

A NEW SEMI-FIXED EXPANSION APPLIANCE - TECHNIQUE CLINIC

Authors: **Dr. Gyan.P Singh⁺, Dr. Sneh Lata⁺⁺, Dr. Ajit Kumar⁺⁺⁺**

++ M.D.S., Fellow (W.F.O., Member ID : 2010008), Assistant Professor

Department of Orthodontics & Dentofacial Orthopaedics,
Faculty of Dental Sciences,

+ MDS,Senior Resident

Department of Orthodontics & Dentofacial Orthopaedics,
Faculty of Dental Sciences,

+++ Junior Resident, Department of Orthodontics & Dentofacial Orthopaedics

Faculty of Dental Sciences,

Chhatrapati Shahuji Maharaj Medical University, Lucknow, (Erstwhile King George's Medical College).

Corresponding Author: Dr. GyanP.Singh,Assistant professor

Department of Orthodontics & Dentofacial Orthopaedics,
Faculty of Dental Sciences. C.S.M.M.U.

Expansion appliances are commonly used to gain space for alignment of teeth or to correct posterior crossbites. Expansion appliances may be removable or have a fixed variety. Various commonly used expansion appliances are Schwarz plates, removable acrylic plates, hyrax and Haas, *etc.*

A removable expansion appliance depends on patient cooperation and is, therefore, subjected to problems such as inconsistent wear, and loss or damage. Frequent adjustments are necessary to maintain retention. Fixed appliances offers an advantage of full-time wear but are more difficult to fabricate and are more expensive. Most orthodontists would agree that a fixed appliance is preferable over a removable one.

This article is an attempt to describe a hybrid *i.e.* semi-fixed expansion appliance with pros of both removable and fixed appliances and its use in concurrent therapy with a fixed appliance.

Appliance design and Fabrication:

1. A maxillary impression was taken with bands on the first molars and a working cast was prepared. Wire bending for active and retentive components was done as shown in the figure (Fig. No.1).
2. Jack Screw was placed in reverse direction for easy activation in the mouth (Fig. no 2-4).Appliance was than acrylised and finished.



Fig. no. 1 Model showing wire bending for appliance (Bands are soldered with retentive wire component)



Fig no. 2 Appliance on model after acrylisation



Fig no. 3 Finished Appliance



Fig no. 4 Appliance in patient's mouth at the time of delivery.

Case report 1

AM is a premenarchial female when she reported to the department of orthodontics with a chief complaint of a missing front tooth. Radiographic examination revealed that her maxillary right central incisor was impacted. Clinical examination showed that there was deficient space for alignment of the impacted incisor and the permanent canines were in the process of eruption. So, it was planned to create space by expansion of the maxillary arch. A semi-fixed appliance was fabricated to gain space for the maxillary right central incisor. Buccal tubes were welded to the bands for concurrent fixed appliance therapy. The appliance was cemented with luting cement (Glass ionomer cement). Activation of screw *i.e* one full turn twice a week was done. (Fig no.5)

PRE TREATMENT



Intraoral frontal
photograph



Intraoral Occlusal
photograph

AFTER SEMI FIXED EXPANSION



Intraoral Occlusal
photograph with appliance



Intraoral Occlusal photographs
after 3months treatment with
semi fixed expansion appliance

Fig No. 5

Discussion:

The advantages of a semi-fixed expansion plate are:

1. It is easy to fabricate, economical and well adapted to the patient.
2. It's simplicity and semi-fixed nature improves the efficiency of the orthodontist and reduces the total treatment time, as it allows the fixed appliance to work simultaneously.
3. This appliance is well suited for cleft palate patients in which relapse occurs within hours; being fixed in nature this relapse can be prevented.
4. It is preferable to use transparent acrylic for acrylisation of appliance to better view the oral hygiene and cleaning underneath the plate and it is also more acceptable to the patient.