Jurnal Veteriner pISSN: 1411-8327; eISSN: 2477-5665
Terakreditasi Nasional Peringkat 2, Dirjen Riset dan Pengembangan,
Kemendiktisaintek RI SK No 10/C/C3/DT.05.00/2025, 21 Mar.2025

Maret 2026 Vol. 27 No.1: 140-147
DOI: 10.19087/jveteriner.2026.27.1.140
online pada http://ejournal4.unud.ac.id/index.php/juvet

Eosinophilic Granuloma Complex (EGC) In Persian Crossbreed Cat: A Case Report

(*LAPORAN KASUS: GRANULOMA EOSINOFILIK KOMPLEKS PADA KUCING PERANAKAN PERSIA*)

Adisty Gelsa Putry[1], Aldila Noviatri[2], Nofan Rickyawan[3], Rini Setiyowati[4], Dwi Kristanto[2*]

[1]Veterinary Professional Program,
[2]Laboratory of Internal Medicine,
[3]Laboratory of Surgery and Radiology
Faculty of Veterinary Medicine, Universitas Brawijaya
Jl. Puncak Dieng, Kalisongo, Dau,
Malang Regency, East Java, Indonesia 65151
[4]Qithmir Pet Care
Jl. Gus Dur No.10 A, Candi Mulyo,
Jombang Regecny, East Java, Indonesia 61413
Email: dkristanto@ub.ac.id

ABSTRACT

Inflammatory lesions that often occur in the oral cavity of cats include Eosinophilic Granuloma Complex (EGC). The aim of this research is to reveal the impact of surgical procedures followed by antibiotic and anti-inflammatory therapy on the incidence of EGC. A 3-year-old 2.2 kg persian mix cat had clinical symptoms of *irregular* mass growth of the lips under the tongue beginning 2 months prior and had difficulty eating. According to the owner, the cat was the result of inbreeding/incest Clinical examination revealed pink oral mucosa, mass on the back, abdomen and legs, the cat's mouth cannot close because of an irregular mass (2.5 × 2.5 × 2.5 cm) of pale yellowish pink colour in the lingual frenulum, pink nodules on the lower lip and pink plaque under the chin. The results of the blood test revealed a predominance of eosinophils and neutrophils. Postoperative histopathological examination of the granuloma mass revealed the presence of reactive fibroblasts, irregular collagen fibres, and a predominance of eosinophils, stem neutrophils and lymphocytes. Treatment of eosinophilic granuloma complex (EGC) can be performed by surgical excision of granuloma masses via *electrocautery*, and drug therapy including amoxicillin and potassium clavulenate (20 mg/kg BW), meloxicam (0.05 mg/kg BW), and multivitamins (1 ml/day) can be continued. Fourteen days of postoperative therapy resulted in rapid and effective wound healing. The conclusion of this study shows that the combination of surgical procedures and medications such as antibiotics, non-steroidal anti-inflammatory drugs and vitamins has a positive impact on the treatment of EGC cases.

Keywords: Cytology, eosinophilic granuloma complex, histopathology.

ABSTRAK

Lesi inflamasi yang sering terjadi di rongga mulut kucing termasuk Kompleks Granuloma Eosinofilik (EGC). Tujuan riset ini adalah mengungkap bagaimana dampak tindakan bedah yang diikuti dengan terapi antibiotik dan antiradang pada kejadian EGC kucing. Seekor kucing campuran persia bobot 2,2 kg berumur 3 tahun memiliki riwayat kesulitan makan, terdapat pertumbuhan massa tidak teratur pada bibir di bawah lidah sejak usia dua bulan. Kucing tersebut juga dilaporkan merupakan hasil perkawinan sedarah/inses. Berdasarkan temuan klinis dilaporkan rambut gimbal di punggung, perut dan kaki, mulut kucing tidak dapat menutup, mukosa mulut merah muda, ditemukan massa tidak teratur (2,5 × 2,5 × 2,5 cm) berwarna merah muda kekuningan pucat di frenulum lingua, nodul merah muda di bibir bawah dan plak merah muda di bawah dagu. Berdasarkan hasil tersebut, kucing didiagnosis mengalami EGC dominasi eosinofil dan neutrofil. Pemeriksaan histopatologi menunjukkan adanya sel fibroblas reaktif, serat kolagen tidak teratur, dan dominasi eosinofil, neutrofil batang dan limfosit. Penanganan EGC dilakukan dengan eksisi bedah massa granuloma melalui elektrokauter, dan terapi obat, seperti amoksisilin dan potassium klavulanat (dosis 20 mg/kg BB), meloksikam (dosis 0,05 mg/kg BB), dan multivitamin (1 ml/hari). Hasil terapi obat selama 14 hari menunjukkan pemulihan luka dan tidak adanya masa yang timbul kembali. Kesimpulan dari studi ini menunjukkan bahwa kombinasi antara tindakan bedah dan pengobatan seperti antibiotik, anti inflamasi non steroid dan vitamin memberikan dampak positif dalam penanganan kasus EGC.

