Acta Scientific Veterinary Sciences (ISSN: 2582-3183)

Volume 5 Issue 2 February 2023

Case Report

Surgical Management of Dental Abscess in two New Zealand White Rabbits- A Case Report

Mamta Mishra, Manish Arya, Merlin Mamachan, Istha Agnihotri and Swapan Kumar Maiti*

Department of Division of Veterinary Surgery, Indian Veterinary Research Institute, India

***Corresponding Author:** Swapan Kumar Maiti, Department of Division of Veterinary Surgery, Indian Veterinary Research Institute, India.

DOI: 10.31080/ASVS.2022.05.0598

Received: December 13, 2022

Published: January 10, 2023

Abstract

Dental abscesses are common in rabbits and unlike in other small animals, abscesses in rabbits are filled with thick, caseous or dried-out pus, surrounded by a capsule of scar tissue that is difficult to drain. Odontogenic abscesses frequently include the bones, making them extremely difficult to treat and necessitating surgery as well as continuous medical attention. In the current case, dental abscesses in two rabbits were successfully surgically treated. Staphylococcal infection was revealed by bacterial culture of pus samples collected from the abscess. Results of tests for antibiotic sensitivity indicated greater sensitivity to Penicillin, Cephalexin, and Enrofloxacin. Amoxicillin-based antibiotic therapy and meloxicam based anti-inflammatory therapy were administered after surgical debridement and wound packing with antiseptic-impregnated gauze of the abscess cavity until full recovery. After two weeks, both rabbits were made a full recovery without any further issues.

Keywords: Abscess; Bacterial; Dental; Debridement; Odontogenic Staphylococcal

Introduction

Odontogenic abscesses/Apical abscesses are one of the common complications of acquired dental diseases in rabbits and often lead to significant morbidity and mortality [1,2]. Elongated tooth crowns, premolar and molar curvatures, and widened interdental gaps are frequent symptoms of the disease's early stages [3]. The condition can continue to advance by developing tooth spurs, which can result in lingual and buccal mucosal ulcerations [4]. Due to aggressive capsule formation and the growth of fistulous tracts, treatment of these abscesses typically fails. The best course of treatment is frequently surgical removal of the abscesses because the thick viscosity of rabbit pus makes aspiration and drainage of these abscesses extremely challenging and antibiotic treatments troublesome [1,5]. However, complete excision is challenging, and infection recurrence is probably inevitable because the abscess tracts may be tiny and hence physically undetected. Retrobulbar involvement and osteomyelitis are frequent aftereffects [4].

Case history and observations

Two adult rabbits were presented to Referral Veterinary Polyclinic, Indian Veterinary Research Institute, Izatnagar at different time period. Out of both cases presented, Case:1 was a male rabbit of 3 kg weight and Case: 2 was a female weighing around 2.5 kg both shared a common history of anorexia, quidding, severe purulent-ocular discharge from the punctum lacrimale, conjunctivitis, keratitis, epiphora (only in male rabbit while it was clear lachrymal discharge in the female) and dyspnoea. Male rabbit had a large swelling opposite the left first upper cheek tooth while in female rabbit it was near to right bottom incisor. Both the lumps were hard and doughy on palpation. Any sign of pain and pyrexia was not observed.

Diagnosis

Diagnosis was done on the basis of Owner's history, physical and bacterial culture examination. Aspirated pus sample was taken carefully without contamination with gingival microflora. Complete Blood Count (CBC) and Antibiotic sensitivity testing (AST) was also done.

CBC revealed neutrophilia, with 69% and 58% neutrophils, respectively (range: 38-54%) in both cases while all the other parameters were found to be in normal range. Bacterial culture con-

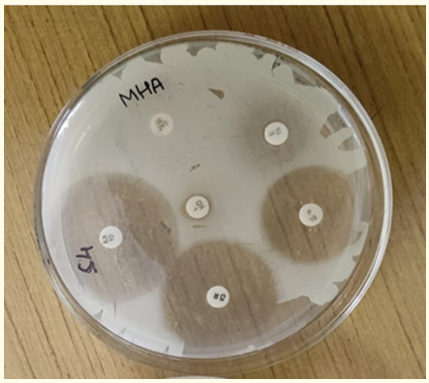

Figure 1: Antibiotic Sensitivity Testing (AST) against pus s ample collected from abscess.

firmed infection with Staphylococcus aureus. AST revealed that the bacterial culture was highly sensitive to Cephalexin, Penicillin, Enrofloxacin while it was totally resistant to Oxytetracycline and Erythromycin (Figure 1).

