Holter Report (SAMPLE)

XXXXX Vet Hospital

PATIENT DEMOGRAPHICS

Last Name		**Scanned By**	
First Name		**Test Date**	16/05/2025
Date Of Birth	16/11/2022	**Analysis Date**	18/05/2025
Sex	Female	**Hookup Time**	11:01 AM
Species	Canine	**Recording Time**	24 hr 1 min
Breed	Japanese Spitz	**Analysis Time**	24 hr 1 min
Microchip ID	-	**Recorded During Exercise**	No

INDICATION

CONCLUSION

Patient: 2-year-old Female Neutered Japanese Spitz
Presenting Concerns: Seizure episodes and bradycardia

Holter Results:

- Frequent periods of sinus bradycardia and SA blocks, producing an audible arrhythmia
- Ventricular rate generally appropriate, with brief episodes of tachycardia likely related to exertion or excitement (e.g., interaction with another dog during a walk)
- Heart rate range: 38–481 bpm
- Maximum pause: 2.1 seconds (no pauses >2.5 seconds)
- Ventricular ectopy: <1%

While none of these abnormalities are likely to result in clinical signs, progression to Sick Sinus Syndrome should be monitored for. No obvious sinus arrest, AV conduction disturbances, and disturbances in supraventricular and ventricular excitability was evident. No obvious evidence of atrial fibrillation was appreciated. An atropine response test should be considered to differentiate high vagal tone from intrinsic sinus node dysfunction. Anti-arrhythmics are not currently indicated.

Additionally, if the patient becomes clinical from the bradycardia and the SA block remains(exercise intolerance and repeated bouts of syncope with a negative atropine response test) medical therapy could be considered using terbutaline and/or theophyline. Ultimately, a pacemaker could be considered if the case progresses to this point.

Detailed assessment:

A 2-year-old female neutered Japanese Spitz presented with a history of seizure episodes and documented bradycardia. Initial bloodwork revealed a mild hypokalaemia (records not available for review), which has since resolved. The patient was commenced on phenobarbitone therapy and initially responded well. However, the owner independently reduced the dosage. While the patient remained seizure-free initially, the frequency of seizures subsequently increased, prompting a return to the original dosage.

Following a further escalation of seizure activity, the patient was presented to an emergency centre, where the phenobarbitone dose was increased again and levetiracetam (Keppra) was added to the therapeutic regimen.

Neurological Evaluation and Recommendations:

Given the patient's history, it is critical to first exclude extracranial causes of seizures. This should include:

- Full haematology and biochemistry
- Pre- and post-prandial bile acids
- Thyroid function testing
- Systemic blood pressure measurement

While a witnessed event in-hospital supports a diagnosis of seizure activity rather than syncope, differentiation between the two remains important—particularly in light of concurrent cardiac abnormalities.If all extracranial causes are excluded, advanced neurodiagnostics are recommended:

- MRI or CT of the brain, coupled with CSF analysis, to investigate for structural, inflammatory, or infectious intracranial disease

Although the age and breed are consistent with a diagnosis of idiopathic epilepsy, further investigation is advisable to confirm this diagnosis. If the client declines advanced diagnostics, consideration can be given to escalating antiepileptic therapy with:

- Imepitoin (Pexion)
- Potassium bromide (KBr)

Cardiac Evaluation and Recommendations:

The presence of bradycardia with sinoatrial (SA) blocks warrants further investigation. A key next step is the atropine response test, performed under ECG monitoring, to distinguish:

- High vagal tone vs.
- Intrinsic sinus node dysfunction

If the test suggests vagal-mediated bradycardia, it is important to investigate the underlying source of increased vagal tone, including:

Report signed by:

- Neurological
- Gastrointestinal
- Respiratory
- Ophthalmological causes

This workup is especially relevant given the concurrent seizure activity, which may be contributing to autonomic disturbances.

If there is no response to atropine, further investigation should include:
- Echocardiography
- Thoracic radiographs
- Heartworm testing
- Review of any medications (including phenobarbitone) that may depress heart rate—note that phenobarbitone has been shown to reduce heart rate in human patients, and serum drug levels should be reassessed

Should bradycardia persist without an identifiable cause, and if clinical signs such as exercise intolerance or collapse suggest a syncopal rather than epileptic origin, treatment options include:

- Medical management with terbutaline or theophylline
- Permanent pacemaker implantation in more advanced or refractory cases

Conclusion:

This patient presents a diagnostic challenge involving overlapping neurological and cardiac signs. At this time, I recommend a broader medical work-up involving an internal medicine specialist to fully evaluate both seizure control and the significance of the cardiac abnormalities.

Please feel free to reach out if further assistance or clarification is required.

Kind regards,

HEART RATE DATA

Total Beats	81921	**Min HR**	25 BPM at 7:43:40 AM
Avg HR	69 BPM	**Max HR**	481 BPM at 5:37:04 PM
Brady Duration	00:11:02 (0.77%)	**Tachy Duration**	00:30:56 (2.15%)

HEART RATE VARIABILITY

ASDNN 5	159.6 msec	**SDNN**	247.0 msec
SDANN 5	229.4 msec	**RMSSD**	327.8 msec

VENTRICULAR

Total VE Beats	51 (0.1%)	**Triplets**	0 Events
Total VE Rhythm	0	**Couplets**	1 Events
- Beats	0	**Single/Interp PVC**	14/6
- Longest	0 Beats at 11:01:06 AM	**R on T**	7
- Fastest	0 BPM at 11:01:06 AM	**Single/Late VE**	22/0
		Bigeminy/Trigeminy	0/0 Beats