Kata-kata kunci: Sitologi, *Eosinophilic Granuloma Complex*, histopatologi

INTRODUCTION

Feline oral lesions are common pet cats. Clinical symptoms due to oral disease include halitosis (bad breath), lack of appetite, hypersalivation and hemorrhage in the mouth, all of which can lead to asymmetry in facial shape (Dabbas, 2012). Lesions in the cat's mouth can occur due to neoplasia or inflammation, so a diagnosis needs to be made by histopathological examination. The inflammatory lesions that often occur in the oral tract of cats include Eosinophilic Granuloma Complex (EGC) (Falcao *et al.*, 2020). According to Scott and Miller (2012), the spread of the EGCin domestic short hair cats was 85% greater than that in other species. In cats aged less than four years, the risk was 93%; under two years, the risk was 55%; and under one year, the risk was 40%. The lesion patterns of the patients with EGC were 42% on the lips, 22% on the hind leg, 18% on the chin and 55% on only one lesion. The incidence rate of lesion types that can appear is 30% linear lesions and 70% papules or nodular lesions (Scott and Miller, 2012). Diseases that can affect cats include chronic diseases such as EGC disease. The feline EGC is a syndrome that is often found in cats due to allergies or genetics. A common cause of this dis-ease is hypersensitivity dermatitis caused by fleas, food or the environment (George, 2022).

Idiopathic and possibly genetic eosinophilic granulomas can also occur in young cats with typical granuloma lesions, such as indolent ulcers (ulcerative lesions of the mucocutaneous and oral mucosa), eosinophilic plaques, and prominent linear lesions on the face or oral cavity. The location of lesions, such as those in the oral cavity, can result in decreased appetite; difficulty swallowing food, resulting in weakness, lethargy and poor skin coating in cats (Kim *et al*., 2023). Several therapeutic options can be used for treating patients with the EGC. Treatment options include corticosteroid medication, prevention of allergens, laser

therapy and surgery (Reiter *et al*., 2019). The choice of therapy must be adjusted to the cause so that it is more effective. In conditions that are severe and cause difficulty eating, surgery can be performed. The choice of thread type at the time of surgery also needs to be a concern because it can affect the postoperative tissue recovery process (Shafiuzama, 2016). The aimed of this research was to reveal the impact of surgical procedures followed by antibiotic and anti-inflammatory therapy on the incidence of EGC in cats.

RESEARCH METHODS

Ethical Approval. This study has received approval for publication from the client as the animal owner. This study does not require ethical approval because it aims to reduce suffering and is intended to cure animals of the disease.

Study Period and Location. This case study was conducted at the Qitmir Pet Care, Jalan Gus Dur, Langgar Lane, No.10A, Candi Mulyo, Jombang, Jombang, East Java, between July-August 2023.

Signalement and Clinical History. A 3-year-old 2.2 kg Persian crossbreed cat had clinical symptoms of *irregular* mass growth of the lips under the tongue for two months and had difficulty in eating. According to the owner, a cat is the result of inbreeding and has not received any treatment.

Physical and Laboratory Examination. The results of vital sign examination were as follows: temperature, 38.7°C; respiratory rate (RR), 28x/min; heart rate (HR), 132x/min; capillary refill time (CRT), under two seconds; and skin elasticity (turgor), was good. On the basis of clinical findings of pink oral mucosa, there is a new mass of tissue on the back, abdomen and legs, the cat's mouth could not close because of an irregular mass (2.5 × 2.5 × 2.5 cm) of pale yellowish pink colour in the lingua frenulum, pink nodules on the lower lip and pink plaque under the chin (Figure 1).

Diagnosis. Based on the history of the disease, physical examination and supported by laboratory examination, especially cytological examination of the nodules under the tongue tissue which found excessive eosinophils and neutrophils, this cat was diagnosed with EGC.