Surgical procedure

Using standard surgical procedures, aseptic surgical site was prepared (Figure 2,3). Rabbits were anaesthetized using xylazine and ketamine @ 5 mg/kg and 50 mg/kg, respectively [6]. A stab incision was made on the swelling site and proper drainage of the mucopurulent material was done. Diluted peroxide was used to clear desiccated pus (Figure 4,5). Betadine and tincture benzoin were used as antiseptic irritant to disrupt the abscess capsule. The animals were monitored till recovery from anaesthesia, with antibiotics, analgesics, and antiseptic ointment applied topically. Tarsorraphy was done to protect eye in Case: 1 male rabbit (Figure 6).

Figure 2: Preparation of aseptic surgical site, Purulent discharge coming out from puncta lacrymalis (Case 1).

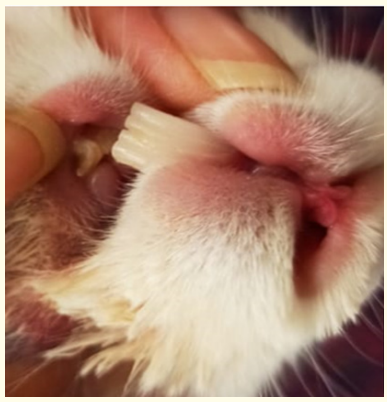

Figure 3: Preparation of aseptic surgical site. Swelling near to right lower incisors (Case 2).

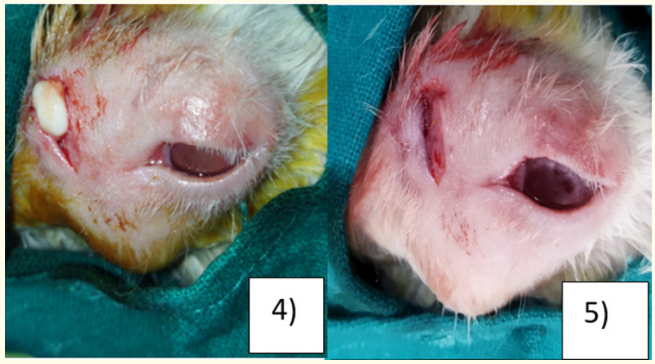

Figure 4 and 5: Stab incision was made on the abscess site and proper drainage of the muco-purulent material was done. Diluted peroxide was used to clear desiccated pus.

Figure 6: Tarsorraphy was done (case: 1).

Post-operative care

Tooth rasping was performed to avoid future complication and relapsing of the condition. Rabbits were carefully observed with proper medication and nutritional support. Syringe feeding was prescribed and prokinetic therapy was indicated for both rabbits as they were not passing hard faeces. Meloxicam drops @ 0.6 mg/kg were given for 2 weeks postoperative. Amoxicillin antibiotic was prescribed parenterally @ 15 mg/kg to clear up any residual infection for 7 to 14 days. Cleaning of marsupialised wounds effectively twice daily was ensured with antiseptic impregnated gauze filling [7,8]. In case: 1, ophthalmic eye drops were also prescribed as the animal had injured cornea while pawing.

Discussion

Abscesses in rabbits often grow slowly and cause little discomfort. The abscess cavity fills with thick, caseous material as a result of the pus's resorption of water [9-11]. Poor vascularity prevents antibiotics from penetrating the pus or the cavity. Abscesses feature a thick, fibrous capsule that may be so hard that even when the pus is removed, the capsule does not collapse. Recurrence of the abscess and re-inflammation of the capsule space are caused by residual bacteria. The most frequent cause of abscesses in the jaw is periapical infection of unhealthy or broken teeth [12]. A rabbit jaw abscess, however, is not likely to be caused by a primary bacterial infection. Abscesses can also develop as a result of penetration wounds from fights, foreign objects, or sharp dental crowns that spread infection into the subcutaneous tissues.

