

REVIEW ARTICLE



Challenges of diagnosing and treating cushing-syndrome in Guinea pigs (*Cavia porcellus*) as compared to dogs: A literature review

ANNA LINDA NÓGRÁDI¹ , MÁRTON BATTAY^{1*}, IAIN COPE²,
JÁNOS GÁL¹, TIBOR NÉMETH³ and ZSUZSANNA VÍZI⁴

¹ Department of Exotic Animal-, Wildlife-, Fish- and Honeybee Medicine, University of Veterinary Medicine Budapest, 1078 Budapest, 2 István Street, Hungary

² Newmarket Vets4Pets, Inside Pets at Home, Studland Retail Park, Fordham Road, Newmarket, Suffolk, UK

³ Department of Internal Medicine, University of Veterinary Medicine Budapest, 1078 Budapest, István Street 2, Hungary

⁴ Department of Surgery, University of Veterinary Medicine Budapest, 1078 Budapest, 2 István Street, Hungary

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ABSTRACT

Cushing syndrome develops when the body is exposed to excessive concentrations of cortisol. Hypercortisolism is well defined in dogs, with well established and extensively documented clinical signs, various diagnostic methods and treatment options available. As it is frequently the case in exotic pet medicine, only a small number of peer-reviewed case reports are available on guinea pig hypercortisolism. These typically rely on diagnostics and therapeutic techniques adapted from small animal medicine. Comparison of the findings of the guinea pig case studies to those on dogs reveals significant overlap in disease characteristics, though a number of species-specific distinctions are also evident. This literature review outlines and compares the similarities and differences of hypercortisolism in these two species.

KEYWORDS

LDDST, ACTH, hyperadrenocorticism, HAC, cortisol, saliva, UCCP, adrenal gland hyperplasia, pituitary dependent

INTRODUCTION

Hypercortisolism, also referred to as Cushing syndrome, develops when the body is exposed to excessive concentrations of cortisol over an extended period of time. The disease is well defined in dogs, but documented cases in guinea pigs are scarce. This literature review outlines and compares the similarities and differences in clinical signs, diagnosis and available treatment options for Cushing syndrome in these two species.

The three main forms of hypercortisolism are the 1) pituitary-dependent, 2) adrenocortical-dependent and 3) iatrogenic form (Nelson, 2009; Melián, 2010), although in some cases food-induced variation (Galac, 2008) and ectopic ACTH-producing tumours can be recognised in the background (Churcher, 1999).

CANINE HYPERCORTISOLISM

The most common type of Cushing syndrome in dogs is the pituitary-dependent hypercortisolism, accounting for approximately 80–85% of all cases. This is primarily caused by a

*Corresponding author.
E-mail: battay.marton@univet.hu

functional adrenocorticotrophic hormone (ACTH) secreting pituitary tumour. Excessive ACTH secretion causes bilateral adrenocortical hyperplasia and subsequently increases glucocorticoid production (Behrend, 2016; Melián, 2010). Adrenocortical tumours represent about 15–20% of canine patients in which case a tumour, usually present as a unilateral mass in one adrenal gland, causes hypercortisolaemia. Atrophy is seen in normal and unaffected adrenal tissues. Iatrogenic hypercortisolism can develop when glucocorticoids are administered in excessive or prolonged doses (Nelson, 2009; Melián, 2010).

Canine patients affected by hypercortisolism are typically middle aged or older with gradually progressing symptoms. Common clinical signs include polydipsia, polyuria (PD/PU) and polyphagy. Many affected animals exhibit abdominal distention, resulting in weight gain and “pot belly” due by muscle weakness and the increase of abdominal contents, most commonly hepatomegaly. Lethargy, panting and muscle wasting can also be present (Nelson, 2009; Melián, 2010). Dermatological symptoms can present as epidermal atrophy, bilaterally symmetric alopecia, hyperpigmentation, comedones and calcinosis cutis. When pituitary enlargement affects the thalamus or hypothalamus, neurological symptoms and facial nerve paralysis can occur. Anoestrus or testicular atrophy have also been documented. Prolonged hypercortisolism induces insulin resistance, predisposing patients to the development of diabetes mellitus (Nelson, 2009; Melián, 2010).

