

CASE REPORT

ENDODONTIC EMERGENCIES- SPACE INFECTIONS

Krupali Shah¹, N. Vimala², Leena Padhye³

¹Post graduate Student, ²Professor and Guide, ³Professor and Head of the Department

Dept. of Conservative Dentistry, Dr. D Y Patil School of Dentistry Nerul, Navi Mumbai


ABSTRACT:

Dental infection can be a serious complication, especially for patients without adequate dental and medical care. Cellulitis of face and neck can occur with dental infections which may result in to diffuse inflammation of soft tissue space. It is a symptomatic edematous inflammation. It is associated with diffuse spread of microorganisms through fascial planes and connective tissues. Involvement of the fascial planes have a high risk of complications due to presence of abundant sensitive anatomic structures.

Key words: Odontogenic infection, space infection, cellulitis, root canal treatment.

Corresponding author: Dr. Krupali Shah, Post graduate Student, Dept. of Conservative Dentistry, Dr. D Y Patil School of Dentistry Nerul, Navi Mumbai

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INTRODUCTION

Odontogenic infections range from periapical abscess to superficial and deep neck infections. The infection spreads through connective tissue and fascial planes following the path of least resistance.¹⁻⁴ Infection ranges from mild well localized low grade infection to sever life threatening space infection.⁵

CASE REPORT

Case 1:

A 30 year old male patient reported with pain and swelling in the upper anterior facial region since 7 days. Extra orally, a tender, diffuse, non-fluctuant swelling was seen on the right side of the face (Fig 1.a).

Intraorally, tooth 11 showed Class III Ellis fracture, greyish discoloration and tendernessto percussion (Fig 1.b). Electric pulp testing revealed 21 was nonvital, 12 and 21 were vital. Radiographically a periapical radiolucency was seen (Fig 1.c). Patient was diagnosed with acute exacerbation of chronic irreversible pulpitis with cellulitis.

Treatment plan

Access opening was done in 21 and working length determined (Fig 1.d). Cleaning and shaping was done using

step back technique and tooth was obturated using lateral condensation technique (Fig1.e). Full ceramic crown was given (Fig.1.f).

CASE REPORT 2:

A 23 year old female patient reported with pain and swelling in the upper anterior region since 3-4 dayswith the history of trauma 7-8 years back. Extra orally, swelling was seen in the anterior region of face (Fig. 2.a).

Intra orally, tooth 21 showed greyish discoloration (Fig.2.b). Electric pulp testing revealed that, 21 was nonvital, 22 and 11 were vital. Radiographically a periapical radiolucency was seen in relation to 21(Fig.2.c). Patient was diagnosed with acute exacerbation of chronic irreversible pulpitis in 21 with labial space infection.

Treatment

Access opening was done in 21. Cleaning & shaping was done using conventional technique. The apical size of the prepared canal was larger than the ISO standardized sizes guttapercha cones, a customized gutta percha master cone was made to fit the size of the canal (Fig.2.e). Obturation was done using lateral condensation technique (Fig.2.f).

CASE 1:

