

Management of orthodontic emergencies - To act or not?

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Abstract

Due to the increase in the popularity of social media, there is an increase demand of esthetic appeal among adults as well as children. There is no denying that teeth forms an integral part in increasing the overall esthetics of an individual. As the number of patients seeking orthodontic treatment is rising in the recent era the more are their concerns during the whole treatment process. Although orthodontic emergencies cannot be considered as actual emergencies there are only few cases which require immediate attention by an orthodontist and majority of them which can be dealt in an follow up appointment. The following review article shares the knowledge of the common orthodontic problems faced by patients undergoing orthodontic treatment and the management of these emergencies for general dental practitioners.

Keyword: Fixed appliance treatment, bracket breakage, Orthodontic emergencies, Patient discomfort.

Introduction

According to the American College of Emergency Physicians (ACEP), an “emergency” can be defined as any condition perceived by the prudent layperson, or someone on his or her behalf, as requiring immediate medical or surgical evaluation and treatment. Although many adults in the modern era are highly motivated in undergoing braces treatment, they seldom know the small discomfort which comes as a package when undergoing fixed orthodontic treatment. The first objective of an orthodontist when the patients comes in for an emergency appointment is to take into account the complete history of the problem and relieve the patient of any pain and discomfort. The second objective should be to reassure the patient that these problems are not permanent. The most common emergencies patient reports after few weeks into orthodontic treatment are tooth pain, bracket breakage, loose bands, wire poking, tooth mobility, ulcers or soreness in the mouth, bleeding gums, missing elastics or ties, difficult in maintaining oral hygiene, missing part of the appliance and a piece of an appliance getting swallowed. Though orthodontic emergencies cannot be considered as an actual emergencies, it is common for a general dental practitioner to encounter orthodontic emergencies after first few weeks of orthodontic treatment or even later. The following review article briefs about the common orthodontic emergencies among patients undergoing orthodontic treatment and the management of these emergencies by general dental practitioners to provide temporary relief to the patient as well as to prevent any further delay in orthodontic treatment.

Most Common Problems

Dental Pain following Appliance Placement: After the initial bracket placement it is normal for the patient to feel pain or discomfort for few days. It is ideal for the orthodontist to discuss about the initial discomfort

during the initial stages with the patient as well as parents. During the complaint of immense pain which may affect eating and sleeping, prescribing analgesic drugs are a common protocol. One of the important advice following orthodontic treatment would be advising the patients to eat soft foods and rinse the mouth with warm salt water if necessary.¹

Soreness in the Mouth or Ulcers: One of the most common complaint the patients reports is of ulcers or soreness in the mouth after rubbing of the parts of appliance in the soft tissues. Use of ‘orthodontic relief wax’ is an effective method to reduce the discomfort. Alternatively applying a topical anesthetic gel in the affected area such as Orabase or Oragel can offer temporary relief.

Tooth Mobility: During orthodontic treatment a small amount of tooth mobility is considered normal consequence in the biology of tooth movement. However care must be taken to locate the exact cause of the problem. If there is an excessive tooth mobility due to any occlusal trauma or night grinding, care must be taken to restrict further damage to the teeth. A temporary bite plane or cap splint should be advised for these patients. Within few weeks the tooth mobility would be reduced. Meanwhile soft diet is advocated during this treatment and avoiding of any hard or sticky foods is restricted.⁸

Root Resorption: Root resorption within normal range is considered insignificant in most cases due to the application of orthodontic force. However if there is an high magnitude of force applied to the teeth, the patients reports with an excessive mobility in the teeth. Care must be taken in these patients and ideally an Orthopantomogram (OPG) can determine the extent of root resorption. If the resorption is beyond the normal limits, the treatment can be terminated temporarily or permanently based on the severity of the situation.²

Bleeding Gums: Another common problem the patient complains after the initial bracket placement is of bleeding gums. Bleeding gums can be associated with gingivitis or periodontitis. This may happen due to maintenance of poor oral hygiene which can lead to increase debris and plaque accumulation. A thorough instruction on strict oral hygiene maintenance with brushing, flossing and usage of mouthrinses should be stressed on the patient before as well as after the braces placement. Also care must be taken on taking a complete medical history prior to orthodontic treatment to rule out any medical problems associated with bleeding gums.⁷

Lost Spacer or Separator: The need of separator is important to ensure a proper band placement. A lost spacer or separator can lead to delay in the banding process which inturn delays the entire orthodontic treatment. If the patient calls and reports of a lost separator it is ideal to make an appointment and place the separators again.

