INTRODUCTION

- The Clear Aligner represents an easy way to treat orthodontic patients when a minor tooth movement is necessary. It has several positive characteristics. It is esthetic, efficient, comfortable, low cost appliance, has simple mechanics & requires less chair side and treatment time.
- In this article, the author explains the indications, limitations of clear aligner and the laboratory protocol.

INDICATIONS

- The Clear Aligner is especially indicated for treatment requiring minor tooth movement and in cases of relapse.
- The main indications are:

¤ Minor crowding (less than 4mm especially from canine to canine)

¤ Rotation control, especially for rotated incisors.

- Expansion
- Space closure, less than 4 mm
- Passive/Active retainer

LIMITATIONS

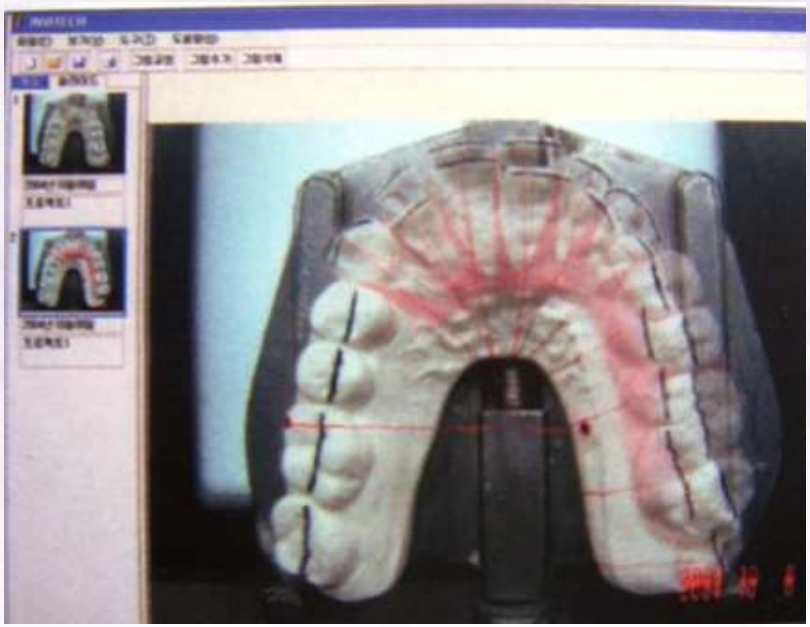
- The Clear Aligner is not as effective for extraction cases, tip control, open bite cases, or intercuspation cases.

FABRICATION OF A CLEAR ALIGNER

- Clear Aligner treatment requires high quality impressions. A set-up cast is made, reproducing the treatment goals.
- A movement of 0.5 mm can be made with the initial clear aligner appliance, and the teeth can be moved 1 mm with each of the following appliances.

- Therefore, it is possible to calculate how many clear aligner appliances will be necessary. The patient will use each appliance for 1 month, so in this way, the clinician can know the treatment time.

- To make the clear aligner appliance, it is necessary to saw and remove the malpositioned teeth from the initial cast and move them in the direction of correction by 0.5 mm.
- To check the movement of teeth, the reference lines or the aligner aid program can be used.



- Once the cast teeth are fixed into new position, 2 thermoplastic plates(0.020 & 0.030 inches thick) are adapted to the cast with a vacuum former.
- The patient will use the first plate for 1 week and the second plate is used for the following 2 weeks. After this, the patient will return to the clinic for new impressions and then new clear aligner appliance will be made.

LABORATORY PROCEDURE

1) IMPRESSION TAKING & CAST TRIMMING :