Treatment and Evaluation. The cat was treated with surgical excision of the mass. The cat was fasted for eight hours and given ampicillin (20 mg/kg BW), premedication in the form of a combination of atropine sulfate (0.022 mg/kg BW), a combination of acepromazine maleate (0.025 mg/kg BW) and ketamine anaesthesia (22 mg/kg BW).

The cat was laid dorsal, on surgical table after which its mouth was opened. The lesion area was fixed and sutured with a 3-layer subcuticular continuous suture pattern so that the area to be excised decreased. The area was then ligated on the side with a 1-2-2 pattern using 3.0 silk threads. The lesion was excised using an electrocauter so that the lesion could be extracted. The tip of the scalpel was used to protect the tongue from the electrocauter (Figure 4).

Postoperative management of cats was performed with antibiotic injection of ampicillin (20 mg/kg BW) and non steroid anti-inflamatory drug as meloxicam (0.05 mg/kg BW). The cat was then moved to a postoperative cage that had been covered with an under pad. After surgery, the cat still had poor eating and swallowing reflexes, so the cat was given two times a day recovery wet food, which was extended by adding water to make it easier to eat. Feed *recovery is* given to ensure nutritional status and minimize new wounds on the surgical site due to feed friction during the chewing process. The discharge medications given were antibiotics amoxicillin and potassium clavulanate (dose, 20 mg/kg BW), meloxicam (dose, 0.05 mg/kg BW) and multi-vitamin syrup (1 mL/day) for 14 days.

RESULTS AND DISCUSSION

Nodular type of EGC in the oral cavity is considered unique because it is extremely rare. An EGC or a feline rodent ulcer is a syndrome often observed in cats due to allergies or genetics (George, 2022).

Figure 1. A pale yellowish pink irregular mass on the lingua frenulum (A), and a pink plaque under the chin (B)

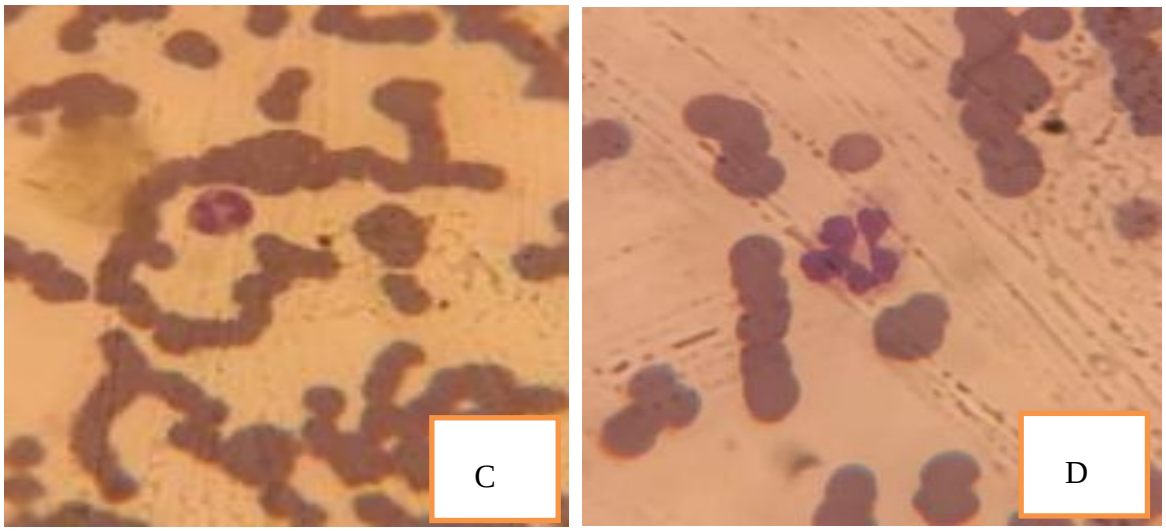

Figure 2. Blood review cytology results (blue arrows) showing the predominance of eosinophils (C) and neutrophils (D).

The common cause of this disease is the presence of eosinophils and other inflammatory cells in excess as a result of allergies, parasites, immunity and genetics (Hopke and Sargent, 2019). In cases of genetic EGC, there can be disorders of eosinophil signalling; thus, when allergens are triggered, the production of eosinophil cells greatly increase (Scott and Miller, 2012). In this case, a study was performed in the form

of blood review cytology (Figure 2), which revealed the dominance of eosinophils and neutrophils in the nodular mouth.

