CASE REPORT

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Odontogenic Submandibular Space Infection Complicated By Temporal Space Abscess: A Rare Case Report

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ABSTRACT

Cases of facial space infection of odontogenic origin are commonly reported in dentistry. Among them submandibular space infections are most common, but their extension to temporal region is seldom reported. Management of such infection is very challenging and requires expertise. This report describes the management of a rare case of a submandibular space infection extending to temporal space using incision and drainage in an eight years old male child.

KEYWORDS: Antibiotic, Drainage, Suppuration

INTRODUCTION

Infections of odontogenic origin are common cause of reporting to the dentist. They made lead to pain, discomfort and difficulty in opening mouth, thereby complicating the functional activities of oral cavity. In developing countries, lack of adequate nutrition, poor orodental hygiene, tobacco use, areca nut chewing and smoking has increased the prevalence of odontogenic infections. Odontogenic infections can also provide a channel to deep neck space infections. The most common cause of these infections is poor oral hygiene. Odontogenic infections are common and can be fatal or life threatening calling for an essential early diagnosis. Management of these infections mainly comprises of airway management, antibiotic therapy and surgical intervention. As always said, prevention is better than cure, prevention of odontogenic infections can be achieved by creating awareness regarding such complications of poor oral and dental hygiene and by conducting regular screening at community level. The current case report describes the management of a rare case of a submandibular space infection extending to temporal space in an eight years old male child.

CASE REPORT

An eight years old male child reported with the chief complaint of pain and it was associated with swelling on the left side of face. The patient had visited local dentist in his area before 10 days and was prescribed antibiotics (Amoxycillin 250 mg and Clavulanic acid 125 mg) and non-steroidal anti-inflammatory drugs (Diclofenac sodium 50 mg and Paracetamol 250 mg in combination) three times daily for three days. After three days, the swelling increased and he reported to another dentist who prescribed some medication again (which was unknown to the patient) for three days. There was no relief in the pain and swelling; so, he reported to the department of Pedodontics, Dental College and Hospital, Mathura. Upon examination, a gross asymmetry of face was found with palpable hard swelling in mandibular left posterior region of the jaw that had further extended to the temporal region (Figure 1).The swelling was hard and fluctuant in nature extending from 34 tooth region inferiorly to temporal region superiorly and below infra-orbital margin anteriorly to posterior auricular region posteriorly, measuring 8×5 cms (Figure 2). The subject presented with a temperature of 39ºC and had reduced mouth opening. On radiographic evaluation it was observed that the mandibular left first permanent molar (36) was grossly carious and there was widening of PDL space, suggestive of periapical abscess in relation to the affected, 36 (Figure 3) which was suspected to be the aetiology for the infection. With this the diagnosis of submandibular space infection extending to temporal region was made. Since the patient had already taken medication with no signs of relief, it

was decided to incise and drain the abscess from the temporal region. The procedure was explained and written informed consent was obtained from the accompanying parent. Before the treatment, Otorhino-laryngologist was consulted to obtain an expert suggestion and to rule out any other possible aetiology.

Under aseptic conditions, lignocaine spray was applied in the temporal region and using 18 gauge needle the abscess was drained slowly (Figure 4). Approximately 25 ml of the pus was drained using this method. Remaining abscess was not possible to drain with needle because of the presence of loculi. Hence incision and drainage was decided and the loculi were broken using artery forcep (Figure 5). Under Local anaesthesia, a 2 cm long stab incision was placed in the safe area of the temporal region (Keeping in mind vessels and nerves in that region) and the pus was drained by pressing it in downward direction towards the incision. A corrugated rubber sheet (as a drain) was placed in the stab incision deep into the temporal space and dressing was given and the patient was recalled after three days. Culture and sensitivity test of the drained abscess was carried out in the microbiology department and it came out as sterile. Postoperative medications for submandibular swelling (Tab. Amoxycillin 250mg and Clavulanic acid 125 mg, Tab metronidazole 200 mg and analgesics ibuprofen and paracetamol) were prescribed two times daily for three days and patient was also advised to perform mouth opening exercises and recalled after 3 days.