Radiographic examinations may reveal an increased abdominal contrast caused by fat accumulation, hepatomegaly or an enlarged bladder. Chronic cortisol excess in the plasma may also result in dystrophic mineralisation, causing calcification within the pulmonary vessels or the adrenal tissues. Imaging modalities such as ultrasonography, computed tomography (CT) and magnetic resonance imaging (MRI) are useful for assessing adrenal morphology and detecting enlargement. Bilaterally symmetric adrenal hyperplasia in canines with hypercortisolism indicates pituitary dependent Cushing syndrome (Nelson, 2009; Melián, 2010).

Increased serum alkaline phosphatase (ALP) activity and elevated cholesterol concentration can be indicators of hypercortisolism in dogs (Nelson, 2009; Melián, 2010). Elevated blood cortisol levels can cause a stress leukogram characterised by lymphopenia, neutrophilia without a left shift, monocytosis and eosinopenia (Wenger-Riggenbach, 2010; Gilor and Graves, 2011).

Urinary tract infections are common but may show minimal or no clinical signs due to the anti-inflammatory properties of cortisol. Proteinuria and low urine-specific gravity (isosthenuria) are common with urine protein:creatinine ratios usually below 4 in dogs (Nelson, 2009; Melián, 2010; Smets et al., 2012).

The urine cortisol:creatinine ratio (UCCR) is the most commonly used test for initial screening in dogs. Normal UCCR values effectively rule out hypercortisolism, however, elevated results warrant confirmatory testing as the specificity of the UCCR is moderate at best. Because stress can

markedly influence cortisol levels, urine samples should be collected in a calm, non-stressful environment (Nelson, 2009; Melián, 2010).

The low dose dexamethasone suppression test (LDDST) is considered the test of choice for the diagnosis of hypercortisolism in canines offering a high sensitivity (85–100%) but moderate specificity (44–73%) (Bennaim, 2018). Under normal physiological conditions, glucocorticoids have a negative feedback in healthy animals and inhibit the ACTH secretion of the pituitary gland. As ACTH levels decrease, so does the cortisol secretion from the adrenal cortex and its concentration in the blood. Dexamethasone is the preferred glucocorticoid as it does not cross-react with standard cortisol assays. The LDDST is much more sensitive than the ACTH stimulation test. In canines, the protocol involves measuring serum or plasma cortisol concentrations before intravenous administration of $0.01 \text{ mg} \cdot \text{kg}^{-1}$ dexamethasone and then again after 4 and 8 h. The suppression is variable in dogs with hypercortisolism, but it does not persist longer than 8 h (Thuroczy, 1998; Nelson, 2009; Melián, 2010). The observation of the various LDDST patterns may support the diagnosis, as the lack of suppression and partial suppression seems to be more reliable than the inverse or the escape pattern (Zeugswetter et al., 2021). The ACTH stimulation test is costlier and less sensitive (80–83%) and specific (57–63%) (Nelson, 2009; Sieber-Ruckstuhl et al., 2008; Melián, 2010). It is primarily reserved for cases in which ultrasonographic findings suggest hyperadrenocorticism, but the LDDST yields inconclusive results. Elevated baseline plasma cortisol concentrations alone are non-diagnostic for hypercortisolism as multiple factors may influence the results (Nelson, 2009; Melián, 2010).

There are various treatment options in dogs, depending on the form of hyperadrenocorticism. Adrenocortical tumours may be surgically excised if metastasis or invasion in surrounding blood vessels are absent. Radiation therapy may be used to reduce tumour size (Nelson, 2009; Melián, 2010). The definitive treatment for pituitary-dependent hypercortisolism is the transsphenoidal hypophysectomy with promising results (van Rijn, 2016). The surgery is invasive, expensive and requires an experienced surgical team, so many owners choose the medical treatment option. Trilostan treatment (which is a reversible inhibitor of the 11-beta-hydroxysteroid dehydrogenase suppressing cortisol synthesis) is the most commonly used medical treatment alternative to pituitary surgery (Fracassi et al., 2015; Golinelli et al., 2021). Alternative medications include ketoconazole and L-deprenyl (Nelson, 2009; Melián, 2010).

