Orofacial Space Infection Due to Faulty Prosthesis

B. Pramod Krishna · Ranmeet Batra ·
Sumit Chopra · Nitin Sethi

Received: 21 April 2011 / Accepted: 2 August 2011 / Published online: 10 August 2011
© Association of Oral and Maxillofacial Surgeons of India 2011

Abstract Orofacial space infections are commonly treated by oral and maxillofacial surgeons, even in the post antibiotic era. Pre existing systemic conditions such as diabetes mellitus makes a person more vulnerable to space infection. A prosthesis which is poorly designed often jeopardises the oral health and makes a person susceptible to ulcers of mucosa, which can result in necrosis of mucosa. The sequel of such ulcerations and necrosis would be life threatening Orofacial space infections in medically compromised patients. Here we present a case report of 64 year old diabetic patient presenting with Orofacial space infection as a sequel to necrosis of mucosa caused due to physical and chemical injury by a faulty prosthesis fabricated by a quack practicing dentistry. Submandibular, sublingual and pterygomandibular space were involved leading to trismus and swelling. On forceful mouth opening after extraoral mandibular nerve block, denudation of mucosa was seen distal and lingual to mandibular right second premolar with pus discharge. Radiographic examination revealed no abnormal findings in teeth or bone. The spaces were explored from the opening created by denuded mucosa. Infection control and diabetic control was achieved with antibiotics and oral hypoglycaemic drugs.

Patient responded well for the treatment and recovered uneventfully.

Keywords Orofacial space infection · Faulty prosthesis · Diabetes mellitus · Quackery

Introduction

Odontogenic etiology is most common cause of deep head and neck space infection [1, 2], despite the generally improved availability of professional dental treatment. One of the main factors determining the spread of infection is the host defence mechanism. Diabetes is one of the most common systemic illnesses suppressing the immunity of an individual and increasing their susceptibility to infection [3].

Quackery is a derogatory term used to describe unscientific medical practices. Random house dictionary describes a “quack” as a “fraudulent or ignorant pretender to medical skill, knowledge or qualifications, he or she does not possess” [4]. Street dentistry, a form of quackery, is in practice in the rural and remote places of India. These street dentists often visit villages on their bicycle with a bag consisting of some pliers, screw drivers, dividers, self cure acrylic materials, etc [5].

This is a case report of a 64 year old diabetic patient with Orofacial space infection due to physical and chemical injury caused due to faulty prosthesis fabricated by a quack practicing dentistry.

Case Report

A 64 year old male patient reported to our unit with a chief complaint of inability to open mouth, pain in lower right

B. Pramod Krishna · R. Batra · S. Chopra
Department of Oral and maxillofacial Surgery, Himachal
Institute of Dental Sciences, Paonta Sahib, Himachal Pradesh
173025, India

B. Pramod Krishna (✉)
986, 4/8th Main, E&F Block, Ramakrishna Nagar, II Stage,
Mysore, Karnataka State 570022, India
e-mail: drpramodkrishna2001@yahoo.co.in

N. Sethi
Department of Prosthodontics, Himachal Institute of Dental
Sciences, Paonta Sahib, Himachal Pradesh 173025, India

back tooth region and mild swelling in lower right back region of jaw, since last 1 week. Patient gave history of extraction in lower right back tooth region, 3 years back from a quack practicing dentistry. He had subsequently undergone replacement of his missing teeth by same person with removable partial denture (RPD), which was splinted with wire and fixed to adjacent teeth with self cure acrylic resin. The patient used to visit the quack on regular basis for getting the prosthesis fitted, as and when it used to get loose. He had visited the quack 10 days back, when another coat of self cure acrylic resin was used to fix the RPD to adjacent tooth. Subsequently patient started having pain in lower back tooth region and he got the RPD removed. Patient was suffering from type 2 diabetes mellitus but was under medication.

On examination, trismus was seen with nil mouth opening. A mild diffuse swelling in lower right back region of the jaw was seen (Figs. 1 and 2). One finger width mouth opening was achieved by use of an extraoral block of the mandibular division of the trigeminal nerve to relieve pain. Upon intraoral examination with the available mouth opening, denudation of mucosa and exposure of bone was seen distal and lingual to mandibular right second premolar (Fig. 3). Pus discharge was seen from the opening. All the teeth distal to second premolar were missing.

Orthopantomograph revealed no abnormal findings in the bone or teeth (Fig. 4). The diagnosis was of submandibular and sublingual space infection leading to infection spreading to pterygomandibular space. The cause for the infection was attributed to necrosis of mucosa caused by physical and chemical injury caused due to faulty prosthesis (Figs. 5 and 6).

