Contents

1. Orthodontic appliance ........................................ 3
2. Types .......................................................... 3-4
3. Ideal requirements ........................................... 4-5
4. Appliance design .............................................. 5-6
5. Component parts ............................................. 6-9
6. Advantages of removable appliance ....................... 9-10
7. Limitation of removable appliance .......................... 10-11
8. Component parts of removable appliance ............... 11-21
9. Information and instruction ................................. 22-27
10. Base plate preparation ....................................... 28
**Orthodontic appliance:**
This may be defined as the “appliance by which mild pressure may be applied to a tooth or a group of teeth and their supporting tissue in a predetermined direction to bring about the necessary reaction processes within the bone and other tooth supporting tissues, to allow tooth movement”

Orthodontic appliances are divided into three main groups:

**A. Removable appliance:**
The term removable appliance is used to indicate an appliance which can be removed for cleaning by the patient or for adjustment by the Orthodontist.

These appliances can be taken out of the mouth by patient when required.

Removable appliances are three types:

1. Passive appliances: These appliances remain passive in the mouth and exert no active pressure. Example as
   - 1. Space maintainer
   - 2. Retention appliances
   - 3. Tongue guard

2. Functional appliances: These appliances work by transmitting or
modifying muscle forces to the teeth and their supporting tissues.

Example as: Andersen appliances

Frankles functional regulators

3. Mechanical appliances: These appliances carry some active components which are activated to exert active forces.

B. **Removable-Fixed appliances**: Here some part of appliances can be removed by the patient and other parts remain fixed on the teeth.

Example as: 1. Highly lower appliances.

2. Removable appliances whip spring.

C. **Fixed appliances**: These cannot be removed by the patient and consists of:

1. Bands- cemented on teeth (occasionally cast metal caps),
2. Attachments or brackets of different types attached on the bands or on teeth directly with bonding materials
3. Labial or lingual arches – These may themselves be active or passive and may carry auxiliary springs for movement of teeth.

**IDEAL REQUIREMENTS FOR AN ORTHODONTIC APPLIANCE**

1. Design of the appliance should be simple

1. It should be comfortable to use and be aesthetically acceptable

2. It should exert desired force in desired amount and direction
3. It should not interfere with normal function and growth
4. It should have adequate retention
5. It should be tasteless, odorless, and inert in oral secretions
6. It should be unbreakable
7. It should be heavy or bulky
8. It should be easily repairable and addable
9. It should not cause any damage to the teeth or other tissue
10. It should be easy to remove and insert
11. It should be easy to clean
12. It should be readily cleaned
13. It should be dimensionally stable
14. Material for the appliance should be cheap and available

When designing an appliance, all these requirements should be taken into consideration and attempt should be made to incorporate as many as possible.

APPLIANCE DESIGN

The element of orthodontic appliances is following:

(1) The frame work – This consist of the base plate in removable appliance, and the labial & lingual arch wire is fixed appliances.
(2) Means of retention – This consists of ‘clasp’ crib in removable appliance and ‘band’ or cast caps” in fixed appliance. Mesh brackets may however be dented directly on the tooth surface after acid etching.

(3) The active components – Active components may be in the form of:
(a) Springs, labial bows, Expansion screw, spring loaded inter-changeable pistons (SLIP screw) etc. commonly used i removable appliance.
(b) Rubber bands or elastics used in removable & fixed appliance.
(c) Arch wires i.e. loops, springs etc. used in F.A.
(d) Muscle force some appliances rely on occlusal force (anterior bite plat from) or on muscle force [Frankel appliance, oral screen]

(4) Anchorage – This should not be confused i clasing or devices used to retain the plate in the mouth. However, the “frame work” and the “means of retention” of an appliance help anchorage in addition to other means of anchorage.

a. Slow

5. When the forces are in physiologic limits, the resorbtion is seen in the alveolar plate immediately y adjacent to the ligament. This kind of resorbtion is called frontal resorbtion.

**Component of orthodontic appliances**

1. The component parts of removable orthodontic appliances are:
A. Retentive component- This part of removable orthodontic appliance holds the appliance in position and is called as clasp. It can also be referred to as the anchor unit of the removable orthodontic appliance. There are different types of clasps.

B. Active Component- This part of removable orthodontic appliance brings about the actual tooth movement. The active tooth movement can be brought about by various components like:

(a) Labial bows.

