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RESEARCH ARTICLE

ORTHODONTIC FIRST AID

Dr. Pradeep. S[1] , Dr.Ravi. S[2], Dr.Jyothikiran H[3], Dr.Anitha S.R[4].

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Corresponding Author

Dr. Pradeep. S
Asst.Professor Departmentof Orthodontics, J.S.S Dental College and Hospital, Mysore.
e-mail-
pradeeps1983@gmail.com

Abstract

During orthodontic treatment whether removable, fixed or functional appliances, majority of the patients have some form of complaints with the appliance. Whenever a patient presents with an orthodontic complaint, a careful examination and identify the cause for the complaint is very much essential for the general practitioners. Here are some of **Orthodontic First Aid** to orthodontic complaints and manage the same for general practitioners.

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Removable Appliances & Functional Appliances:-

Mouth watering:-

Inevitable when appliance first fitted. If persists, usually reflects insufficient wear.
Reassure patient and advise that will resolve as mouth adapts to strange plastic object. Instruct about this to patient at time of appliance delivery.

Problems with speech:-

Inevitable when appliance first fitted. If persists usually reflects insufficient wear.
Reassure patient and advise that will resolve once mouth adapts to strange plastic object.
Inform about this to patient at time of appliance delivery.

Appliance loose:-

a. Appliance unretentive due to poor design. Consider adding additional clasps and/or a labial bow. If not feasible then re-make appliance with improved design.

b. Clasps not retentive. If patient habitually clicks appliance in and out the clasps flex and become less retentive. Adjust clasps. It is advisable to warn patients when fitting appliance not to click appliance in and out.

c.

Clasp fractured (fig-1)

- Can occur if patient habitually clicks appliance in and out. Replace clasp on the model, and advice patient not repeat it.

Acrylic fractured (including bite-plane, buccal capping)

- Check whether fractured portion needs to be replaced or not. If not, smooth fractured edge.
- If repair required, take new impression if working model not available. Will need to fit repair as often some adjustment is required at chair-side.

Redness on roof of mouth

1) Candida: OHI and dietary advice. If marked infection or does not respond
    a) Prescribe anti-fungal to be applied to fitting surface of appliance.
    b) Trauma from appliance components, adjust as required

Sore cracks at side of mouth

Angular Cheilitis

- Oral Hygiene Instructions and dietary advice
- If marked infection or does not respond to OHI prescribe anti-fungal

Appliance comes out at night

a) Appliance not retentive due to poor design. Consider adding additional clasps and/or a labial bow. If not feasible then re-make appliance with improved design.
b) Clasps not retentive. If patient habitually clicks appliance in and out, the clasps flex and become less retentive. Adjust clasps. It is advisable to warn patients when fitting appliance not to click appliance in and out.
c) Insufficient wear of appliance during day. Ask patient to increase daytime wear.

Teeth and jaws ache

- Common occurrence during initial stages of treatment. Reassure patient.
- Inform patient that this may occur.

Fixed Appliance:-

Wire sticking out distally from molar tube/band *(fig-2)*

A. Ends of wire not trimmed

a) NT round wires: cut leaving 1-2 mm, remove wire, flame ends and turn-in
b) SS round wires: cut leaving 1-2 mm to turn-in
c) Rectangular wires: cut flush with distal aspect of tube

Always check with patient that ends are not sticking out before they leave chair.

B. Archwire has moved around

a) Round wires: re-position archwire and turn ends in
b) Rectangular wires: re-position archwire and crimphook or piece of tubing; or bond composite blob onto wire in convenient position. This is a particular problem with reduced friction bracket systems. Use a 'stop' to prevent wire sliding round when using these systems.
c) In initial stages as teeth align excess wire has moved distally through tubes. NiTi round wires: cut leaving 1-2 mm, remove wire, flame ends and turn-in.
d)

Wire sticking out mesial to molar

Ligature wire end turned out, Turn end in. Ligature wire has broken, Replace.