GUINEA PIG HYPERADRENOCORTICISM

Pituitary and adrenal tumours leading to hypercortisolism are the third most common endocrine disease in guinea pigs (Jekl et al., 2017) but are still considered uncommon as there are only a few case reports in the literature that address the disease in this species (Hocker et al., 2017; Jekl et al., 2017;

Pignon and Mayer, 2020; Zaheer and Beaufrère, 2020). Similar to dogs, cortisol is the primary glucocorticoid metabolic product in guinea pigs, whereas corticosterone predominates in mice and rats (Malinowska and Nathanielsz, 1974; Künzel and Mayer, 2015).

The adrenal glands are situated cranial to the kidneys with their caudal surface in close contact with the medial surface of the kidneys (Manning, 1976). The size of the bean-shaped adrenal gland of the guinea pig was determined by Sheikhian et al. (2015). The right adrenal gland measures on average 10.6 ± 1 mm in length, 4.5 ± 0.06 mm in width and 3.5 ± 0.21 mm in thickness, while the left measures 11.2 ± 0.76 mm, 4.8 ± 0.29 mm and 3.8 ± 0.49 mm, respectively (Sheikhian et al., 2015). A more recent study by Sainato et al. (2024) on measurements of normal adrenal glands in guinea pigs determined the mean lengths of 12.64 ± 2.11 mm (left) and 11.55 ± 1.52 mm (right). The study also provided cranial and caudal pole thickness for the left and right adrenal glands of $4.83 \text{ mm} \pm 1.03$ mm, 4.69 ± 1.34 mm; 4.8 ± 1.23 mm and 4.04 ± 0.75 mm, respectively. Notably, guinea pigs possess the largest adrenal glands relative to body weight of any mammalian species (Manning, 1976; Breazile and Brown, 2014).

Ultrasonography serves as a valuable diagnostic tool in the diagnosis of hyperadrenocorticism, allowing differentiation between pituitary-dependent hypercortisolism, typically manifesting as bilateral adrenal enlargement, or adrenocortical tumours when showing anatomic abnormalities or masses. However, normal adrenal dimensions exhibit substantial variability even among healthy individuals (Fuchs et al., 2011; Künzel and Meyer, 2015). Ultrasonography can also aid in determining hepatomegaly (Künzel and Meyer, 2015). In healthy individuals, the liver demonstrates a homogeneous, fine-grained echotexture with sharply defined hyperechoic margins (Beregi et al., 2000).

Computed tomography (CT) is another useful modality for the detection of adrenal gland disease in guinea pigs (Jekl, 2025).

Concerning the laboratory diagnosis of Cushing syndrome, Liu and Matthews (1999) reported a plasma basal cortisol level of $11.7 \mu\text{g} \cdot \text{dL}^{-1}$, although due to the guinea pigs' biphasic peak occurring at dawn and dusk, these measurements alone lack diagnostic value to confirm hyperadrenocorticism, as they can be much higher when compared to other species (Liu and Matthews, 1999; Keightley and Fuller, 1995). Additional factors including vitamin C deficiency, stress, concurrent disease and pregnancy can markedly influence cortisol concentrations (Fujieda et al., 1982; Liu and Matthews, 1999; Hocker et al., 2017).

There is a linear correlation between free cortisol levels in plasma and saliva as the hormone diffuses unaltered into the salivary glands (Riad-Fahmy et al., 1982; Fenske, 1997). The non-invasive collection of saliva from non-anaesthetised guinea pigs for cortisol determination has been validated by Fenske (1996, 1997). Saliva is obtained by placing cotton buds alongside the cheek teeth for approximately 5 min, followed by centrifugation. Multiple samples can be

