec)	83.4	18.3	12.9 ± 6.7

肺塞栓における強心・血管拡張薬

- ドブタミン (β作動薬)
  肺塞栓患者において心拍出量↑、肺動脈圧→/↑
  (Jardin F, et al. Crit Care Med 1985)
- ミルリノン、アムリノン (PDEIII阻害剤)
  肺塞栓モデル犬において心拍出量↑、肺動脈圧↓
  (Tanaka H, et al. Clin Exp Pharmacol Physilo 1990)
  (Walfe MW, et al. Chest 1992)
- レボシメンダン (PDEIII阻害 + Ca sensitizer)
  肺塞栓モデル豚において右室後負荷↓、右室収縮能↑
  (Kerbaul F, et al. Crit Care Med 2007)
- ピモベンダン？ (PDEIII阻害 + Ca sensitizer)

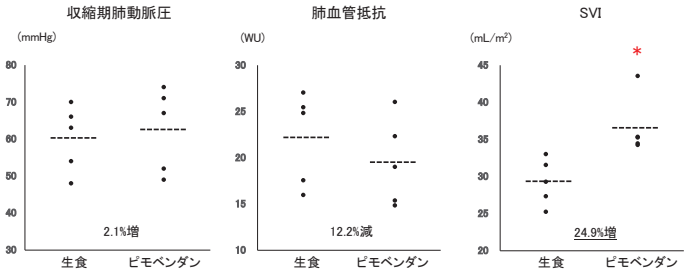
肺塞栓PHモデル犬に対するピモベンダンの効果

- 5頭 (2〜3歳、10.8〜12.8 kg)
  マイクロビーズ (Φ300 μm)を肺動脈内に2日に1回投与 (2〜3か月)
  心臓カテーテルで測定した収縮期肺動脈圧 ≧ 50 mmHgで完成



心臓カテーテル
肺動脈圧、1回拍出量 (SVI)、max dP/dt (右室収縮能指標)
肺血管抵抗、全身血管抵抗

協賛：GEヘルスケアジャパン株式会社、ベーリンガーインゲルハイムアニマルヘルスジャパン株式会社



肺動脈圧を上げず1回拍出量が増加


Journal of Veterinary Cardiology (2020) 32, 16–27

ELSEVIER

Journal of Veterinary Cardiology

www.elsevier.com/locate/jvc

Acute effects of intravenous pimobendan administration in dog models of chronic precapillary pulmonary hypertension

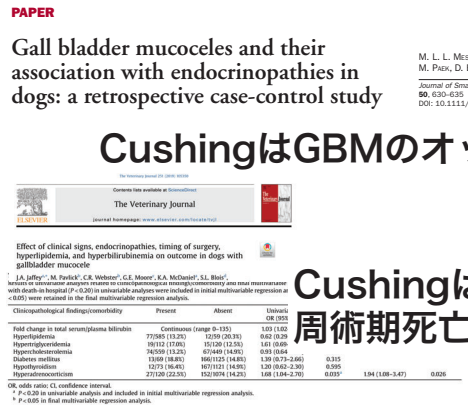
T. Morita, PhD[a,d], K. Nakamura, PhD[a,*], T. Osuga, PhD[b], S. Kawamoto, DVM[c], S. Miki, DVM[b], K. Sasaoka, DVM[b], M. Takiguchi, PhD[b]

frontiers | Frontiers in Veterinary Science

ORIGINAL RESEARCH

Evaluation of Right Ventricular Function and Dyssynchrony in a Dog Model of Acute Pulmonary Embolism: Diagnostic Utility and Reversibility

Tomoya Morita[1], Kensuke Nakamura[1*], Tatsuyuki Osuga[2], Sei Kawamoto[1], Shingo Miki[1] and Mitsuyoshi Takiguchi[1]


PAPER

Gall bladder mucoceles and their association with endocrinopathies in dogs: a retrospective case-control study

M. L. L. Mesich, P. D. Mayhew*, M. Paek, D. E. Holt and D. C. Brown

Journal of Small Animal Practice (2009) 50, 630–635
DOI: 10.1111/j.1748-5827.2009.00811.x