Bracket has detached from tooth (fig-3)

A. Bracket is in traumatic occlusion with opposing tooth

Consider these options:

a. Use a band instead of a bonded attachment

b. Place GI cement blob to either occlusal surface of molar teeth or palatally to upper incisors (Depending upon overbite)
c. Fit a removable bite-plane appliance

d. Place an intrusion bend in wire in opposing arch
e. Leave off bound until further overbite reduction has been achieved.

B. Arch wire over-activated to engage bracket

Replace bracket and then place more flexible archwire to align tooth

C. Patient has knocked bracket off

Replace bracket in 'ideal position' on tooth. May need to drop down a wire size to fully engage bracket**.** Educate patient: to avoiding hard foods & to avoid pen chewing.

Band loose (Fig-4)

A. Band is too big for tooth. Select correct sized band for 'snug' fit and cement in place.
B. Patient is eating sticky foods/sweets. Remove any remaining cement and re-cement band. Educate patient about reasons for avoiding sticky foods.
C. When one band of a quadhelix/TPA becomes loose it is necessary to remove the quadhelix/TPA and re-cement both bands.

Teeth feel loose.

A. A slight increase in mobility is normal during tooth movement. Check mobility of affected tooth/teeth. Reassure patient. Warn patient in advance that this is likely to happen.
B. Tooth in traumatic occlusion with opposing arch. Check occlusion. Consider these options:

a. Fit a removable bite-plane appliance
b. Place an intrusion bend in wire in opposing arch
c. Take steps to reduce overbite

C. Root Resorption

Take radiographs to check how many teeth are affected and to what extent. Discuss with patient. If limited – rest for 3 months before re-commencing active tooth movement. If marked, Discontinue treatment

Tooth/teeth are Painful.

A. Some discomfort is normal after fitting and adjustment of Fixed appliance. Reassure patient. Advice proprietary painkillers. Inform patient that this is likely to happen especially for the first few days after fitting/adjustment.
B. Tooth/teeth in traumatic occlusion. Check occlusion. Consider following:
   a. Fit a removable bite-plane appliance
   b. Place an intrusion bend in wire in opposing arch
   c. Take steps to reduce overbite.

C. Periapical pathology
   a. Take careful history
   b. Check vitality
   c. Check response to percussion
   d. Take periapical X-ray

If diagnosis confirmed, remove attachment from tooth and inform the resident dentist for further management. If practicable, defer further active tooth movement until radiographic signs of apical healing.

D. Periodontal problem
   a. Take careful history
   b. Probe affected tooth/teeth
   c. Take periapical radiograph

   If diagnosis confirmed, remove attachments from tooth/teeth and refer patient to their dentist for further management.

Nance bulb digging into palate

Reassess need to continue with nance/quadhelix. If need to continue, remove and adjust so that no longer digging into palate. Use gentle forces to minimize strain on anchorage (excessive forces can result in forward movement of molars to which nance is attached)

Sheath soldered to band on molar for attachment of palatal arch or quadhelix has detached.

Often occurs due to patient factors (e.g. eating hard/chewy foods). Remove palatal arch/quad and band. Re-solder new sheath and replace band and palatal arch/quadhelix. Advise patient to avoid hard/sticky foods or "fiddling" with palatalarch/quadhelix.

Patient hit in/around mouth

1. Take periapical radiograph of affected tooth/teeth, if root fracture, splint affected tooth/teeth with heavy archwire
2. If brackets knocked off replace if moisture control possible (if not defer for 1 week)
3. If archwire distorted, remove archwire and place light flexible archwire.
4. If teeth displaced, attempt re positioning and place light flexible archwire.
5. Monitor vitality
6. Warn of risks of delayed concussion

Miscellaneous

Dentist fractures tooth during extraction leaving root fragment.

a) Take X-ray to investigate size of Fragment.
b) If large and /or will interfere with planned tooth movements refer patient for removal of fracture portion.
c) If small and /or does not interfere with tooth movements keep under radiographic observation

Appliance component missing? inhaled or ingested

a) If airway obstructed, call ambulance and try to remove obstruction.
b) If there is a risk that the component has been inhaled then refer the patient to hospital for chest x-ray and subsequent management (give patient another similar component to aid radiologist when examining films)
c) If there is a danger that the component has been swallowed then seek the advice of the local hospital. If greater than six days previously, object has probably passed through patients system.