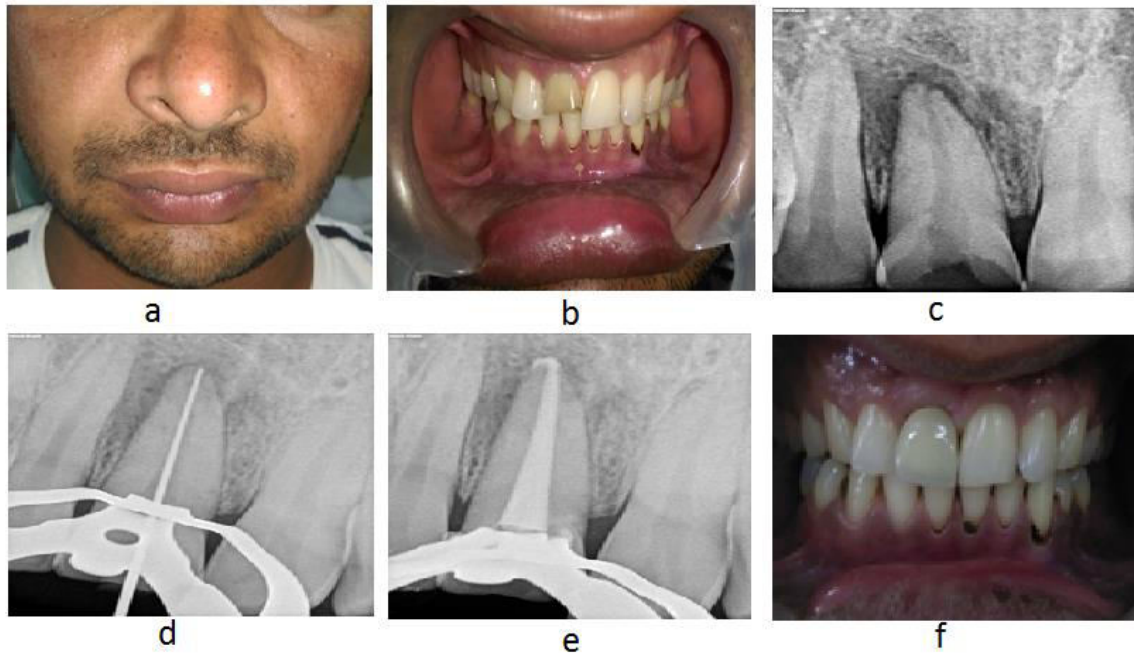


Figure 1: a-Extraoral swelling seen on the right side, 1.b- greyish discoloration of tooth 11; 1.c- preoperative radiograph; 1.d- working length radiograph; 1.e- obturation radiograph, 1.f- all ceramic crown placement.

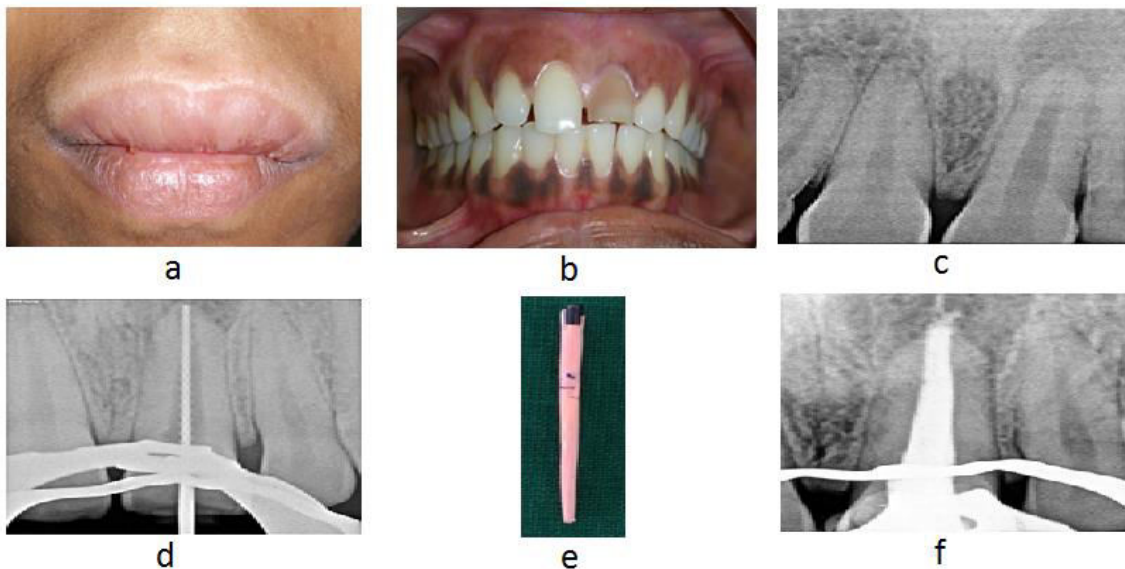


Figure 2: a-Extraoral swelling seen labially, 2.b- greyish discoloration of tooth 21; 2.c- preoperative radiograph; 2.d- working length radiograph, 2.e- customized guttapercha cones; 2.f- obturation radiograph.

