

Considerations while treating unilateral aggressive fascial space infection: A case report

Dr. Viren S Patil¹, Dr. Shandilya Ramanojam², Dr. Mayur Limbhore³,
Dr. Apoorva Iyengar⁴, Dr. Shirish K Patil⁵

^{1,2,3,4}(Department of Oral and Maxillofacial Surgery, Bharati Vidyapeeth Dental College and Hospital, Pune, Maharashtra, India,)

⁵(R. R Patil Homeopathic Medical College & Hospital, Sangli, Maharashtra, India)

Abstract:

Odontogenic infections are solely a causative factor of the fascial space infections and can be life threatening if not treated appropriately. The facial nerve and its course is correlated with few of fascial spaces which indeed can be affected by the invasive spread of the fascial space infection. Need of eradicating self-medication by the patient is beneficial for smoothening of the treatment modality of fascial space infection. Treating systemic diseases in patient who is diagnosed with the fascial space infection is beneficial for rapid improvement in the patient.

Keywords: Facial nerve involvement; odontogenic infections; unilateral fascial space infection; systemic diseases; self-medication; long standing facial nerve compression

Date of Submission: 28-08-2020

Date of Acceptance: 11-09-2020

I. Introduction:

The term maxillofacial space infection (MSI) refers to infections in the potential spaces and fascial planes of the maxillofacial region, a region with a complex anatomy. The main causes of MSI are odontogenic infection, lymphadenitis, and trauma.¹

Anatomical factors, microbial factors and impairment in host resistance are compounded by a delay in receiving adequate treatment in the early stages which can result in the progression of a localized odontogenic infection into a maxillofacial space. Severe space infections may present a challenging problem to the maxillofacial surgeon because of the complex anatomy and serious medical complications that can occur despite of skillful management.²

Incidence of the MSI has immensely decreased due to the use of broad-spectrum antibiotics and improved dental care. However, MSI remains potentially lethal infection, because of the possibility of life-threatening complications, such as respiratory obstruction, necrotizing fasciitis, descending mediastinitis, pericarditis, artery rupture, brain abscess and sepsis. Therefore it is important to be familiar with the clinical features of MSI, and to have a high index of suspicion and select the best treatment regimen in order to avoid life-threatening complications, because late recognition can delay in treatment and ultimately cause increase in the associated mortality.¹

The understanding of surgical anatomy of the facial nerve and its correlations with the parotid gland and facial muscles are very important for an adequate preservation of the normal physiological function of facial nerve. The iatrogenic injury in this facial region is common. The choice of the surgical approach is very relevant in the parotid surgery because of the extreme anatomic variability of the parotid area and the functional importance of the branches of facial nerve.³

Necrotizing parotitis caused by the infection which can be lead to facial nerve dysfunction due to the compression of the nerve.⁴

Our case report reveals few of the important views on treating a patient who has unilateral fascial space infection wherein mostly all the major and minor fascial spaces of one side of the face are involved. The correlation between facial nerve, odontogenic infection, self-medication, systemic diseases and the spread of fascial space infection has been described.

II. Case Report:

A 35 year old female patient reported to us with the chief complaint of huge swelling over the right side of the face which was accompanied with the tenderness. Patient also complained about the impaired vision as she was unable see anything by her right eye. Patient revealed history of all the third molars removal which was carried out one month back. Patient had a change in the medication which was not effective in this period of

a month. Swelling gradually increased day by day. When there was gross swelling and patient was intolerant for the swelling she reported to us to seek immediate treatment. Thorough extraoral and intraoral examination of the patient was done which revealed that multiple fascial spaces of right side of the face were involved such as submandibular space, sublingual space, masseteric space, infraorbital space, canine space of the right side (figure 1). Patient reported paraesthesia over the right side of the face. Patient complained about the vision impairment from the affected side. Routine blood investigations were advised and they revealed increased BSL levels and blood pressure. Patient was admitted and before opting for the further treatment plan the BSL levels and blood pressure level was brought within the normal limits. Incision and drainage under general anaesthesia was scheduled. Painting and draping of the patient was done. General anaesthesia was induced. Incision marking was made in relation to the inferior border of body of the mandible of right side extraorally. Lignocaine with adrenaline 1:200000 was injection in surrounding of the marking followed by incision was made with no.12 blade in relation with the marking (figure 2). Abscess was drained and thoroughly from the submandibular and submental region. Irrigation with betadine and normal saline was done, the exposed site was packed with betadine soaked gauze. Then crevicular incision in relation with right first maxillary premolar to second molar of same quadrant was made intraorally. Using periosteal elevator and bone file, buccal stripping was carried out by exploring masseteric, infraorbital, buccal spaces. Abscess was drained thoroughly from explored fascial spaces and was irrigated by betadine and normal saline following with placement of betadine soaked gauze. Abscess was then sent for culture and antibiotic sensitivity. Patient was extubated uneventfully and was shifted to ward. Patient was on I.V antibiotics for a week and regular follow ups by doing irrigation with betadine with normal saline was done, swelling was grossly reduced (figure 3). Vision impairment was eradicated as fascial swelling was reduced.

