ABSTRACT Introduction: Canina fossa abscesses are rarely reported in the literature. Tooth infection is often derived from bacteria associated with the abscess. Canina fossa abscesses can lead to the development of secondary abscesses, infection of incisors and canines in the upper jaw and, maxillary sinusitis infection. Odontogenic infections can easily spread throughout the muscles and the face, which can cause abscesses vestibular or accumulation of pus in the eyelid and face. This paper aimed to expose the guideline treatment of Canina fossa abscesses as a complication of odontogenic infection. Case report: A 36-Year-old Patient experienced a history of pain and fever. Physical examination showed enlargement and swelling of the right cheek, and panoramic radiographs appear radiolucent on the apex of tooth tip 12. Treatment included an intraoral drainage incision at the apex of tooth 12 and continued administration of antibiotic therapy. Conclusion: Successful treatments require early recognition, determination of etiological factors, appropriate medical and surgical management, and proper wound healing.

KEYWORDS Canina fossa Abscess, Odontogenic Infection, Modern dressing, drainage incision
The treatment of skin wounds is a key research domain owing to the important functional and aesthetic role of this tissue. When the skin is impaired, bacteria can soon infiltrate into underlying tissues, which can lead to life-threatening infections. Consequently, effective treatments are necessary to deal with such pathological conditions. Recently, wound dressings loaded with antimicrobial agents have emerged as viable options to reduce wound bacterial colonization and infection, to improve the healing process. [1,2,3,4]

This study reports the unusual case of canine fossa abscess due to odontogenic infection. Early diagnosis combined with extensive surgical debridement, appropriate broad-spectrum empiric antibiotic, and wound treatment is essential for successful treatment.

Case report

A 36-year-old male patient came to the emergency ward of Dr. Hasan Sadikin General Hospital, complained about swelling on the right side of his face. The complaint arose 1 week and had spread under the eyes. The patient had a History take that revealed a toothache of a posterior right upper tooth. He visited a dentist and was only prescribed analgesia and antibiotic. Due to unsubsidized complaints, she was then presented to Dr.Hasan Sadikin general hospital emergency department.

Clinical examination showed no other compromised systemic condition, no evidence of difficulty in swallowing or voice change. The Patient was fully alert with stable vital signs, pain, and fever. On presentation, there was an asymmetrical face with swelling at the right upper jaw extended to the right cheek. The swelling was 10 x 7 x 5 cm in size, localized, redness in color, warm, fluctuant, tenderness, and pain on palpation was noticed. On intraoral examination, it was found that the patient had poor oral hygiene, and there were multiple caries, mouth opening around 4 mm. (Figure 1, 2).

From laboratory findings, we found there was leukocytosis. Panoramic radiographic images showed a radiolucent appearance of the apex’s tip at tooth 12,16 and silicone drain placement (Figure 3).

We diagnosed the patient with canine fossa Abscess due to gangrene pulp of tooth 12. We performed administered antibiotics (Amoxicillin and Metronidazole 500 mg) and mefenamic acid 500 mg. Before the surgical intervention, pus aspiration was performed to ensure the location of the pus and check for antibacterial resistance and sensitivity. The treatment performed was an intraoral drainage incision at the apex area of tooth 12 for pus drainage, and silicone drain placement for pus access figure 4. extraction of teeth 16,12,36 to control the source of infection, and we checked culture sensitivity and antibacterial resistance. A fistula at the infraorbital region was determined after treatment performed and it would be follow up postoperatively to avoid further complication.