(b) Springs

(c) Expansion screws

(d) Elastics.

C. Base Plate- This unit of removable orthodontic appliance carries all the other components of the appliance. Auto polymerizing (self curing) acrylic resin is the material generally used for fabricating the base plate, sometimes heat curing acrylic resins can also be used. The acrylic base can be modified to have bite planes which serve special functions such as reduction of overbite, reinforcing anchorage etc.

2. Components of Fixed Appliance
A. Passive Components (Attachments):- These are Bands, Brackets, Buccal tube, Lingual cleats, Lingual buttons, Lingual hooks, eyelets, Lock pins, Ligature wire etc.

B. Active Components are:

Arch wires: Different types of readymade and other plain arch wires, Twist flex/Dentaflex arch wire etc.

Springs: Different types of springs used with arch wires such as uprighting, rotating, open or closed coil springs etc.

Elastics of different types and sizes.

Separators- These are used to separate the adjacent teeth to facilitate bonding.

Component of functional appliances:

The following appliances can be grouped under functional Appliances:

1. Bite Plane.
2. Oral Screen.
3. Activator.

Andresen appliance

The Harvold appliance (Harvold Activator)

Clark’s Twin Block appliance

4. Frankel Appliance/Functional Regulator
5. Habit Breaking Appliance.

ADVANTAGES OF REMOVABLE APPLIANCES

1. The majority of cases which require simple tipping can be satisfactorily treated by removable appliances.
2. Many tooth movements can be undertaken, readily with removable appliances. For Ex.: Tipping, deep bite reduction.
3. Bite planes can be incorporated with removable appliances.
4. Simple tooth movements are undertaken; hence the control is less complex.
5. These can be handled by general practitioner for correcting simple malocclusions.
6. They can be removed for short periods, on socially sensitive occasions.
7. It allows growth guidance (functional appliances).
8. Takes less chair side time.
9. Less expensive for both the clinician and the patient.
10. They can be removed by patient for brushing teeth and appliance maintenance.
11. Oral hygiene maintenance is easier.
12. If there is any damage or problem, the appliance can be removed by the patient.

13. They are less conspicuous than the fixed appliances

**LIMITATIONS OF REMOVABLE APPLIANCE**

1. Only simple tipping can be corrected. If teeth are inclined unfavorably, must be treated with fixed appliance.

2. Multiple rotations cannot be treated.

3. In complex cases, treatment is prolonged, as only few movements can be carried out at a time.

4. Following extraction, if excess spaces are left behind, posterior segments cannot be brought forward.

5. Cases other than those requiring extraction of first premolars are difficult to manage.

6. Lower removable appliances are not well tolerated.

7. If they are not adjusted carefully, they bring about uncontrolled tipping of teeth.

8. Uncooperative patients are difficult to be managed because they can remove the appliance by them.

9. Appliances can be easily broken or damaged, if they are not worn and not cared for.
10. Cannot be given in high or low FMA angle cases. Cannot be given to severe Class II and Class III malocclusion cases.

**Component parts of removable appliance**

**Retentive component: Clasp**

**Definition:**
Clasp can be defined as a component of removable orthodontic appliances that retains and stabilizes an orthodontic appliance in the oral cavity by contacting the surface of the teeth or by engaging the interproximal embrasures.

**Types of clasps Used in Orthodontics**

Following are the types of clasps used on Orthodontics.

1. Adam’s clasp and its modifications such as:
   a) Adam’s clasp with soldered hook.
   b) Adam’s clasp with distal traction hook.
   c) Adam’s claps with helix.
   d) Adam’s clasp with single arrow head.
   e) Adam’s clasp with soldered buccal tube.
   f) Double clasps – Adam’s clasp on incisors.

2. ‘C’ Clasp or Three-Quarter Clasps.

3. Full Clasp or Jackson’s Clasp.
4. Triangular Clasp.

5. Pre-fabricated clasps like.
   a. Interdentally clasp.
   b. Triangular head clasp.
   c. Arrow anchor clasp.
   d. Ball end clasp.


7. Duyzing Clasp.

8. Schwarz Clasp.


Adam’s clasp – Professor Phillip Adams.

Synonym –

- Liver pool clasp.
- Universal clasp.
- Modified arrowhead clasp.