Loose or Broken Brackets: Loose or broken bracket is one of the common situation an orthodontist faces after the initial appointment especially in young teenagers. This may be due to eating of hard or sticky foods, trauma from occlusion or injury during contact sports. If the patients calls with a complaint of broken bracket, the first advice is to ask the patient not to panic and to check if the bracket is secured within the archwire or ligature or it has debonded and fell off completely. An orthodontic relief wax can temporarily stop any discomfort the patient might feel till he visits an orthodontist. In any case it would be ideal to call in the patient as early as possible and rebond the bracket to avoid delay in the treatment.⁶

Protruding Archwire: Protruding distal end of the archwire is another problem the patient faces during initial weeks of braces placement. There can be number of reasons pertaining to cause this problem. Some of the common causes may include improper trimming of the archwire distally after placement, any harmful habits such as biting anything hard or excessive wire distally can be due to active tooth movement. Protruding distal wire can traumatize the soft tissues and lead to severe ulcerations and soreness in the mouth. The ideal treatment would be to schedule the appointment early and trim the archwire with the help of distal end cutter or if the wire is completely removed from the molar tube, then care must be taken to reinsert the wire back into its position. All nickel titanium wires if placed need to be cinched back to avoid the wire poking the patient. An orthodontic relief wax rolled and placed in the area of protruding archwire can help the patient in relief of any discomfort till an appointment with an orthodontist is made.⁹

Improper or Ill Fitting Appliance: Usually removable appliance can rarely lead to any trauma to the tissues as the appliance can be taken out when encountered with pain or discomfort. However some appliances such as transpalatal arch, lingual arch, quad helix or expansion

screw which are fixed to the molar bands if not placed properly can traumatize the palate and soft tissues leading to severe injury and bleeding. If there is severe inflammation of the palate it is ideal to remove the appliance till the palate heals which usually recovers within few days. If one part of the appliance is debanded or broken care must be taken to carefully remove the appliance and fabricate a new one. In case of emergency if the patient cannot visit you or is travelling abroad it is ideal to advise the patient to any nearby dentist who can remove the broken part to avoid any injury. However it is ideal to visit an orthodontist as soon as possible.

Swallowing Part of the Appliance: Although swallowing any part of the fixed appliance is very rare it can happen. The most common part of the appliance swallowed has reported to be the molar bands, buccal tubes, elastics, separators and expansion key. Naragond et al advises to check the efficiency of the appliance to withstand occlusal forces before delivering the appliance to the patient. Early diagnosis of the ingested foreign particle can reduce the severity in the treatment later. Non invasive procedures such as Heimlich maneuver, CPR, abdominal thrusts and laxatives can be utilized as the emergency procedure to removed the ingested foreign body till help arrives. However it is ideal to visit a physician as soon as possible in these cases.³

Lost or Broken Retainers: Lost or broken retainers are common problem in orthodontist office. Awareness among the patients on the importance of retainer wear should be implemented prior to the start of treatment. Some patients feel that once the orthodontic treatment is over the teeth will stay in its position, however that is not the case. Although some patients report to the orthodontist to replace the retainer, many patients feel that it is not necessary. A thorough counselling about retention and relapse should be advocated with proper maintenance of the retainer should be advised. The replacement of the broken or lost retainer should be given prior importance to achieve the stability in the retention after fixed orthodontic treatment.⁴

Discussion

Orthodontic emergencies though not frequent but they do occur. This article states the most common orthodontic emergencies that can occur and how to handle these emergencies by a general dental practitioners.

One of the first health care professional to encounter an orthodontic emergencies are the general dental practitioners. Murray et al¹² in 2015 stated the importance of handling orthodontic emergencies by general dental practitioners. He stressed that if proper diagnosis and management of orthodontic emergencies are carried out, the discomfort and pain of the patient is reduced leading to appropriate treatment outcomes. Another online survey was reported by Popat et al¹³ in 2016 where he did a survey among the general dental practitioners in Wales and concluded that general dental

practitioners were able to confidently handle 10 most common orthodontic emergencies without any difficulty. Sodipo et al¹⁴ in 2017 stated the importance of general dental practitioners to have sufficient knowledge in giving orthodontic ‘first aid’ during emergency. Emergencies can occur in all fields of dentistry, the knowledge of handling these emergencies should be known to all dental practitioners. Kandi et al¹⁵ in 2016 reported the management of foreign body ingestion during dental practise and the role of dental practitioners in managing these emergencies. Milton et al reported three cases of accidental ingestion of foreign bodies associated with orthodontic treatment and the role of GDP’s in handling these situations.

