

## Maxillary Canine Space Infection With Cellulitis Involving The Periorbital Region: A Case Report

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### ABSTRACT:

Management of infections in the maxillofacial region is one of the most challenging situation that a maxillofacial surgeon faces. Early recognition of such infections and the decision making for the right choice of treatment is of prime importance. In this article, a case of canine space infection extending to involve the medial canthus of the eye and the periorbital region due to an odontogenic cause is presented with emphasis on aesthetic consideration while planning incision and drainage in the facial area.

**KEYWORDS:** Infections, Odontogenic, Swelling

### INTRODUCTION:

Space infections of odontogenic origin are one of the most common type of infection in the oral and maxillofacial regions.<sup>1-2</sup> These infections often spread to involve the fascial spaces in the head and neck region including the orbit, cavernous sinus and can extend to the superior mediastinum causing severe complications compromising the airway, if timely intervention is not performed. Treatment of such cases should focus on reducing the morbidity by early recognition of incipient cases, initiating prompt medical treatment (with parenteral antibiotics and adequate hydration), in conjunction with aggressive surgical management for drainage of purulent material along with the causative factor.<sup>1</sup>

Various factors which one should consider while determining the severity of such infections are the loco-regional anatomy, the rate of progression and the compromised airway. Local factors which determine the spread of infection in the canine space include the relationship of the root apex to the buccal corical plate, the periosteum, and the attachment of the muscle and fascia.<sup>3</sup> Early management of these cases is most important to prevent further extension of infection into the orbit leading to orbital cellulitis.<sup>2</sup>

The purpose of this case report is to highlight the importance of immediate management of case involving the canine space due to the odontogenic infection and revisit the basic principles of incision and drainage as related to facial area.

## CASE REPORT:

An 11 year-old boy reported to the Department of Oral and Maxillofacial Surgery, Santosh Dental College and Hospital with the chief complaint of swelling involving the left cheek region and the left eye from the past 2 -3 days. Patient had pain in the left upper front tooth region for which he visited a nearby dental care centre and endodontic treatment was initiated in upper left canine tooth. Subsequently, patient developed a swelling which suddenly increased in size with associated pain and fever from the past two days.

On examination, there was a solitary diffuse swelling in the left midface involving the perinasal area and the infraorbital region, obliterating the nasolabial fold pointing towards the medial canthus causing difficulty in opening of the left eye. The skin over the swelling appeared tensed, shiny and stretched (Fig 1). On palpation, local rise in temperature and tenderness were elicited. The swelling was soft in consistency with well-defined borders on the medial side; and diffuse extension involving the lower eyelid and cheek region. Intraorally, vestibular obliteration with tenderness over the upper left canine tooth was observed.

Intraoral periapical radiograph revealed 23 with periapical radiolucency (Fig 2). A diagnosis of canine space infection with cellulitis involving the left periorbital region was made. After routine blood investigations, incision and drainage of the abscess along with extraction of the left canine tooth was performed under intravenous antibiotic (Augmentin 1.2gm, Metrogl 500mg). To avoid a scar extra orally an 18 gauge needle was used to evacuate the purulent material and to decompress the abscess cavity (Fig 3). Surgical extraction of the offending canine tooth was performed and periapical curettage done (Fig 4). Patient was reviewed after 2 days with marked reduction in the swelling and overall improvement in his general condition (Fig 5).



Fig 1: Extraoral swelling on the left middle of the face involving the nasolabial and infraorbital region.



Fig 2: Intraoral periapical radiograph showing decayed 23 and periapical radiolucency.



Fig 3: decompression of the abscess cavity using large bore needle.



Fig 4: Post extraction socket of the upper left canine.



Fig 5: Postoperative 2 days with marked reduction of swelling on the left middle third of the face.

### DISCUSSION:

Odontogenic infections have the potential to spread into the primary and secondary spaces of the head and neck region.<sup>4-6</sup> The long root length of the maxillary canine can cause dissipation of infection above the attachment of the levator angular oris to involve the canine space. The infection can then ascend along the levator labii superioris alaque nasi muscle resulting in the swelling pointing towards the medial canthus of the eye. It is important to differentiate these infections from those arising due to dacrocystitis.

Studies in the literature have reported that 95% of the maxillofacial infections are mixed aerobic and anaerobic, whereas 5% are aerobic.<sup>7,8</sup> The most common antibiotic used for treatment of these infections is penicillin<sup>9</sup> however, with the rampant use of these antibiotics by the general dentist and, resistant organisms have emerged<sup>10,11</sup>. Clindamycin is not affected by the beta-lactamase producing organism and therefore can be substituted for penicillin<sup>12</sup>. Metronidazole can be used in combination with penicillin as it has excellent coverage against the anaerobes for mixed organisms in maxillofacial infections.<sup>12,13</sup>

The basic concept in the management of odontogenic infections focuses on the establishment of drainage with the removal of the source of infection.<sup>14-16</sup> Surgical decompression with debridement of the necrotic tissue helps to evacuate the purulent material thereby improving the local tissue oxygenation and ingress of WBC's to ward of the infection. Different types of drains have been mentioned in the literature (corrugated rubber drain, penrose drain etc.) to facilitate passage of the purulent material as well as serving as portal for local wound irrigation.<sup>17</sup> The basic principles of the drainage of the abscess involve placement of incision in the natural skin creases, in the region of the healthy skin and mucosa, gravity assisted drainage.

In this particular case, incision and drainage was facilitated with the use of a wide bore needle to aspirate 8-10ml the purulent material which subsequently brought about complete resolution of infection without any scars in the midface region. Through this article, we

would like to highlight the importance of constraint placement of incision for drainage of the abscess cavity. This article also lays emphasis on how a mere odontogenic infection can lead to an ascending infection in and around the periorbital area which can have fatal ophthalmologic consequences if it progresses to the patient.

### CONCLUSION:

Infections arising from decayed teeth rapidly spread to involve fascial spaces leading to ascending or descending space infections of the head and neck region. Prompt recognition and early institution of treatment can help to prevent a fatal complication which may be life threatening.

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