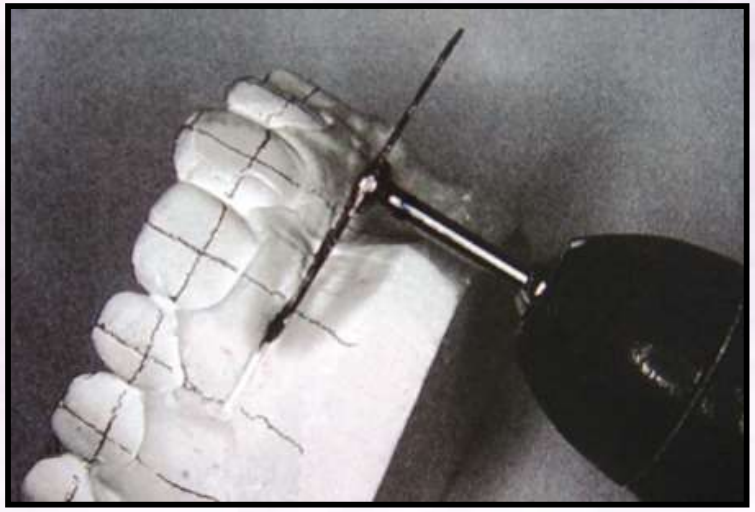
- This is done using the normal method. The working cast is made in hard stone; after trimming the cast, edges and bubbles are removed.

2) DRAWING THE REFERENCE LINES

- The reference lines are drawn on the labial and lingual surfaces of teeth needing positional correction.

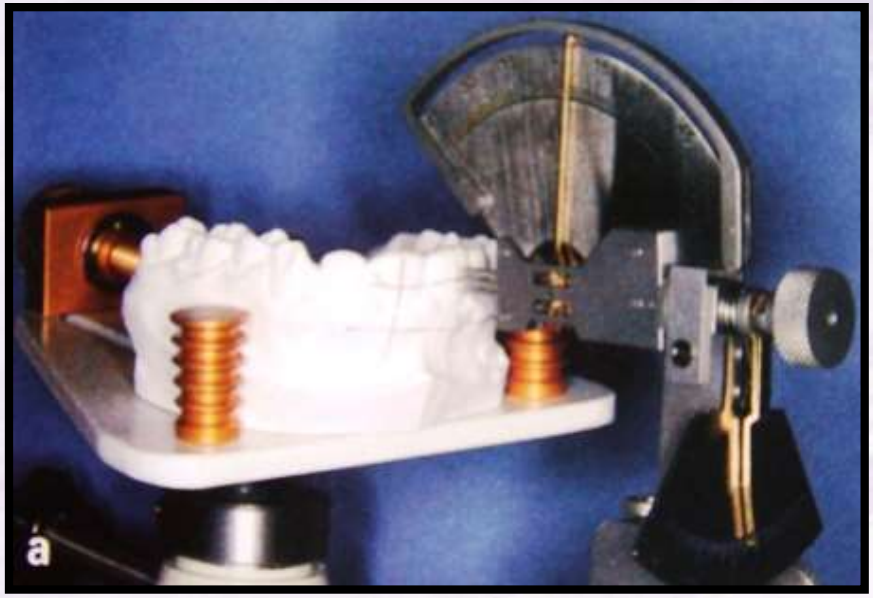
3) SAWING AND TRIMMING :

- A horizontal cut with a disk is done 5 to 6 mm from the gingival margin. For vertical cuts, saw thickness is 0.3 mm, however the average amount of sawing space in stone cast is 0.5 mm.



- 4) ADVANCING:
- Advancing means an acceptable range of orthodontic tooth movement towards the corrected tooth position. The 3 steps in clear aligner treatment are :
- a) initial stage with 0.5 mm movement.
- b) active stage with 1 mm movement in the succeeding step
- c) retention stage without movement

- Once the teeth are advanced, they are fixed with utility wax. It is necessary to check the movement of these teeth with clear aligner software or Model - Checker.



- Then the cuts are blocked with block out resin.

- 5) CLEAR ALIGNER MANUFACTURE
- Using the vacuum former, 2 clear aligners are carefully made and are then trimmed and polished. Ultrasonic cleansing with 75 % ethanol is necessary.

- 6) PATIENT APPLICATION
- After UV sterilization, the clear aligner is given to the patient.

CLINICAL CASES

- To demonstrate the effectiveness of clear aligner appliances, the authors have presented the pre treatment and post treatment photographs of 3 typical cases to be treated with clear aligners.

1. With minor crowding in maxillary arch

2. With diastema in maxillary arch

3. With relapse at the extraction site after orthodontic treatment

THANK YOU