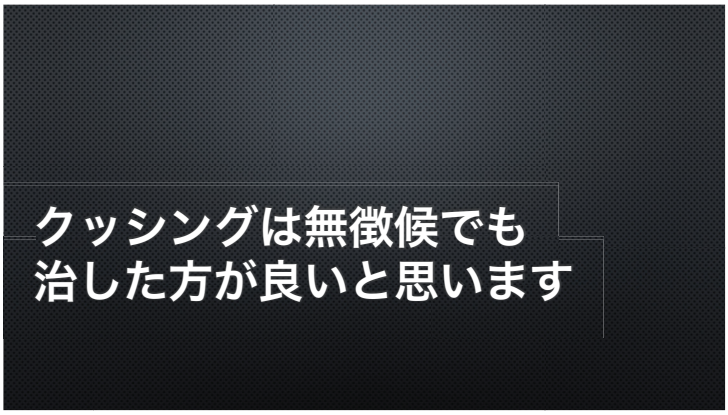
CushingはGBMのオッズ比 29

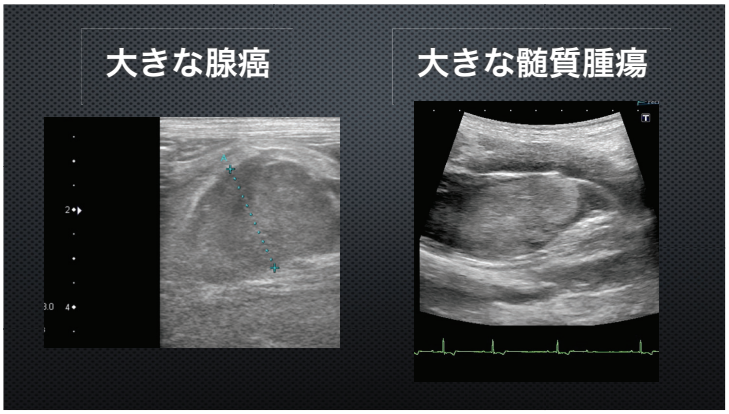
The Veterinary Journal

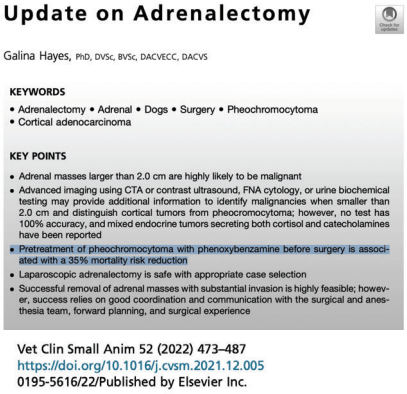
Effect of clinical signs, endocrinopathies, timing of surgery, hyperlipidemia, and hyperbilirubinemia on outcome in dogs with gallbladder mucocele

J.A. Jaffey[a,*], M. Pavlick[b], C.R. Webster[b], G.E. Moore[c], K.A. McDaniel[c], S.L. Blois[c]

CushingはGBMの周術期死亡率を倍にする






Update on Adrenalectomy

Galina Hayes, PhD, DVSc, BVSc, DACVECC, DACVS

KEYWORDS

- Adrenalectomy • Adrenal • Dogs • Surgery • Pheochromocytoma
- Cortical adenocarcinoma

KEY POINTS

- Adrenal masses larger than 2.0 cm are highly likely to be malignant
- Advanced imaging using CTA or contrast ultrasound, FNA cytology, or urine biochemical testing may provide additional information to identify malignancies when smaller than 2.0 cm and distinguish cortical tumors from pheocromocytoma; however, no test has 100% accuracy, and mixed endocrine tumors secreting both cortisol and catecholamines have been reported
- Pretreatment of pheochromocytoma with phenoxybenzamine before surgery is associated with a 35% mortality risk reduction
- Laparoscopic adrenalectomy is safe with appropriate case selection
- Successful removal of adrenal masses with substantial invasion is highly feasible; however, success relies on good coordination and communication with the surgical and anesthesia team, forward planning, and surgical experience

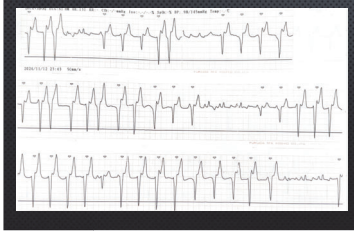
Vet Clin Small Anim 52 (2022) 473–487
https://doi.org/10.1016/j.cvsm.2021.12.005
0195-5616/22/Published by Elsevier Inc.

協賛：GEヘルスケアジャパン株式会社、ベーリンガーインゲルハイムアニマルヘルスジャパン株式会社

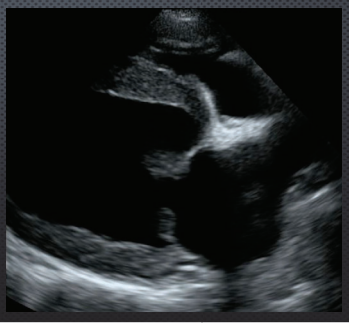
コッカー、12歳、去勢雄、11kg

■昨晩嘔吐してから虚脱、呼吸速迫

■夜間AHにて副腎腫瘤と心室頻拍



血圧179/144



International Journal of Cardiology 249 (2017) 319–323

Contents lists available at ScienceDirect

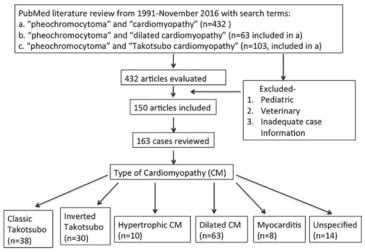
International Journal of Cardiology

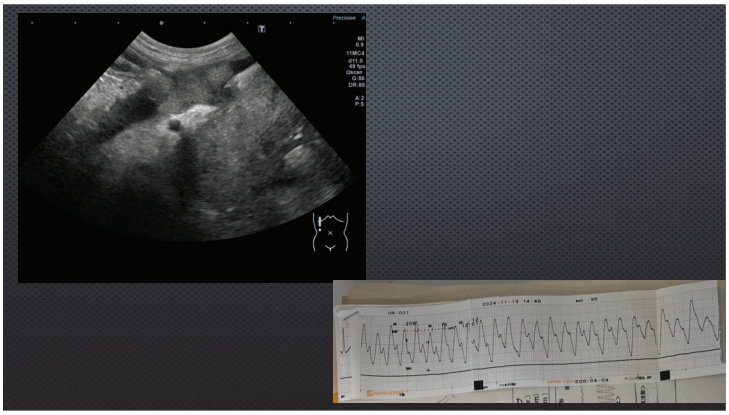
journal homepage: www.elsevier.com/locate/ijcard