Parts –

a. Two arrowheads

b. Bridge.

c. Two retentive arms.

Modification –
1. Adam’s clasp i J hook.
2. Adam’s clasp i helix.
3. Adam’s i buccal tube.
4. Adam’s i distal extension.
5. Single arrowhead Adam’s
6. Adam’s i additional arrowhead.
7. Addam’s on incisor.

Active components

1. Bows.
2. Spring.
3. Screw.
4. Elastics.

Bows

1. Short labial bow.
2. Long labial bow.
4. Reverse labial bow.
5. Robert’s retractor.
6. Mills retractor
7. High labial bow i apron springs.
8. Fitted labial bow.

**Springs**

1. Helical springs.
2. Looped spring
3. Self supported springs.
4. Supported springs.
5. Finger springs [single cantilever spring]
6. Z spring [double cantilever spring]
7. T spring.
8. Coffin spring. [water coffin]

**Canine retractor**

1. ‘U’ Loopcanine Retractor.
2. Helical canine Retractor.
3. Buccal self-supported canine retractor.
4. Palatal canine retractor.

**Spring**

Classification – see above.

Parts – 3 part – Active arm

   Halix or spring on loops

   Retentive arm.
### Diameter of helix – 3mm

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Construction</th>
<th>Description</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Single cantilever spring</td>
<td>.5 on .6mm s.s wire</td>
<td>Active arm – 10-12 mm Helix – 3mm dia. Retaining arm – 4-5mm</td>
<td>Movement M-D when tooth in line of arch [B-L position)</td>
</tr>
<tr>
<td>2.</td>
<td>S spring Single Double</td>
<td>.5 on .6 mm 3.5. Wire</td>
<td>Labial movement &amp; also correct minor rotation.</td>
<td>R. arm = 10-12mm A. arm = 4:4mm</td>
</tr>
<tr>
<td>3.</td>
<td>T Spring</td>
<td>.5 on .6mm</td>
<td></td>
<td>To move PM on M to buccal side</td>
</tr>
<tr>
<td>4.</td>
<td>Modified finger spring</td>
<td></td>
<td></td>
<td>Correction of space</td>
</tr>
<tr>
<td>5.</td>
<td>Flapper spring</td>
<td>.5mm</td>
<td></td>
<td>correction of minor rotation i labial bow</td>
</tr>
<tr>
<td>6.</td>
<td>Auxillary spring</td>
<td>.34-4mm</td>
<td></td>
<td>Correction over jet Alignment of and segment.</td>
</tr>
<tr>
<td>7.</td>
<td>Guided spring</td>
<td>.5mm</td>
<td>Types 1. Finger spring 2. Single Double cantilever. 3. Spring 4. Flapper.</td>
<td>They are required guide on support for the action. * Why use as guided spring 1. Thinner spring con distant so it prevent distention. 2. In case of deep bite it protect from distortion. 3. Spring in inclined plane form it is difficult to maintain</td>
</tr>
</tbody>
</table>
the point of application of force.

<table>
<thead>
<tr>
<th>Name</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up righting spring</td>
<td>Move root in a mesial or distal direction.</td>
</tr>
<tr>
<td>Torquing spring</td>
<td>Move root in lingual on palatal direction.</td>
</tr>
<tr>
<td>Open coil spring</td>
<td>Springs are compressed b/w tow teeth to open up space b/w them.</td>
</tr>
<tr>
<td>Closed coil spring</td>
<td>They are stretched b/w teeth to close space.</td>
</tr>
</tbody>
</table>

**Active component: Labial Bow**

**Definition**

Labial Bow is that component of removable appliance which helps in retracting and retaining the anterior teeth and also contributes for retention of the appliances.

Labial bow consists of three parts, namely:

1. Horizontal bow portion
2. Vertical loops
3. Retentive arms.

**Used of Labial Bow:**

2. Retraction of anterior teeth.
3. Retention of teeth, after active orthodontic treatment is completed.
4. Used for reinforcement.

5. For attachment of auxiliary springs.

6. It can also be used for carrying soldered attachments.

**Labial bow**

Describe the function of each type of labial bow.