collected sequentially (Fenske, 1996, 1997). This technique is less stressful than blood draw and related handling, resulting in lower stress-related cortisol elevations. Salivary cortisol levels in untreated guinea pigs ranged from 2 to $26 \text{ ng} \cdot \text{mL}^{-1}$ and were independent of saliva volume acquired (Fenske, 1997). Some reports, however, describe difficulties using cotton buds for saliva collection (Zaheer and Beaufrère, 2020; Nógrádi et al., 2025). Showing preferred feed and the shaking of the bag of pellets, then inserting a 1 mL syringe into the oral cavity and sucking out saliva proved more effective (Nógrádi et al., 2025). Plasma cortisol levels are approximately 10 times higher than salivary concentrations (Nemeth et al., 2016) and repeated salivary cortisol measurements can serve as a reliable tool for long-term monitoring (Nemeth et al., 2014). Non-invasive cortisol measurements from faeces are less suitable for acute assessment due to delayed metabolite excretion showing long-term fluctuation (Palme et al., 2005; Nemeth et al., 2016) though they have been used for monitoring adrenocortical activity (Bauer et al., 2008).

Fenske (1997) administered 20 IU ACTH intramuscularly during concurrent salivary sampling to measure cortisol response (Fenske, 1997). Fujieda et al. (1982) and Banjanin et al. (2004) administered dexamethasone at a high dose of $1 \text{ mg} \cdot \text{kg}^{-1}$ intraperitoneally or intravenously, respectively, to suppress plasma cortisol concentrations. Nógrádi et al. (2025) used the low dose dexamethasone suppression test (LDDST).

Only a few cases of enlarged adrenal glands and a limited number of confirmed Cushing syndrome cases have been reported in guinea pigs. Diagnosis was based on clinical signs, imaging and functional adrenal testing via serum or salivary cortisol measurement or histopathological findings (Hocker et al., 2017; Jekl, 2017; Pignon and Mayer, 2020). Both ACTH-dependent and ACTH-independent forms have been described (Zeugswetter et al., 2007; Künzel and Mayer, 2015).

Manning (1976) referenced three mentions of adenoma, carcinoma and an unidentified tumour in the adrenal gland in guinea pigs, when reviewing the literature at hand at the time. Sommerey et al. (2004) identified a single adrenal adenoma when examining 689 guinea pigs. In a retrospective study of 1,000 pet guinea pigs, two cases of hypercortisolism were recognised, although diagnostic details were not reported. Clinical signs included alopecia and poor body condition (Minarikova et al., 2015). Gaschen et al. (1998) documented a case in a 5-year-old animal showing bilateral alopecia, obesity, apathy, hepatomegaly and PD/PU. No endocrinological testing was undertaken, but ultrasonography revealed an adrenal mass and an ureterolith. Surgical removal of both the ureterolith and the adrenal tumour was performed, but the animal died post-operatively. Histopathology confirmed bilateral adrenal adenomas, with enlargement restricted to the left gland (Gaschen, 1998).

Zeugswetter et al. (2007) diagnosed hyperadrenocorticism using the ACTH stimulation test combined with salivary cortisol analysis. The 4-year-old female guinea

pig exhibited bilateral, non-pruritic alopecia, thin and elastic skin, polydipsia, lethargy and weight loss despite preserved appetite. Treatment with trilostane at $2 \text{ mg} \cdot \text{kg}^{-1}$ daily, increased to $6 \text{ mg} \cdot \text{kg}^{-1}$ by day 65, initially induced inappetence and weight loss, necessitating dosage reduction to $2 \text{ mg} \cdot \text{kg}^{-1}$ twice daily. The regrowth of fur was subsequently observed (Zeugswetter et al., 2007).

Bilek et al. (2019) reported a 4.5-year-old female with confirmed Cushing syndrome based on sampling saliva twice daily for three consecutive days and ACTH stimulation testing. Ultrasonography demonstrated ovarian cysts and an enlarged right adrenal gland approximately 2 cm in diameter. Clinical signs included bilateral exophthalmos, alopecia, lethargy, poor body condition and dyspnoea, but no PD/PU. The animal was euthanised four months later following owner refusal of trilostane therapy. Necropsy revealed an adrenocortical carcinoma on the right adrenal gland with pulmonary metastasis (Bilek et al., 2019).