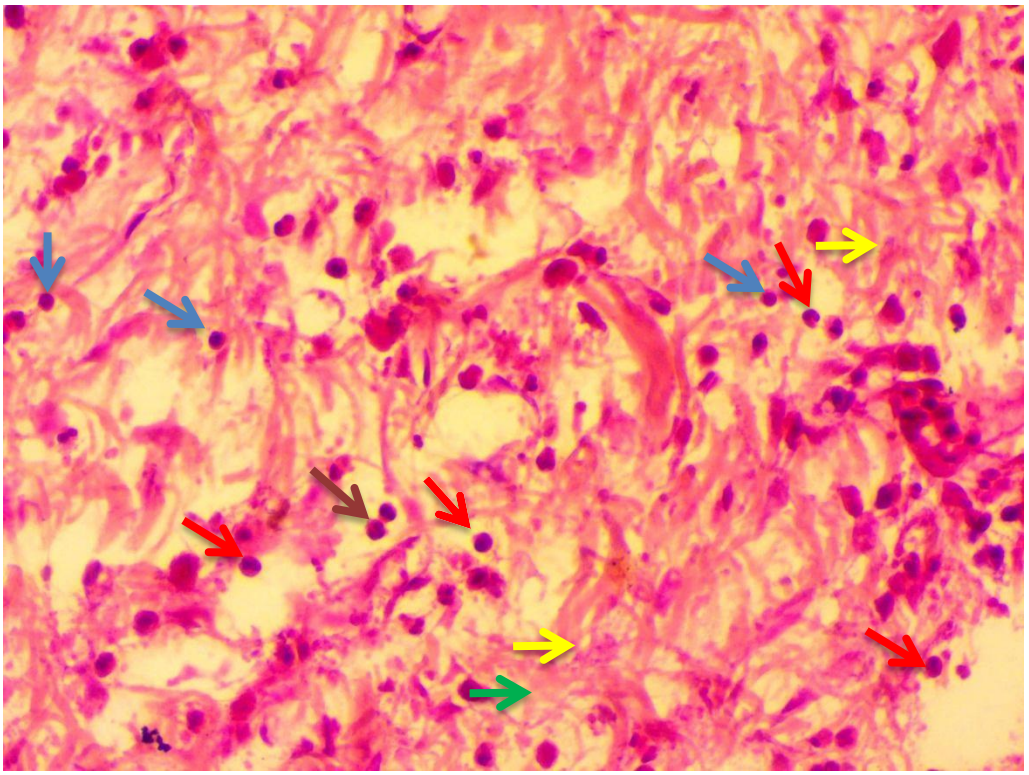

Figure 3. Histopathology results with *hematoxylin and eosin* staining showing the presence of eosinophil cells (red arrows), lymphocytes (blue arrows), neutrophil rods (brown arrows), reactive fibroblasts (yellow arrows), and irregular collagen fibres (green arrows) at 400x magnification.

Figure 4. Suturing process (E) and mass excision of the lingua frenulum using Electrocauter (F)

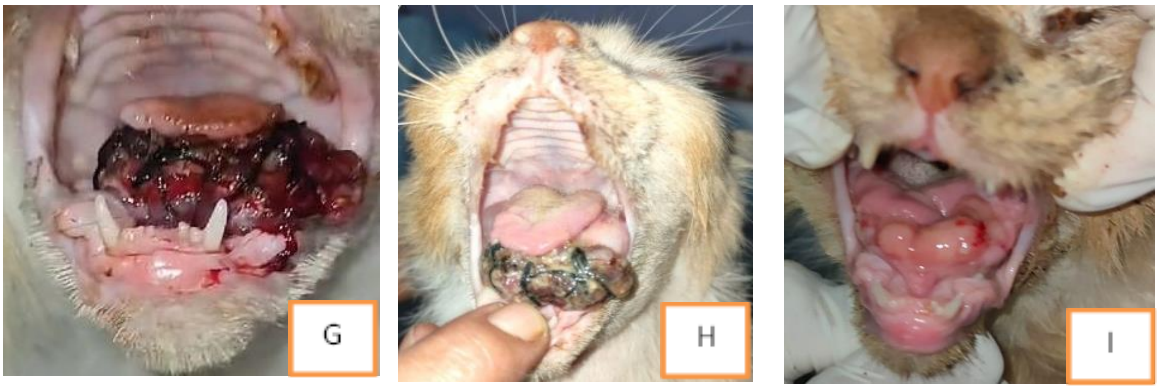

Figure 5**.** Suture wound development after day 1 (G), day 2 (H) and day 14 (I) showing the recovery of the postoperative wound area.