There was improvement in mouth opening of up-to 20 mm width after 3 days. Because of poor prognosis the infected mandibular left permanent first molar was extracted followed by curettage. Some amount of abscess was drained again from the temporal region, rubber drain was changed and medication was continued for two more days. After 5 days, the swelling had regressed completely and the symmetry of the face was observed (Figure 6). Patient's mouth opening was improved by regular physiotherapy. Post operatively healing was uneventful. At follow up examination patient's clinical outcome was found to be satisfactory.

DISCUSSION

The management of deep neck infections is troublesome due to the complex anatomy of the neck, polymicrobial etiology, and life-threatening complications that may arise. Intravenous high dose antibiotics (usually penicillin or cephalosporins and metronidazole), analgesic and fluid therapy in addition to establishment of surgical drainage and elimination of the source of infection stand-out to be the prime treatment plan of fascial space infections. Moreover, the inappropriate use of antibiotics, steroids, and nonsteroidal anti-inflammatory drugs may mask signs of infection and change the clinical presentation, making it more elusive, and also lead to a slow course of disease, delayed recovery, and the development of complications.[1] Odontogenic infection was identified as the main source of fascial space infections in this case report while the cause is usually idiopathic in infants and young children.[2] The causative bacteria are usually a mixture of aerobes and anaerobes including oral microorganisms such as streptococci or staphylococci.[3] In the present case the patient had no relief with antibiotics initially and hence when he reported to us it was decided to drain the abscess. The culture of the sample was sterile which indicated the effectiveness of the previously taken antibiotics by the patient. In agreement with others reports, dental infection was the most common cause of submandibular space infection.4,5 Published literature pertaining to submandibular space infections, pointed out that in 28.4% of the cases the source of infection could not be found. Many of these patients might have had a long-standing suppuration of the deep lymph nodes not recognized in clinical and radiographic examination.[6] In the present case the infected tooth was extracted at the second visit as there was limited mouth opening when patient reported to us. The spread of this submandibular space infection to temporal region is rare and its management is challenging because of the proximity of the swelling to various vital structures.[7]

Since submandibular space infections frequently have a dental origin, acquisition of high-resolution axial scans of the jaw together with curved and

orthoradial multiplanar reconstructions (Dental scan) are advisable in order to identify periapical infections.[8] The present case was carried out by surgical management supported by antibiotic coverage since, latter alone would not have moderated the pathology. Surgical drainage aided in removal of toxic purulent material, decompression of the oedematous tissues, allowed better perfusion of blood containing antibiotics and defensive elements and increased oxygenation in the infected area leading to postoperative uneventful healing.[9, 10]

CONCLUSION

Pre-existing dental infections are the commonest causes of fascial space infections of the head and neck region. The extension of the submandibular space infection to temporal region could be dangerous if overlooked. Regular dental visits may enhance early detection and treatment of dental ailments, thereby preventing development of fascial space abscess.

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LEGENDS

Figure 1. Preoperative photograph showing submandibular space infection extending towards temporal region

Figure 2. Preoperative photograph showing fluctuant swelling in temporal region

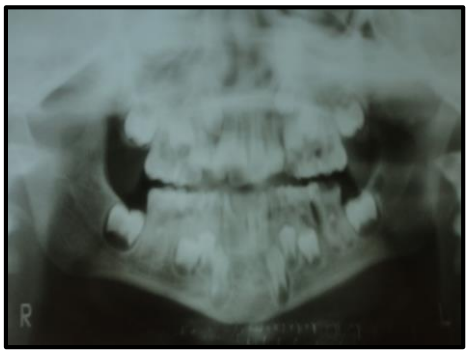

Figure 3. Orthopantomogram showing carious lower left 1st permanent molar

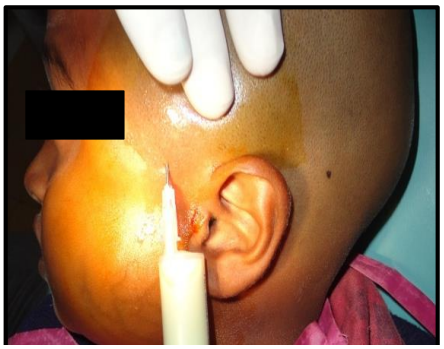

Figure 4. Draining abscess using needle

Figure 5. Breaking of loculi for drainage of remaining abscess

Figure 6. Post-operative photograph after 10 days