Zaheer and Beaufrère (2020) described a 3.5-year-old female presenting with bilateral symmetrical alopecia, exophthalmos and PD/PU. Ultrasonography first showed bilaterally small adrenal glands and later, a right-sided adrenal mass. ACTH stimulation testing confirmed elevated cortisol concentrations. Blood was collected before and one hour after intramuscular administration of $5 \mu\text{g} \cdot \text{kg}^{-1}$ ACTH. The animal was treated with trilostane at $2 \text{ mg} \cdot \text{kg}^{-1}$ twice daily, later increased to $4 \text{ mg} \cdot \text{kg}^{-1}$ twice daily, which led to full clinical remission. Death occurred 27 months post-diagnosis (Zaheer and Beaufrère, 2020).

Nógrádi et al. (2025) diagnosed hyperadrenocorticism in a 4-year-old hairless female guinea pig using the LDDST. Clinical signs included poor body condition, polydipsia, pot belly and thin elastic skin with lesions. Ultrasonography revealed bilateral adrenal enlargement and hepatomegaly with numerous small, calcified lesions in the parenchyma. Bloodwork excluded hyperthyroidism and diabetes mellitus but showed signs of a guinea pig stress leukogram with elevated ALT, GLDH and AST levels. Urine and saliva were collected before applying $0.01 \text{ mg} \cdot \text{kg}^{-1}$ dexamethasone intramuscularly and saliva was collected after 2, 4 and 8 h to determine cortisol levels. Urine analysis showed isosthenuria with UCCR being above $465.4 \cdot 10^{-6}$. The animal was treated with trilostane, starting at an oral dose of $2.5 \text{ mg} \cdot \text{kg}^{-1}$ daily and increasing it to $4 \text{ mg} \cdot \text{day}^{-1}$ after four weeks. The animal survived for 15 months before sudden death occurred (Nógrádi et al., 2025).

Künzel and Mayer (2015) proposed L-deprenyl as a potential therapeutic option in hypercortisolism, although no case data are available. Jekl (2025) mentioned oral ketoconazole at a dose of $25\text{--}30 \text{ mg} \cdot \text{kg}^{-1}$ twice daily as a possible treatment option. Lambert et al. (1984) showed that trilostane suppresses steroid production by adrenal cells in guinea pigs in vitro. As the case studies at hand show, trilostane is the most widely used medication for treating Cushing syndrome in guinea pigs (Zeugswetter et al., 2007; Zaheer and Beaufrère, 2020; Nógrádi et al., 2025).

Adrenalectomy has been described in laboratory guinea pigs via intercostal or abdominal midline

approaches, though these were unrelated to hypercortisolism (Hocker et al., 2017; Hoar 1966; Kudsk et al., 1983; Talcott et al., 2015). In pet animals, only three surgical cases have been documented. Gaschen et al. (1998) described one case where the animal died post-operatively, while Jekl (2025) mentions two successful adrenalectomies with full recoveries, but no further information is available on the latter cases.

Differential diagnoses include vitamin C deficiency, which can elevate plasma and salivary cortisol levels and produce adrenal enlargement (Enwonwu et al., 1995). Exogenous oestradiol administration in spayed females may have similar effects (Garris, 1986). Stressful events such as isolation from a known group, exposure to unfamiliar individuals or long car rides also cause significant cortisol increases (Fenske, 1997; Nemeth et al., 2016; Henessy et al., 2000). Finally, alopecia can result from a range of causes, including functional ovarian follicular cysts, barbering, dermatophytosis, ectoparasites, hyperthyroidism, or diabetes mellitus (Ewringmann and Glöckner, 2012; Nielsen et al., 2003; Pignon and Mayer, 2020; Jekl 2025).

CONCLUSION

As it is frequently the case in exotic pet medicine, a disease well established and extensively documented in dogs is often represented in exotic species by only a small number of case reports. These typically rely on diagnostics and therapeutic techniques adapted from small animal medicine. Comparison of the findings of the guinea pig case studies to the knowledge in dogs reveals significant overlap in disease characteristics, though a number of species-specific distinctions are also evident.

In both species, hypercortisolism tends to occur in middle-aged or older individuals. Although some publications omit the precise age of the affected guinea pigs, the youngest documented case at 3.5 years (Zaheer and Beaufrère, 2020) corresponds to middle age for this species.