Blood investigation revealed increased random blood glucose level of 184.4 mg%, increased total leucocyte count of 16,400/cu mm and neutrophil count was raised to

82%. These values suggested that, it was required to treat infection as well as diabetes. The diabetic control was achieved with oral hypoglycaemic drug (Glimepride, 1 mg combined with Metformin, 500 mg). Patient was

Fig. 2 Front view showing diffuse submandibular swelling on right side of face

Fig. 3 Denuded mucosa with exposed bone

Fig. 1 Profile view showing diffuse submandibular swelling

Fig. 4 Orthopantomograph

Fig. 5 Tissue surface of faulty prosthesis

Fig. 6 Lingual surface of faulty prosthesis

prescribed amoxicillin with clauvanic acid, 625 mg and metronidazole 400 mg, eighth hourly. Spaces were explored with sinus forceps, from the area of exposed bone distal and lingual to mandibular right second premolar. Infection started subsiding from second postoperative day. Mouth opening was 19 mm on fifth postoperative day. Pus discharge also stopped on fifth postoperative day. Further, antibiotics were continued for 2 days and stopped. Jaw physiotherapy was advised to restore the functional mouth opening.

Discussion

Orofacial space infections are common presentation in oral and maxillofacial clinic even in the post antibiotic era [3]. Although the incidence of severe head and neck deep space infections requiring hospitalization, extraoral incision and

drainage has decreased, the clinical challenge of their treatment, especially in life threatening cases, remains the same [6]. Complications of space infection include mediastinitis, thoracic emphysema, pericarditis or septic shock with general multiorgan failure, especially in patients with associated systemic diseases. Further sequelae may be the inevitable hospitalization at an intensive care unit and mortality rates up to 50% [7].

Diabetes mellitus increases the susceptibility of infection. A study was conducted to compare the spaces involved, the severity of infection, the virulent organism, the efficacy of empirical antibiotics, the length of hospital stay and the complications encountered in the management of maxillofacial space infection of odontogenic space infection in diabetes patients as compared with non diabetic patients and it was concluded that streptococcus aureus was the most causative pathogen irrespective of the diabetic status of the patient. The same empirical antibiotic therapy of amoxicillin plus clavulonic acid combined with metronidazole with hyperglycemia control and surgical drainage of infection yielded satisfactory resolution of infection in the diabetic patients as well [3], as was the protocol followed in our case, wherein we also had satisfactory resolution of infection, inspite of the infection not being of odontogenic origin.

The microorganisms responsible for Orofacial space infection are streptococcus species in aerobic category and rods of prevotella and peptostreptococcus in anaerobic category [6] and hence penicillin is still widely used and is often antibiotics of choice for aerobes [8]. It is known that uncritical and frequent application of antibiotics has lead to the development of bacterial resistance [9]. Penicillin resistance occurs mainly because of the synthesis of betalactamase by the bacteria [10], which are neutralized by clavulonic acid. The anaerobes are treated with metronidazole.

The infection in our case has been caused due to necrosis of mucosa by physical and chemical irritation caused by faulty prosthesis. Presence of diabetes mellitus was contributory factor for spread of infection. Many of the quacks claim to have learnt the art of dentistry from their ancestors or after seeing a professional work in a dental clinic or after working as dental assistant. The procedures carried out by these quacks are very undesirable, harmful and sometimes dangerous to the patients [5], as was in our case. They remove teeth without sterilization protocol. Restoration of decayed tooth are done with self cure acrylic resins and artificial teeth are fixed with adjacent tooth using self cure acrylic resin and wires [5], as was done in our case. The government and dental council of India should come forward with a fool proof policy to eliminate such unethical practice of harming the population.

References

1. Huang TT, Tseng FY, Yeh TH, Hsu CJ, Chen YS (2006) Factors affecting the bacteriology of deep neck infection: a retrospective study of 128 patients. *Acta Otolaryngol* 129:396–401
2. Parhiscar A, Har-El G (2001) Deep neck abscess: a retrospective review of 210 cases. *Ann Otol Rhinol Laryngol* 110:1051–1054
3. Rao DD, Desai A, Kulkarni RD, Gopalkrishnan K, Rao CB (2010) Comparison of maxillofacial space infection in diabetic and non diabetic patients. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 110(4):e 7–e12 E Pub 2010 Jul 24
4. Webster's Online Dictionary. Search term "quackery". Accessed 13 April 2011 <http://www.websters-online-dictionary.org/definition/Quackery>
5. Sandesh N, Mohapatra AK (2009) Street dentistry: time to tackle quackery. *Indian J Dent Res* 20(1):1–2
6. Paul W Poeschl, Ludwig Spitsa, Guenter Russmueller, Rudolf Seemann, Alexander Hirschl, Ellen Ellen et al (2010) Antibiotic susceptibility and resistance of the odontogenic microbiological spectrum and its clinical impact on severe deep space head and neck infections. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 110:151–156
7. Levine TM, Wurster CF, Krespi YP (1986) Mediastinitis occurring as a complication of odontogenic infection. *Laryngoscope* 94:747–750
8. Rega AJ, Aziz SR, Ziccardi VB (2006) Microbiology and antibiotic sensitivities of head and neck space infections of odontogenic origin. *J Oral Maxillofac Surg* 64:1377–1380
9. Fleming P, Feigal RJ, Kaplan EL, Liljemark WF, Little JW (1990) The development of penicillin resistant oral streptococci after repeated penicillin prophylaxis. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 70:440–444
10. Rasmussen BA, Bush K, Tally FP (1997) Antimicrobial resistance in anaerobes. *Clin Infect Dis* 24(suppl 1):110–120