<table>
<thead>
<tr>
<th>Types of Labial bow</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Short labial bow –</td>
<td>(1) For retraction of anterior teeth</td>
</tr>
<tr>
<td></td>
<td>(2) Used for retention of the teeth after active growth is completed.</td>
</tr>
<tr>
<td></td>
<td>(3) Used for reinforcement.</td>
</tr>
<tr>
<td></td>
<td>(4) Used for attachment of auxiliary spring.</td>
</tr>
<tr>
<td>2. Long labial bow</td>
<td>(1) Can be used to close the space between canine and premolars.</td>
</tr>
<tr>
<td></td>
<td>(2) Used for retention.</td>
</tr>
<tr>
<td>3. Split labial bow</td>
<td>(1) Used for correction of spaces.</td>
</tr>
<tr>
<td></td>
<td>(2) To flatten the arch.</td>
</tr>
<tr>
<td>4. Robert’s retractor</td>
<td>(1) Can used for correction of severe protrusion of teeth.</td>
</tr>
<tr>
<td>5. Mill’s Retractor or Expanded labial bow</td>
<td>(1) Used for correction of severe protrusion of teeth.</td>
</tr>
<tr>
<td>6. High labial bow</td>
<td>(1) Used in retracting the teeth with severe proclination of teeth.</td>
</tr>
<tr>
<td>7. Reverse loop labial bow</td>
<td>(1) Used to retain ant teeth after treatment is completed.</td>
</tr>
<tr>
<td>8. Labial bow with self straightening wire</td>
<td>(1) Can be used for correction of mild proclination or spacing of teeth.</td>
</tr>
<tr>
<td>9. Labial bow with elastic</td>
<td></td>
</tr>
<tr>
<td>10. Fitted labial bow</td>
<td>(1) For retention</td>
</tr>
<tr>
<td></td>
<td>(2) Reverse loop help to control the canine.</td>
</tr>
<tr>
<td>12. Rickett’s Retention labial bow</td>
<td>(1) Used for retention.</td>
</tr>
<tr>
<td></td>
<td>As the horizontal arm is extended over the canine, helps in controlling</td>
</tr>
<tr>
<td></td>
<td>the canine.</td>
</tr>
</tbody>
</table>
Active component: Springs.

**Definition**

Spring is an active component of removable orthodontic appliances which brings about the desired tooth movement.

**Type of springs**

The different types of springs which can be used to bring about the orthodontic tooth movement are:

1. Finger spring.
2. Single Cantilever spring
3. Double Cantilever or “Z” spring
4. “T” spring
5. Self supporting buccal spring.
6. Flapper spring.
7. Apron spring.
8. Coffin spring.
9. Reverse loop canine retractor.
11. Palatal canine retractor.
12. “U” Loop canine retractor.

**Bite plane:**
**Definition:**

Bite planes are Myofunctional appliances which are usually incorporated into the design of a removable orthodontic appliance as an extension or modification of the acrylic base plate.

**Classification:**

1. Bite planes may be classified according to their position as:
   a). Upper anterior
   b). Lower anterior.
   c). Upper posterior and
   d). Lower posterior

2. According to the angulations as:
   a. Flat
   b. Inclined

**Thus in upper arch we may have:**

1. Anterior flat bite plane.
2. Anterior inclined bite plane.
3. Sved bite plane.
4. Sid low’s hollow bite plane.
5. Posterior bite plane.

**In lower arch we can have:**
1. Anterior inclined plane or Catalans appliance.

2. Posterior bite plane.

**Upper flat anterior bite plane:**

It is an extension of acrylic base plate covering the region behind the upper anterior teeth extending from canine to canine. This extension should be flat and should be parallel to the occlusion plane. The bite plane should be high enough to disocclude the posterior teeth by about 2 to 3 mm.

**Indication:**

1. Deep bite

2. Cuspal interferences

3. Pain associated with temporo-mandibular joint disturbances

4. As a diagnostic splint TMJ pain cases

5. Decreased lower facial height

6. Low (FMA) angle case

**Contra indication:**

1. High (FMA) angle

2. Increased lower facial height

3. Severe protrusion/protruded lower anterior

**Construction:**
The patients cast should be preferably articulated to assess the amount the disocclusion present between the posterior teeth while fabricating the acrylic base plate the thickness in the anterior region is increased to form a flat bite plane. The bite plane extends from canine to canine lingual to the anterior teeth. The bite plane should disocclude the posterior teeth by about 2 to 3 mms. After fabrication the height can be checked and adjusted to the desired extend in the patient mouth.