Histopathology results (Figure 3) with hematoxylin and eosin staining showing the presence of eosinophil cells, lymphocytes, neutrophil rods, reactive fibroblasts and iregular collagen fibres. It suggested that cytological examination of EGCs reveals the dominance of neutrophil cells and macrophages and the dominance of eosinophils. Histopathological examination revealed multifocal erosion; necrosis of eosinophils with an eosinophilic colour; fragmentation; granular material; multinu-cleated giant cells; macrophages; neutronphils; lymphocytes; plasma cells; mast cells; reactive fibroblasts; and fibrosis. Reactive fibroblasts and inflammatory cells surround and separate collagen. Cell debris can cause necrosis and edema (Falcao *et al.*, 2020). According to Maxie (2015), histopathology results reveal the presence of diffuse inflammation composed of eosino-phils, few mast cells, macrophages, lymphocytes, and iregular and degranulated collagen fibres, and degenerated eosinophils (Maxie, 2015). In this case study, a 3-year-old Persian mix cat was diagnosed with EGC. According to George (2022), EGC can occur in cats aged two months, while according to other literature, EGC has a disease duration ranging from 2 months to 11 years, with a disease risk ranging from 2 months to 13 years of age. In cats under four years of age, the risk is 93%, with remission occurring at two months to five years (Scott and Miller, 2012). In this case study, the cat had clinical findings on pink oral mucosa; mass on the back, abdomen and legs; and the cat's mouth could not close because of an irregular mass of pale yellowish pink colour in the lingual frenulum, pink nodules on the lower lip and pink plaque under the chin. Foster (2013) suggested that clinical symptoms of idiopathic and possibly genetic eosi-nophilic granulomas can also occur in young cats with typical clinical symptoms of granuloma lesions, such as indolent ulcers (ulcerative lesions of the mucocutaneous and oral mucosa); eosinophilic plaques often occur the body and ventral abdomen; and eosinophilic (collagenolitic/linear) granulomas or nodules prominent on the face, oral cavity, unilateral or bilateral ulcers on the upper lip, entire body, lingual frenulum, palate dorum and palate arches (Foster, 2013). The EGC has various sizes, clear demarcations with pale pink, red to yellowish colours, a soft to solid lesion consistency and focal or multifocal distribution. Differential diagnoses of EGC include squamous cell carcinoma (SCC) and peripheral odonthogenic fibroma (POF), and diagnoses that can be made to distinguish between the three can be made by direct macroscopic observation (inspection) and microscopic examination via cytology or histopathology (Falcao *et al.*, 2020).

Treatment of EGC can be performed according to the cause, such as parasiticides, antimicrobial agents, diet, allergen-specific

agents and preventive immunotherapy (allergens, drugs and foreign bodies), soft tissue surgery (incest or genetics as this case), laser surgery, unilateral rostral maxillectomy and bilateral incisivectomy, ostectomy and radiation therapy (Scott and Miller, 2012). In this case, the cat diagnosed with EGC underwent surgery using electrocautery, followed by therapy with amoxicillin and potassium clavulenate (20 mg/kg BW), meloxicam (0.05 mg/kg BW), and multivitamins (1 ml/day). Fourteen days after the procedure, the incision area had healed and no open wounds were found (Figure 5). According to a report by Moon *et al.* (2017) there is no standard protocol for the investigation of the diagnosis and treatment of EGC in cats. Combination of prednisolone and tacrolimus was effective when given for one month and was able to reduce the recurrence of feline EGC. Omelchenko *et al*. (2023) also recommends the use of immunomodulators, cyclosporine, glucocorticoids, laser surgery, surgery shows effecttive results in the treatment of this case. Therapy that can be given if secondary infection occurs is the antibiotic ceftriaxone 15 mg/kg body weight (BW) for seven days and methylprednisolone 4 mg/kg BW every seven days for four weeks (George, 2022). Another alternative therapy that can be given according to Buckley and Nutall (2012) is Chlorambucil 0.1-0.2 mg/kg BW q24h for 4-8 weeks.