CASE REPORT 3:

A 33 year old male patient reported with pain and swelling in the upper front region since 2-3 days. Extra orally, swelling was seen on the right side of the face. (Fig.3.a). Intra orally, tooth 13 was carious and tender on percussion (Fig.3.b). Tooth 13 was nonvital on testing. Radiographically periapical radiolucency was seen with 13

(Fig.3.c). Diagnosed as acute exacerbation of chronic irreversible pulpitis with cellulitis.

Treatment

Cleaning and shaping was done using conventional technique and obturated using lateral condensation technique (Fig.3.d), (Fig.3.e).

CASE 3:

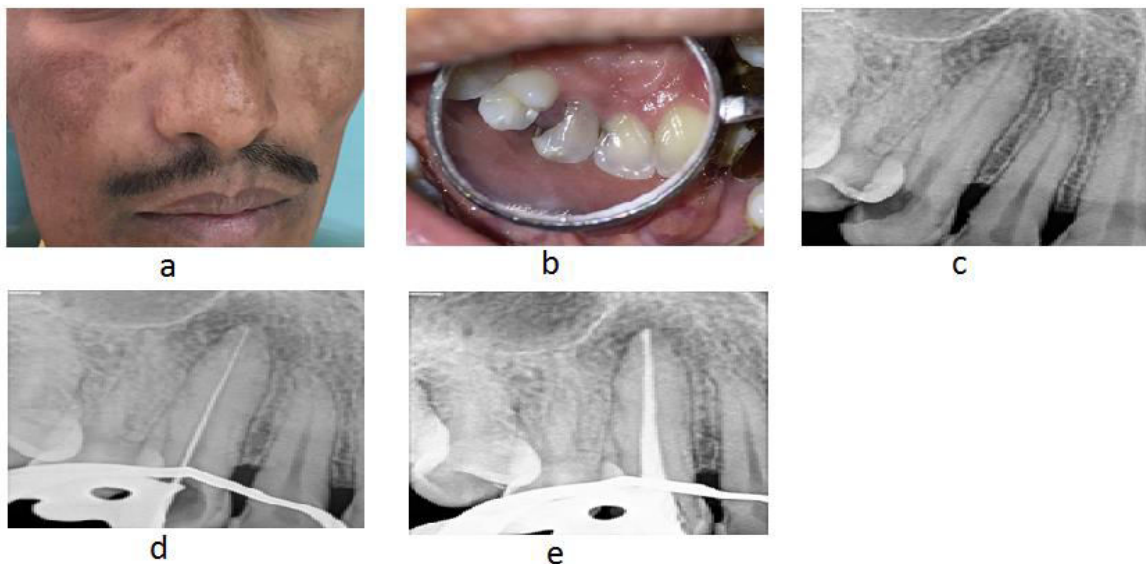


Figure 3: a-Extraoral examination; 3.b- intraoral carious tooth 13; 3.c- preoperative radiograph; 3.d- working length radiograph; 3.e-obturation radiograph.

CASE REPORT 4:

A 21year old female patient reported with pain and swelling in lower right back region since 2 days. Extra orally, swelling was seen in the lower right region (Fig.4.a). Intraorally, tooth 46 was restored with amalgam (Fig.4.b) and periapical abscess was seen on the buccal vestibule (Fig.4.c). Tooth was tender on percussion and nonvital. Radiographically, amalgam restoration was impinging on the distal pulp horn and periodontal ligament

space around the roots of 46 widened (Fig.4d). Patient was diagnosed of chronic irreversible pulpitis with alveolar abscess in 46.

Treatment

Cleaning and shaping was done using conventional technique and obturated using lateral condensation technique (Fig.4.e), (Fig.4.f).

CASE 4:

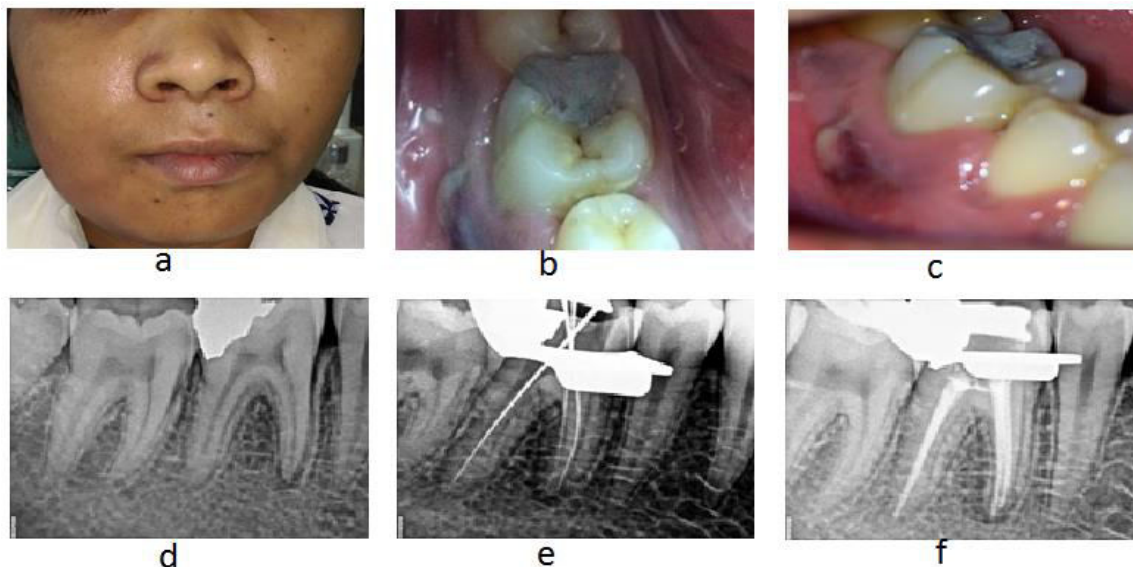


Figure 4: a-Extraoral swelling seen on the right side of face; 4.b- intraorally amalgam restoration seen on tooth 46; 4.c- periapical abscess seen on the buccal vestibule; 4.d-preoperative radiograph; 4.e- working length radiograph; 4.f-obturation radiograph.

DISCUSSION:

Odontogenic infections have two major origins: periapical and periodontal. Periapical results from pulp necrosis with subsequent bacterial invasion into the tissue. Necrosis of the pulp allows the pathway for the bacteria to enter the periapical tissues. Active infection is established once the tissue has become inoculated with bacteria. The infection spreads along the line of least resistance, through the cancellous bone until it encounters the cortical plate. If cortical plate is thin, infection erodes through the bone and enters the soft tissue⁵. The swelling may be localized to the vestibule or it may extend into the fascial plane, depending on the relation of the apices of the tooth to the muscular attachment⁶.

Patient shows systemic signs and symptoms of fever, chills, nausea, headache, lymphadenopathy.⁷ Tooth serves as the focus of infection⁶ and becomes sensitive to biting and percussion.⁷

Fascial spaces an anatomic areas that exist between the fascia and underlying organs are recognized by their anatomic boundaries. Swelling on the base of nose is caused by maxillary central incisor when the root apex is above the attachment of the orbicularis oris muscle. Infection of the infraorbital space present between the levatorangulioris, and the levatorlabialis superioris muscle, is caused by maxillary cuspids.⁶

Infection of the buccal space present between the buccinators muscle and the overlying cheek and submandibular space present between the mylohyoid muscle and the platysma muscle, is caused by mandibular posterior teeth.⁷

The bacteria that causes the infection are indigenous, primarily aerobic gram positive cocci, anaerobic gram positive cocci, and gram negative rods. 50% of odontogenic infections are caused by anaerobic bacteria alone, 44% by the combination of aerobic and anaerobic bacteria, 6% by aerobic bacteria showing polymicrobial nature of infection. Most common bacteria are the anaerobic gram positive cocci, peptostreptococcus, and streptococcus milleri. Bacteriodes also play an important role.⁸

Infections from the mid face may lead to cavernous sinus thrombosis. The edema and the inflammation causing blood to back up into the cavernous sinus and thrombi escaping into the blood stream producing life threatening complications.⁷

Infection from the mandibular posterior teeth may involve submandibular, submental, sublingual spaces leading to Ludwig's angina.¹ In all the above mentioned cases tooth has served as the focus of infection which lead to the spread of infection in the fascial spaces. Thus it is important to recognize space infections in the early stage of disease, when it is easy to manage.

CONCLUSION

Dental infection have significant medical ramification, including death¹. Prompt diagnosis and treatment with elimination of the causative factor are crucial.⁸

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