**Upper anterior inclined bite plane:** It is used in cases where there is severe retroclination of lower anterior teeth. It is a modification of the anterior bite plane. The bite plane is inclined downwards and forwards at an angle of 60 to the occlusal plane. When the lower incisors are retroclined, a flat anterior bite plane cannot be given as the forces will no longer be transmitted along the long axis of the teeth and therefore an anterior inclined bite plane should be used. The lower incisors engage the bite plane when the patient closes the mouth and the mandible is guided to be held in forward position.

Uses: 1. Guiding the mandible forward.
   2. proclination of retroclined lower anterior.
   3. Reduction of overbite.
INFORMATION AND INSTRUCTIONS FOR THE PATIENT AND PARENTS FOLLOWING INSERTION OF REMOVABLE APPLIANCE

Its effects:

It should be explained to the patient that, initially the appliance will feel strange and there may be some difficulties in swallowing and speech. These inconveniences will disappear within 48 hours of use. It is likely to be sore for about 3-5 days each time the brace is adjusted. If necessary, painkillers would take for a headache may help. If there is an obvious area of soreness as a result of the brace, ring for an appointment as soon as is reasonably possible. If possible, do not stop wearing the brace. Speech will be different. Practice speaking with the brace in place e.g. read out aloud at home on your own, and in this way your speech will return to normal within a couple of days.

The appliance should be removed and cleaned when cleaning the teeth (after each meal).

Every time after the insertion of the appliance, the patient must check that the springs are in correct position in relation to the teeth.

Eating with the Removable Appliance:

Appliance should be worn full-time including when in bed. It is better to take out the appliance for eating coarse or hard food to avoid distortion or
damage to the appliance and for convenience of the patient. In certain circumstances however, is necessary to wear the appliance even at meal times for better and quicker result

For your orthodontic treatment to work well and in the shortest possible time it is important you take care of your teeth and brace. In order to avoid damage to both, you should try to avoid the following:

- Toffees boiled chewing gum, chocolate bars, etc.
- Fizzy drinks including diet drinks, excessive amounts of fruit juice.
- Hard food which might damage the brace such as crunchy apples, crusty bread rolls etc.

Hard foods can be eaten with care if you cut them up first.

**Tooth brushing:**

It is important you brush well three times per day and use fluoride toothpaste. If possible carry a brush with you for use after lunch. Take to brace out to clean your teeth. You should also gently brush the brace, taking care not to damage the wires. A daily fluoride mouth rinse should also be used last thing at night, after tooth brushing. Failure to keep your teeth and brace clean will lead to permanent scarring of your teeth.

**Removal of the brace:**

Brace can be removed but you should only remove it for cleaning.
Duration of the treatment:

It usually takes 6-24 months but will vary according to how severe your case is. Failed and cancelled appointments or repeated breakages of the brace will increase the length of time the treatment will take.

Frequency of appointment:

You will need regular appointments during treatment for the brace to be adjusted.

Need to see the regular dentist.

It will be important you still have check-ups with your regular dentist throughout orthodontic treatment so that your teeth can be checked for decay.

If the brace breaks:

Ring up for an appointment as soon as is reasonably possible. Do not wait for your next routine appointment as the breakage may slow your treatment, or may result in damage to your teeth. If you repeatedly break your brace treatment may be stopped.

Retainers

Retainers are designed to keep the teeth straight after the active treatment and can either be removable or fixed to the teeth. Once the teeth are corrected, if the retainer is not used where it is necessary, the teeth are
likely to drift towards their original positions. If this happens it may be
difficult, if not impossible, to correct them again.

**Information and Instructions given to the patient using retainer**

**Duration of use of the retainers:**

This will vary according to how your teeth originally looked, before the
orthodontic treatment was started. However, as a general rule you will be
asked to wear a removable retaining appliance for at least 6 months. This
may mean wearing it all the time at first, before going on the just night-time
wear. You will be advised if long term wear is required.

**Its effects:**

Your speech will be different. Practice speaking with the brace in place e.g.
read out aloud at home on your own, and in this way your speech will
return to normal within a couple of days.

You may also find yourself swallowing a lot to being with. This is quite
normal and will quickly pass.

If you have a fixed retainer then you will need to take extra care to keep it
clean.