Pheochromocytoma as a reversible cause of cardiomyopathy: Analysis and review of the literature

Rong Zhang [a], Deepashree Gupta [b,*], Stewart G. Albert [b]

[a] Department of Internal Medicine, Saint Louis University School of Medicine, United States
[b] Division of Endocrinology, Saint Louis University School of Medicine, United States





Images in cardiovascular medicine

FIC Federazione Italiana di Cardiologia

Catecholamine crisis due to spontaneous ruptured adrenal pheochromocytoma

Chian-Ze Peng[a], Jen-Dar Chen[b,c], Chorng-Kuang How[a,c], David Hung-Tsang Yen[a,c] and Mu-Shun Huang[a,c]

副腎腫瘍を取る前に
過剰なホルモンを是正しましょう

FS低下を見たら
副腎も気にしましょう

協賛：GEヘルスケアジャパン株式会社、ベーリンガーインゲルハイムアニマルヘルスジャパン株式会社

Clinical findings in dogs with incidental adrenal gland lesions determined by ultrasonography: 151 cases (2007–2010)

Audrey K. Cook, BVM&S; Kathy A. Spaulding, DVM; John F Edwards, DVM, PhD

(*J Am Vet Med Assoc* 2014;244:1181–1185)

保有率 4% (151/3748)

悪性 30% (6/20)　　>20 mm
皮質腺癌3, 髄質3

良性 70% (14/20)　<20 mm
腺腫5, 両側過形成1, 両側腺腫1, 正常4

The Journal of Veterinary Medical Science
FULL PAPER
Internal Medicine

Urinary free metanephrines measurement in dogs with adrenal gland diseases using a new simple liquid chromatography tandem mass spectrometry method

Noboru SASAKI[1], Yoshinori IKENAKA[2–4], Yumiko INOUE[1], Takahiro ICHISE[2], Noriyuki NAGATA[1], Mayumi ISHIZUKA[2], Syouta MM NAKAYAMA[2], Kensuke NAKAMURA[1] and Mitsuyoshi TAKIGUCHI[2]*

J. Vet. Med. Sci.
83(4): 648–655, 2021
doi: 10.1292/jvms.20-0508

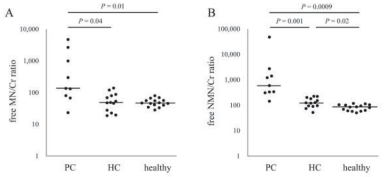


Fig. 6. Urinary free metanephrines to creatinine ratio in clinical samples. (A) Free MN/Cr of PC dogs (n=9) was higher than that of HC (n=13) and healthy dogs (n=15). (B) Free-NMN/Cr of PC dogs was significantly higher than that of HC and healthy dogs. Bars, the median ratio of each group. MN, metanephrine; NMN, normetanephrine; Cr, creatinine; PC, pheochromocytoma; HC, hypercortisolism.

>468
感度　89%
特異度100%

内分泌検査

- 組織中微量金属（肝臓中の銅など）
  Crクロム, Mnマンガン, Fe鉄, Coコバルト, Niニッケル, Cu銅, Zn亜鉛, Asヒ素, Cdカドミウム, Pb鉛
- 尿中メタネフリン・ノルメタネフリン
  Metanephrine, Normetanephrine
- カテコールアミン4種
  Dopamine, 3-MT, Serotonin, Histamine
- 血漿中、尿中および唾液中のステロイドホルモン抱合体3種
  DHEA-Sulfate, E1-3Sulfate, E2-3Gulucronide, E2-3Sulfate, Pregnenolone-Sulfate
- 血漿中、尿中および唾液中のステロイドホルモン3種
  Estrone, Estradiol, Estriol
- 血漿中、尿中および唾液中のステロイドホルモン9種
  17OH-pregnenolone, DHEA, DHT, Etiocholanolone, Pregnenolone, Tetrahydrocortisol (THF), Tetrahydrocorticosterone (THE), Tetrahydro 11-deoxycortisol (THS)
- 血漿（血清）中、尿中および唾液中ステロイドホルモン11種
  11-deoxycorticosterone, 11-deoxycortisol, 17OH-Progesterone, 21-deoxycortisol,Aldosterone, Androstenedione, Corticosterone, Cortisol, Cortisone, Progesterone, Testosterone

協賛：GEヘルスケアジャパン株式会社、ベーリンガーインゲルハイムアニマルヘルスジャパン株式会社