Pituitary-dependent hyperadrenocorticism predominates in dogs, with adrenocortical tumours and iatrogenic causes representing less frequent causes of Cushing syndrome (Nelson, 2009; Melián, 2010). In guinea pigs, data remain insufficient to establish prevalence patterns, though iatrogenic hyperadrenocorticism is rather unlikely given the limited clinical use of corticosteroids due to the overwhelming negative effects they can have on this species. Food-induced hypercortisolism and ectopic ACTH-producing tumours causing Cushing-syndrome have not been reported in guinea pigs.

When examining clinical signs, polydipsia and polyuria appear in both species, while polyphagia has not been described in guinea pigs. The latter may be under-recognised because guinea pigs are typically kept in controlled, caged environments, where food intake is regulated.

Reports of weight loss despite normal appetite may imply that polyphagia could be present under different conditions. Muscle weakness, bilateral exophthalmos and hepatomegaly

described in dogs have all been reported in guinea pigs with Cushing syndrome. Muscle wasting described in dogs likely manifests as overall weight loss in the latter species as voluntary exercise is limited in a cage for guinea pigs.

Dermatological manifestations such as epidermal atrophy, bilaterally symmetric alopecia, hyperpigmentation, comedones and calcinosis cutis are characteristics of canine hyperadrenocorticism. Reported guinea pig cases describe bilaterally symmetric, nonpruritic alopecia, thin skin, skin lesions and pododermatitis, abrasions and seborrhoeic changes and skin lumps in the dermis and subcutis (Künzel and Mayer, 2015; Hocker et al., 2017; Pignon and Mayer, 2020). Although not identical, the similarities suggest comparable symptoms of hypercortisolism in both species. The authors would like to note that while alopecia is mentioned as one of the main symptoms of Cushing syndrome, it is not mentioned in studies on guinea pig skin diseases. This suggests that the condition is likely underdiagnosed in this species. Alopecia can be caused by a number of diseases in guinea pigs which should be ruled out. The most common cause of alopecia in the authors' experience are ovarian cysts. Neurological signs, facial nerve paralysis, anoestrus and testicular atrophy seen in dogs have not yet been documented in guinea pigs.

Radiographic findings reveal parallels between the two species. Hepatomegaly is observed in both species, whereas enhanced abdominal contrast due to fat, and urinary bladder enlargement were only observed in dogs. Guinea pigs are relatively small and they usually release the contents of the urinary bladder when anaesthetised for radiography, explaining the absence of this finding. Dystrophic mineralisation, common in canine cases of hypercorticism, has not been reported radiographically in guinea pigs, though ultrasonography has revealed numerous small, calcified lesions in the parenchyma of the liver (Nógrádi et al., 2025).

Ultrasonography remains an essential diagnostic modality in both species for the evaluation of adrenal size and morphology (e.g. potential enlargement or tumour), thereby aiding differentiation between pituitary-dependent and adrenocortical hypercortisolism. It is worth noting however, that in the authors' experience, a skilled specialist is needed to visualise the adrenal glands of a guinea pig and determine if they are normal. Unlike in dogs, where normal adrenal dimensions are well described, the size of the adrenal gland can vary substantially even in healthy guinea pigs (Fuchs et al., 2011; Künzel and Meyer, 2015).

Hepatomegaly is also visible using ultrasound and the progression of the disease can be monitored. Guinea pigs often have gastrointestinal gas, which limits image clarity and makes the ultrasound examination difficult.

Computed tomography and magnetic resonance imaging assist the differentiation between pituitary-dependent and adrenocortical hypercortisolism in dogs and are routinely employed. Even though computed tomography is mentioned as a potentially useful tool in diagnosing adrenal gland disease in guinea pigs (Jekl, 2025), scans were not undertaken in the published cases, likely due to the relatively low resolution of most machines, the risk of anaesthesia and the high costs of the examinations.