After surgery, the cat's diet is given feed in the form of recovery wet food so that it is easier to eat to meet her nutritional needs and monitor her condition and feeding needs to be continued for up to 14 days until the surgical wound improves (Timur *et al.*, 2022). The use of essential fatty acids in feed can also be a therapeutic option in cases of EGC because it has several good effects such as improving lesions and reducing pruritus (Paterson, 2016).

CONCLUSION

The results of physical examination, clinical findings, cytology and histopathology were used to diagnose the cat as an EGC. Treatment can be performed by surgical excision of granuloma masses via electrocautery, and drug therapy including amoxicillin and potassium clavulanate (20 mg/kg BW), meloxicam (0.05 mg/kg BW), and multivitamins (1 ml/day). This case demonstrates that prompt surgical excision combined with targeted medical therapy can yield excellent outcomes in severe oral EGC, emphasizing the importance of early diagnosis and comprehensive postoperative care.

ACKNOWLEDGEMENTS

Thanks are extended to the owner of Qitmir Pet Care, RS, DK, AN, and NK who have provided guidance to the author and to the animal owners who have agreed to make this case into a publication manuscript.

REFERENCES

Buckley L Nuttall, T. 2012. Feline eosinophilic granuloma complex (ities) some clinical clarification. *Journal of Feli-ne Medicine and Surgery* 14(7): 471-481.

Dabbas VS. 2012. Oral squamus cell carcinoma and its surgical management in a dog. *Intas Polivet* 13(I): 142-143

Falcao F, Faísca P, Viegas I, de Oliveira JT, Requicha JF. 2020. Feline oral cavity lesions diagnosed by histopathology: a 6-year retrospective study in Portugal. *Journal of Feline Medicine and Surgery* 22(10): 977-983.

Foster A. 2013. Clinical approach to feline eosinophilic granuloma complex. *In Practice* 25(1): 2-9.

George A. 2022. Clinical and cytopathological diagnosis of feline eosinophilic granuloma complex. *The Pharmaceutical Innovation Journal* 11(9): 2777-2779.

Hopke KP, Sargent SJ. 2019. Novel presentation of eosinophilic granuloma complex in a cat. *Journal of Feline Medicine and Surgery Open Reports*,

5(2).

Kim CK, Callaway Z, Pawankar R. 2023. Eosinophil granule proteins as a biomarker in managing asthma and allergies. *Journal of Asia Pacific Allergy* 13(2): 66-71.

Maxie G. 2015. *Jubb, Kennedy and Palmer's pathology of domestic animals*: Vol 2, 7th Ed. Amsterdam, Netherland. Elsevier Health Sciences.

Moon M, Suh G-H, Kwon Y-J, Kim H-J. 2017. Effective treatment of eosinophilic granuloma in a cat using tacrolimus with prednisolone. *Journal of Biomedical and :ranslational Research* 18(3): 118–120. https://doi.org/10.12729/jbtr.2017.18.3.118

Omelchenko H, Avramenko N, Kulynych S, Petrenko M, Volosovets V, Volosovets N, Woźniakowski G.2023. Some aspects of the diagnosis and treatment of eosinophilic granuloma in cats. *Journal of Veterinary Research* 67 (4): 619–626. https://doi.org/10. 24 78 jvetres-2023-0060

Paterson S. 2016. Eosinophilic granuloma complex in the cat. *Companion Animal* 21(5): 256–264. https://doi.org/ 10.12968/coan.2016.21.5.256

Phurahong P. 2017. A case report: diagnostic and treatment indolent ulcer in cat. *Practice* 25: 2-9.

Reiter AM, Johnston N, Anderson JG, Soltero-Rivera M, Lobprise HB. 2019. Domestic feline oral and dental diseases. *Wiggs's Veterinary Dentistry: Principles and Practice*, New Jersey USA. Wiley Blackwell. Pp. 439-461.

Shafiuzama M. 2016. Surgical management of extensive oral tumors by bilateral rostral mandibulectomy in two dogs. *Iranian Journal of Veterinary Research*17(2): 137-140

Scott DW, Miller WH. 2012. Idiopathic eosinophilic granuloma in cats: a retro-spective study of 55 cases (1988-2003). *Japan Journal of Veterinary Dermatology* 18(1): 13-18.

Timur NPV, Sasadara MMV, Purwanta, Jayawardhita AA. 2022. Salivary mucocele treatment in a local dog in Bali, Indonesia. *Advances in Animal and Veterinary Sciences* 10(4): 878-881.