1 until 3 days post-operatively the fistula was seen, there were signs dry wound at the infraorbital region. Wounds are packed with a modern dressing using polihexanide, cadexomer iodine 0,9%, and polyurethane foam which is changed frequently. The wound bed was kept moist to allow for easier proper healing. (Figure 5). As long as 3 months follow up, the improvement was significant the patient was satisfied with the treatment.
Discussion

Most infections originate in the mandible and jaw bone of the odontogenic source and are usually caused by periapical infections, periodontal infections, cysts, root residues, remaining infections, Pericoronal pockets others. The causes and diagnoses of serious odontogenic infections, as well as their propensity to spread, have been described extensively in the literature. Fossa Canina abscess is one type of odontogenic infection with several trigger factors that may be associated with dental caries, periapical or periodontal abscess, pericoronitis, pulpitis, or osteitis. [1,2,3,4,5,6]

Orofacial infection can spread in several ways, such as directly through the tissues, through the lymphatic system to the regional lymph nodes and into the bloodstream, or directly through the bloodstream. The spread of infection to the Fossa Canina usually arises from the maxillary canine teeth or other anterior teeth and the upper premolar teeth, often seen above the buccinator muscle. [1,2,3,4,5,6] From clinical examinations, in this case, signs of extension of infection to the infraorbital region were spread through the canine fossa as characterized by abscesses of the canine fossa, which was spread ascending to the infraorbital region. Patients had a history of upper right toothache, and pulp gangrene was found in the right upper quadrant. Extraction of all gangrenous pulp gangrene, radices teeth, and drainage incisions in the intraoral canine fossa area was carried out. Spontaneous drainage from the tooth socket 12 was extracted, so it was concluded that the canine fossa abscess extending to the infraorbital region was due to tooth 12.

There is a risk the infection can spread to the cranial through the external angle of the vein and lead to thrombosis. Further complications, in this case, one of which is the blindness that causes orbital cellulitis. Panoramic radiographic results show radiolucent appearance in the apex region of tooth 12. Radiographic examination is an important component of dental management because periapical, occlusal, and panoramic radiography can provide the necessary information. [1,2,3,4,5,6]

The results of a study conducted by Mathew et al. showed that 16% of odontogenic infections are in the Fossa Canina space and the main source of these infections is an infection of the pulp (70.8%). The signs and symptoms that accompany this type of infection include swelling, pain, trismus, fever, dysphagia, and pus expenditure. [4,5,6]

An odontogenic infection is a polymicrobial infection caused by a combination of anaerobic bacterial species, specifically facultative anaerobes and anaerobes. Dental and medical practitioners have an important role in the management of odontogenic infections. They can treat patients with only antibiotics. High doses should be started empirically. Empirical antibiotics were given after waiting for the results of pus culture and antibiotic sensitivity. The results of the culture found gram-positive coagulase-negative staphylococci (CoNS) bacteria. This result is consistent with the research conducted by Teweldemedhin et al. (2017) that coagulase-negative staphylococci (CoNS) are one of the bacteria that is often found on the ocular surface of the eye. From the results of antibiotic sensitivity cultures, sensitive results were found in all antibiotics classes, and thus ceftriaxone and metronidazole administration is appropriate. [1,2,3,4,5,6]

Immediate broad-spectrum antibiotics can be modified once culture results are obtained, and surgical debridement of the lesion is the key to a good prognosis. All necrotic tissue must be removed, and after the surgical debridement, wounds are packed with modern dressing, which is changed frequently. [7,8]

The modern wound dressing material, in this case, is polyurethane foam, polihexanide, and cadexomer iodine. The unhealthy margins were removed during each exposure for the wound dressing; the wound bed was kept moist to allow for easier epidermal migration and neoangiogenesis. Once the infection has resolved, the overlying skin eventual begins to adhere to the underlying fascia, and any areas of skin loss as a result of gangrene can be grafted temporarily with porcine skin. [6,7]

Conclusion

Canine fossa abscess must be recognized and treated quickly and precisely to prevent it from further complications, one of which is the blindness that causes orbital cellulitis. The success of treatment requires early recognition, determination of etiological factors, appropriate medical and surgical management, including a proper wound treatment is followed by intensive supportive care and modern wound resurfacing. In this case, the patient difficulty opening eyes and fistula at the infraorbital region due to Canine fossa abscess, but the patient experienced a significant improvement due to immediate management to prevent the spread of infection and further complications.

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Conflict of interest
There are no conflicts of interest to declare by any of the authors of this study.

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