III. Discussion:

Patients having systemic diseases have an important association with maxillofacial infection. This further confirms that age is a potential factor associated with the life-threatening complications of maxillofacial space infections.¹ Our patient was diagnosed as a diabetic and hypertensive, this superadded the progression and aggressiveness of the infection.

All the major fascial spaces such as floor of the mouth, masseteric space, sublingual space, submental space and parapharyngeal space were infiltrated by the abscess in the patient which can be very brutal and life threatening due to respiratory obstruction. As given the literature, there should be close monitoring of the patients for looming respiratory obstruction to facilitate emergency endotracheal intubation or tracheotomy if necessary.¹

Our patient presented with the facial nerve weakness which was due the compression facial nerve caused due to aggressive spread of abscess in the fascial spaces over the right side of the face. It has been reported in the literature that facial nerve dysfunction can be seen due to the necrotizing parotitis.⁴

Our patient had a history of self-medication which included some of the antibiotics which were taken for a longer period of time. Self-medication has developed a conjoint apprehension in China, which indeed will worsen the infection.⁵

One of the main cause of the fascial space infection in our patient was odontogenic infection which was due to third molar removal, this can be correlated with the information from the literature that odontogenic infections are the most common cause of maxillofacial space infections.⁶

As given in the literature, facial nerve has its distribution in and around the parotid gland and facial muscles and its attachments. Our patient revealed paraesthesia over the right side of the face which was solely due to the hasty spread of fascial space infection which included almost all of the major fascial spaces of the unilateral side.

IV. Conclusion:

We conclude that, odontogenic infections are solely one of the causative factor of fascial space infection and can be life threatening if not treated appropriately. The facial nerve and its course is correlated with few of fascial spaces which indeed can be affected by the invasive spread of the fascial space infection biologically and mechanically. Need of eradicating self-medication by the patient is beneficial for smoothening of the treatment modality of fascial space infection. Treating systemic diseases in patient who is diagnosed with the fascial space infection is beneficial for rapid improvement in the patient. Operating surgeon should have comprehensive knowledge of the fascial spaces and its correlation with the above mentioned facts for the betterment in treating unilateral aggressive fascial space infection.

Figures:

Figure 1:



Figure 2:



Figure 3:



References

- [1]. Topazian RG, Goldberg MH, Hupp JR. Oral and maxillofacial infections, 4th ed., Philadelphia: WB Saunders Company; 2002.
- [2]. Uluibau IC, Jaunay T, Goss AN. Severe odontogenic infections. Aust Dent J 2005;50(4 Suppl 2):S74–81.
- [3]. Rodrigues, D. C. A.; Andreo, J. C.; Menezes, D. F. L.; Chinellato, P. T. & Rosa-Júnior, G. M. Anatomy Of The Facial Nerve And Its Implication In The Surgical Procedures. Int. J. Morphol., 27(1):183-186, 2009.
- [4]. Robin L. M. Gray, Peripheral Facial Nerve Paralysis Of Dental Origin. British Journal Of Oral Surgery 16 (1978-79) 143-150.
- [5]. Roberson JB, Harper JL, Jauch EC. Mortality associated with cervicofacial necrotizing fasciitis. Oral Surg Oral Med Oral Pathol Oral RadiolEndod 1996;82:264–7.
- [6]. Larawin V, Naipao J, Dubey SP. Head and neck space infections. Otolaryngol HeadNeck Surg 2006;135:889–93.