Interpretation of blood haematology and biochemistry parameters varies between the two species. In dogs, a stress leukogram results in lymphopenia, neutrophilia without a left shift, monocytosis and eosinopenia. In a guinea pig, it manifests as heterophilia and lymphopenia. Dogs frequently exhibit elevated alanine transaminase (ALT), serum alkaline phosphatase (ALP) and cholesterol levels. In guinea pigs ALT is not sensitive and not specific for hepatocellular damage (Siegel and Walton, 2020). Instead, glutamate dehydrogenase (GLDH) is sensitive for liver enzymes and, together with aspartate aminotransferase (AST) are the liver screening parameters of choice in this species (Hein and Hartmann, 2005).

Cortisol serves as the primary glucocorticoid metabolic product in both species. The most pronounced interspecies difference lies in the biphasic daily rhythm of plasma basal cortisol values in guinea pigs, with peaks at dawn and dusk, rendering basal plasma levels diagnostically unreliable in confirming the disease.

Hyperthyroidism is a more common endocrine disorder in guinea pigs in the authors' experience and should be ruled out through thyroid hormone assessment. Diabetes mellitus, commonly associated with canine hyperadrenocorticism, has not been reported in guinea pigs in connection with Cushing syndrome.

Blood sampling for repeated serum cortisol concentration testing is relatively straightforward in dogs but often necessitates anaesthesia in guinea pigs. Fortunately, salivary cortisol quantification offers a non-invasive alternative, achieved via cotton bud absorption or aspiration using a 1 mL syringe (Fenske, 1997; Nógrádi et al., 2025).

Because stress substantially alters cortisol levels, urine samples should be obtained in a non-stressful environment. Collecting urine samples during walks is feasible and easy in dogs, but guinea pigs are kept in cages with substrate to absorb urine. Guinea pigs are prey species and are easily stressed by handling or transportation. Both species may present with isosthenuria and can be evaluated using the urine cortisol:creatinine ratio. Urinary tract infections are frequent in dogs with Cushing syndrome but have not been reported in guinea pigs.

Measurement of cortisol levels, whether from serum or saliva, remains the only way to obtain a definitive diagnosis of Cushing syndrome in live animals. The LDDST is the preferred method in dogs. In guinea pigs, the ACTH stimulation test has been more commonly used, except in a recent report utilising the LDDST. Lack of suppression 8 h after dexamethasone administration and the steep decrease in cortisol levels seen in dogs was also noted in this guinea pig, suggesting comparable endocrine responses. Due to the limited number of published cases in guinea pigs, most veterinarians likely followed the precedent established in the first successful ACTH-based diagnostic report. The ACTH stimulation test is more expensive and is not as sensitive as the LDDST. Determining of circulating cortisol concentrations will not differentiate adrenocortical from pituitary dependent hypercortisolism.

In dogs, adrenocortical tumours may be excised surgically when metastasis or vascular invasion is absent and radiotherapy can reduce tumour size. Surgical treatment for pituitary-dependent hyperadrenocorticism in dogs is the transsphenoidal hypophysectomy, which is invasive and costly, making medical therapy a common alternative. In guinea pigs, adrenalectomy with the intercostal and abdominal midline approach has been described in laboratory guinea pigs. In pet guinea pigs, the surgical procedure has only been described in a single case in which the guinea pig died 1 day after the operation (Gaschen et al., 1998). Two successful adrenalectomies with full recoveries are mentioned in the paper by Jekl (2025), but no further information is available. The authors found no mention of hypophysectomy in guinea pigs in connection with Cushing syndrome.

Trilostane is the most common medical treatment for Cushing -syndrome in both species. High trilostane dosages may have adverse effects in guinea pigs, underscoring the need for careful monitoring. Other treatment options such as ketoconazole and L-deprenyl are cited in the literature but lack consistent clinical data in guinea pigs.

While hypercortisolism in dogs is a well-defined and extensively studied condition, comparable data in guinea pigs remain scarce with only a few diagnosed cases. Diagnostic challenges ranging from nondisease-specific clinical symptoms to difficulties in imaging and blood collection likely contribute to substantial underdiagnosis in guinea pigs. Greater awareness among veterinarians is essential to improve recognition and management of hypercortisolism in this species.

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