SUPRAVENTRICULAR

Total SVE Beats	24618 (30.1%)	**Couplets**	2821 Events
Total SVE Rhythm	2417	**Pause/Late**	182/3593
- Beats	12747	**Longest R-R**	2.0 sec at 7:37:18 AM
- Longest	187 Beats at 5:36:37 PM	**Single PAC**	2232
- Fastest	245 BPM at 5:35:51 PM	**Bigeminy/Trigeminy**	68/336 Beats

ATRIAL FIBRILLATION

Beats	30	**Events**	1
Total Duration	00:00:32 (0.04%)	**Longest Duration**	00:00:32 (0.04%)
Avg HR	57 BPM		

RECORDING UNREADABILITY

Total Duration	04:14:04 (17.63%)	**Shortest**	00:00:00:00 at 8:31:55 PM
Episode	622	**Longest**	00:50:52:5052 at 5:44:02 PM

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Holter Report

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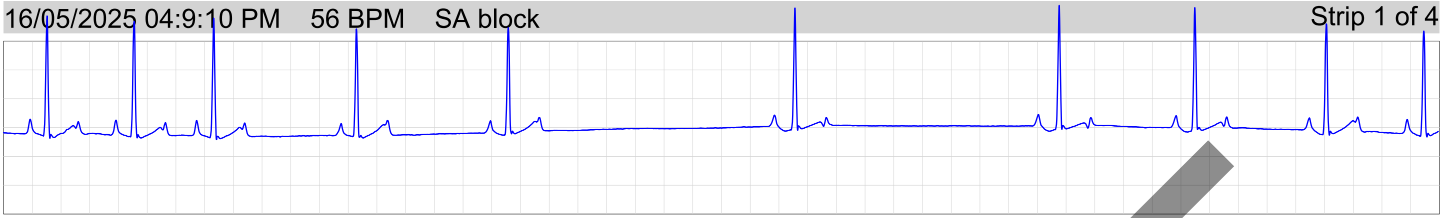
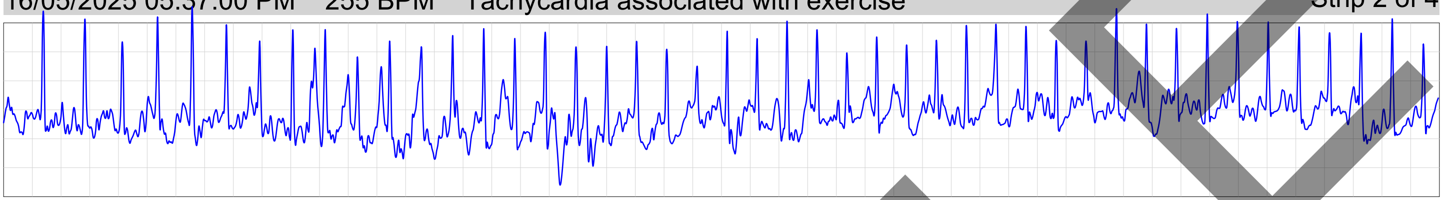
Selected Strip

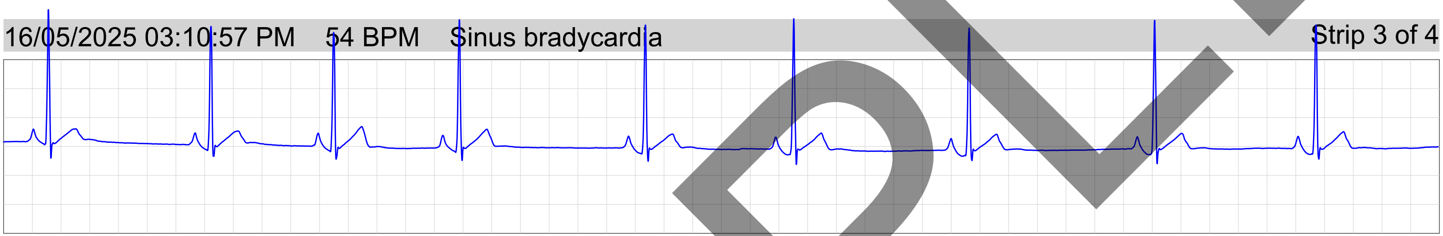
16/05/2025 04:9:10 PM 56 BPM SA block Strip 1 of 4



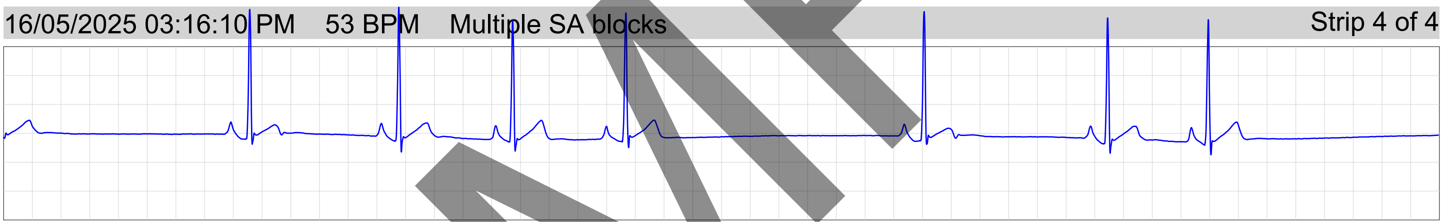
16/05/2025 05:37:00 PM 255 BPM Tachycardia associated with exercise Strip 2 of 4



16/05/2025 03:10:57 PM 54 BPM Sinus bradycardia Strip 3 of 4



16/05/2025 03:16:10 PM 53 BPM Multiple SA blocks Strip 4 of 4



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