Bonded retainer detached. If retainer not distorted and teeth still well-alligned

a) Isolate, etch wash and dry, Rebond retainer with composite.
b) If retainer distorted and teeth still well-alligned, either bend up new retainer at chair-side using flexible multi-strand wire or take impression for laboratory to bond up new retainer.
c) If teeth have relapsed discuss with patient whether to monitor or re-treat.

Bonded retainer partially detached

- If remainder is not distorted then re-bond to remaining teeth
- If remainder distorted then remove and place new bonded retainer

Wrong tooth extracted by dentist

1) Speak to dentist who carried out the extraction and ensure they have informed patient
2) Reassess treatment plan in light of extraction
3) Inform patient of new plan and any limitations/problems

Patient/parent questions need to extract

1) Ask why patient/parent concerned- if due to process of extraction explain and reassure
2) If due to concerns regarding perceived disadvantages of extractions - discuss rationale for treatment plan.
3) Reassess if alternative approach can be used.

Figures:-

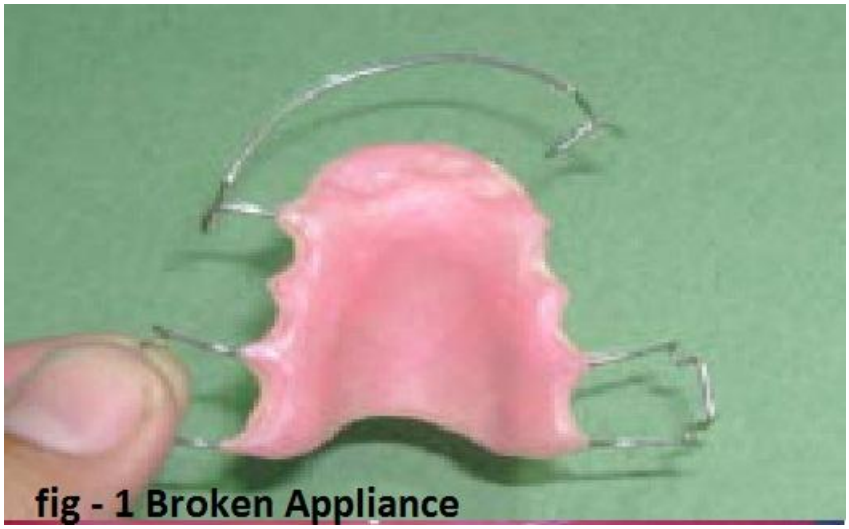

fig - 1 Broken Appliance

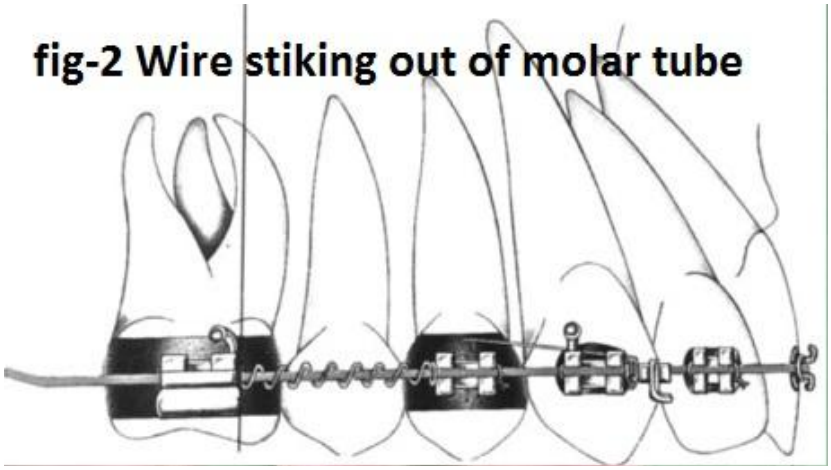

fig. 3. Bracket detached from tooth

fig- 4

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