Conclusion

It is ideal for an orthodontist to brief about the common problems while undergoing fixed orthodontic treatment to the patient as well as the parent prior to the treatment in verbal as well as written format to ensure a smooth journey of the entire treatment. Care must be taken to ensure the patients that the problems are temporary and with time it will resolve. Unlike medical emergency orthodontic emergency need not require immediate attention in most cases. But in some cases it may cause pain and discomfort to the patients. The general dental practitioners are considered first by patients to seek temporary relief till their appointment with their orthodontist is scheduled. Sufficient knowledge about common orthodontic emergencies and their management among general dentists can benefit the patient as well as orthodontist in delivering stable treatment outcomes without any delay.

References

1. Jones ML, Chan C. Pain in the early stages of orthodontic treatment. *J Clin Orthod.* 1992;26:311–313.
2. Walker S. Root resorption during orthodontic treatment. *Evid Based Dent.* 2010;11(3):88.
3. Appasaheb Naragond, Smitha Kenganal, K. Rajasigamani and N. Sathish Kumar. Accidental Ingestion of Molar Band and Its Management: Maintenance Is Better than Management. Hindawi Publishing Corporation Case Reports in Dentistry Volume 2013, Article ID 891304, pp 1-3.
4. Athena Papadakis, Hicham El-Khatib, Andrée Montpetit. Managing a Patient with a Lost Retainer or Completely Debonded Appliance. *J Can Dent Assoc.* 2013;79:d112.
5. Rakhshan H, Rakhshan V. Pain and discomfort perceived during the initial stage of active fixed orthodontic treatment. *Saudi Dent J.* 2015;27(2):81-7.
6. Nazeer Ahmed Meeran. Iatrogenic possibilities of orthodontic treatment and modalities of prevention. *J Orthod Sci.* 2013;2(3):73–86.
7. Fatma Boke, Cagri Gazioglu, Sevil Akkaya and Murat Akkaya. Relationship between orthodontic treatment and gingival health: A retrospective study. *Eur J Dent.* 2014;8(3):373–380.
8. Nakago T, Mitani S, Hijjiya H, Hattori T, Nakagawa Y. Determination of the tooth mobility change during the orthodontic tooth movement studied by means of Periotest and MIMD (the mechanical impedance measuring device for the periodontal tissue). *Am J Orthod Dentofacial Orthop.* 1994;105(1):92-6.
9. Gustavo Mattos Barreto and Henrique Oliveira Feitosa. Iatrogenics in Orthodontics and its challenges. *Dental Press J Orthod.* 2016;21(5):114–125.
10. Sandeep Sharma, Sameer Narkhede, Shushma Sonawane, and Parag Gangurde. Evaluation of Patient’s Personal Reasons and Experience with Orthodontic Treatment. *J Int Oral Health.* 2013;5(6):78–81.
11. Ricardo Alves de Souza, André Frutuoso de Oliveira, Suélem Maria Santana Pinheiro, Jefferson Paixão Cardoso, Maria Beatriz Borges de Araújo Magnani. Expectations of orthodontic treatment in adults: the conduct in orthodontist/patient relationship. *Dental Press J. Orthod.* 2013;18(2).
12. Alison Murray and Jonathan Sandler. Emergencies in Orthodontics Part 1: Management of General Orthodontic Problems as well as Common Problems with Fixed Appliances. *Dent Update.* 2015;42:131–140.
13. Popat H. Management of orthodontic emergencies in primary care - self-reported confidence of general dental practitioners. *BDJ.* 2016;221:21–24.
14. Ibukunoluwa Sodipo, Joanne Birdsall. Orthodontic first aid for general dental practitioners. *Dent Update.* 2016;43(5).
15. Disha D. Kandi, Nitin Gulve, Sheetal Patani, Amit Nehete, Hrushikesh Aphale. *Sch J Dent Sci.* 2016;3(1):37-44.