**Checking the appliance before insertion**

1. The appliance has been made according to correct design
2. All traces of wax and plaster has been removed from the appliance
3. The thickness of the plate is uniform
4. Base of the appliance is trimmed and polished
5. No sharp edges or nodules remain on the fitting or polished surface
6. Correction of distortion of the spring that has occurred during fabrication, trimming and polishing

**Instruction to the patient**

1. Appliance should be worn at all times even during sleeping and eating
2. Remove the appliance using the clasps only
3. Remove the appliance only for cleaning
4. Clean the appliance using tooth brush and soap in the morning and before going to bed
5. Rinse the appliance in clean water after every meal.
6. Avoid eating coarse or hard food while wearing the appliance or remove the appliance before doing.
7. Every time after insertion of the appliance check that the springs and clasps are in correct position
8. Initially the appliance will feel strange and the patient will feel-
   a. Discomfort
   b. Plastic taste
   c. Excessive salivation
d. Mild pain

e. Difficulty in swallowing

f. Difficulty in speech

These will disappear within 48 hours if the patients wear the appliance regularly

9. The difficulty in speech can be overcome by reading aloud at home rather than avoiding talking

10. Avoid playing with the appliance using the tongue

11. Visit your Orthodontist according to your appointment

12. If you are unable to wear the appliance due to-

   a. Severe pain

   b. Breakdown of the appliance

   Report to your Orthodontist at once and do not wait for the next appointment

13. Appliance should not be stored in the pocket or wrapped in paper, as it may cause distortion or shrinkage of the appliance.

14. Store the appliance in water in a closed container when unable to wear the appliance

15. If the appliance is lost, report to your Orthodontist at once so that treatment may be continued as soon as possible.
Base plate preparation

Trimming : Acrylic trimmers with Vulcanite and Stainless Steel bur

Finishing : Finishing stone and Sand paper or Emery paper

Polishing : Brush with Pumice on a Lathe

Glossy finish : Woolen Buff
Bibliography:

4. Iida J. Lecture/class notes. Professor and chairman, Dept. of Orthodontics, School of dental science, Hokkaido University, Japan.
5. Lamiya C. Lecture/class notes. Ex Associate Professor and chairman, Dept. of Orthodontics, Sapporo Dental College.
17. Yoshiaki S. Lecture/class notes. Associate Professor and chairman, Dept. of Orthodontics, School of dental science, Hokkaido University, Japan.
Dedicated To

My Mom, Zubaida Shaheen
My Dad, Md. Islam
&
My Only Son
Mohammad Sharjil
Acknowledgments

I wish to acknowledge the expertise and efforts of the various teachers for their help and inspiration:

1. Prof. Iida Junichiro – Chairman, Dept. of Orthodontics, Hokkaido University, Japan.
3. Asst. Prof. Kajii Takashi – Dept. of Orthodontics, Hokkaido University, Japan.
8. Prof. Amirul Islam – Principal, Bangladesh Dental college
9. Prof. Emadul Haq – Principal City Dental college
11. Asso. Prof. Lamiya Chowdhury – Chairman, Dept. of Orthodontics, Sapporo Dental College, Dhaka.
13. Asso. Prof. MA Sikder – Chairman, Dept. of Orthodontics, University Dental College, Dhaka.
Dr. Mohammad Khursheed Alam has obtained his PhD degree in Orthodontics from Japan in 2008. He worked as Asst. Professor and Head, Orthodontics department, Bangladesh Dental College for 3 years. At the same time he worked as consultant Orthodontist in the Dental office named “Sapporo Dental square”. Since then he has worked in several international projects in the field of Orthodontics. He is the author of more than 50 articles published in reputed journals. He is now working as Senior lecturer in Orthodontic unit, School of Dental Science, Universiti Sains Malaysia.

Volume of this Book has been reviewed by:
Dr. Kathiravan Purmal
BDS (Malaya), DGDP (UK), MFDSRCS (London), MOrth (Malaya), MOrth RCS (Edin), FRACPS.
School of Dental Science, Universiti Sains Malaysia.

Dr Kathiravan Purmal graduated from University Malaya 1993. He has been in private practice for almost 20 years. He is the first locally trained orthodontist in Malaysia with international qualification. He has undergone extensive training in the field of oral and maxillofacial surgery and general dentistry.