Dental abscesses in rabbits have been treated surgically using a number of techniques, although the likelihood of a full recovery without recurrence is uncertain. A tooth should be extracted if there is proof of osteomyelitis and osteo-proliferation of the bone around it. The root developed necrosis and began to behave strangely [12,13]. It is more difficult to remove the tooth from bone if the root is ankylosed. Since the osteomyelitis destroys the majority of the attachments, it is typically simpler to extract the tooth when there is infection [14,15].

The recommended course of action for rabbits with dental problems depends on how severe the condition is? Managing rabbit dental disease requires a diet rich in long fibre [16,17]. If at all possible, all pellets should be cut out of the rabbit's diet in favour of grass hay. Due to the high likelihood of recurrence, two weeks of antibiotics are typically insufficient, and some experts advise low dose, lifelong antibiotic medication to avoid recurrence [9,10]. Lancing and draining, which are the standard treatments for abscesses in mammals, are ineffective in treating them in rabbits. Recurrence is common because the pus is too viscous to fully drain and because they typically have fibrous tracts that store bacteria [11].

Conclusion and Clinical Relevance

Due to osteomyelitis, tooth necrosis, and bone involvement, treating dental abscesses in rabbits can be challenging. For the effective and practical treatment of odontogenic abscesses in rabbits, surgical debridement followed by wound packing with antiseptic impregnated gauze of the abscess cavity combined with systemic treatment with appropriate antibiotics, anti-inflammatory agents is recommended, followed by extraction of the affected tooth.

Bibliography

1. Aiken S. "Part II surgical treatment of dental abscesses in rabbits". 2nd edition. Philadelphia, WB Saunders Co (2004): 379-382.

2. Kerin LT., *et al.* "Periodontal bacteria in rabbit mandibular and maxillary abscesses". *Journal of Clinical Microbiology* 40 (2002): 1044-1047.

3. Tyrrell KL. "Periodontal bacteria in rabbit mandibular and maxillary abscesses". *Journal of Clinical Microbiology* 40 (2002): 1044-1047.

4. Burnett N. "An Investigation into haematological and serum chemistry parameters of rabbits in Trinidad". *World Rabbit Science* 14 (2006): 175-187.

5. Brown T. "Ventral rhinotomy in a pet rabbit (Oryctolagus cuniculus) with an odontogenic abscess and sub-obstructive rhinitis". *Canine Veterinary Journal* 57 (2016): 873-878.

6. Stringer SK and Seligmann BE. "Effects of two injectable anaesthetic agents on coagulation assays in the rat. Laboratory Animal". *Sciences* 46 (1966): 430-433.

7. Taylor WM., *et al*. "Long-term outcome of treatment of dental abscesses with a wound-packing technique in pet rabbits: 13 cases (1998-2007)". *Journal of American Veterinary Medical Association* 237 (2010): 1444-1449.

8. Taylor WM. "A wound packing technique for rabbit dental abscesses". *Exotic DVM* 5 (2003): 28-31.

9. Capello V. "Extraction of cheek teeth and surgical treatment of periodontal abscessation in pet rabbits with acquired dental disease". *Exotic DVM* 6 (2004): 31-38.

10. Capello V. "Clinical technique: treatment of periapical infections in rabbits and rodents". *Journal of Exotic Pet Medicine* 17 (2008): 124-131.

11. Crossley DA. "Oral biology and disorders of lagomorphs". *Veterinary Clinics of North America: Exotic Animal Practice* 6 (2003): 629-659.

12. Hernandez-Divers SJ. "Molar disease and abscesses in rabbits". *Exotic DVM* 3 (2001): 64-69.

13. Haffajee AD and Socransky SS. "Microbial etiological agents of destructive periodontal diseases". *Periodontics* 5 (2000): 78-111.

14. Harcourt-brown FM. "Dental disease in pet rabbits 1. Normal dentition, pathogenesis and aetiology". In Practice 31 (2009): 370-379.

15. Harcourt-brown FM. "Dental disease in pet rabbits 2. Diagnosis and treatment". In Practice 31 (2009): 432-445.

16. Harcourt-brown FM. "Abscesses". In Textbook of Rabbit Medicine. Oxford, Butterworth Heinemann (2002): 206-223.

17. Harcourt-brown FM. "Metabolic bone disease as a possible cause of acquired dental disease in pet rabbits". Thesis for the Fellowship of the Royal College of Veterinary Surgeons (2006).