

**CASE REPORT*****A synergistic approach of Petit face mask with modified expansion appliance in management of Class III malocclusion with impacted maxillary canines***Yukti Raj<sup>1</sup>, Pradeep Tandon<sup>2</sup>, Gyan P. Singh<sup>3</sup>, Anusuya V<sup>4</sup>.**Abstract:**

*In evaluating the Class III relationship during the primary or mixed dentition period, it is important to consider whether the problem is dentoalveolar or skeletal in origin. The therapeutic possibilities of class III malocclusion depends upon the developmental age of the patient and the nature of malocclusion. In this article, treatment of a 9 years old female patient was done with modified Hass expansion appliance for RME and then protraction with Petit facemask was done to protract the maxilla. Timely intervention and guidance with the help of 2 x 4 fixed appliance helped the maxillary canines to erupt in its normal position which was impacted and hence prevented any extraction or surgical procedures. Fixed prosthesis helped to gain the proper torque for the maxillary incisors and canine. Retention was kept for 8 months with simple maxillary Hawleys appliance as positive.*

**Keywords:** petit facemask, modified Hass expansion appliance, canine impaction, growing class III.

**Introduction**

Timely intervention is the key success in the correction of developing class III malocclusion. For maxillary deficiency, protraction face mask with or without rapid maxillary expansion (RME) is the treatment of choice. Role of RME is to facilitate the protraction by loosening the circum-maxillary sutures. Commonly bonded or banded type of expansion appliance is used with different type of screws.

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**Diagnosis**

9 years old female patient presented with chief complaint of backwardly placed upper front teeth. On examination concave profile, dolicocephalic face, everted & protruding lower lips, maxillary deficiency were noted. Mixed dentition with Angle's class I molar relationship, reverse overjet, anterior and posterior cross bite with no space for the maxillary canines to erupt was also noted. Cephalometric analysis revealed average growth pattern with skeletal class III (Fig.1).

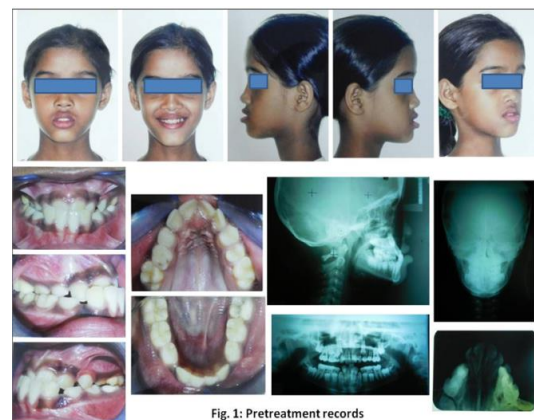


Fig. 1: Pretreatment records

**Treatment plan<sup>2,3,4</sup>**

Treatment plan was to protract the maxilla with petit face mask and modified Hass expansion appliance (Fig. 2). Immediately after the orthopedic

correction, fixed appliance mechanotherapy was planned without any observation period. Simultaneously along with the fixed appliance protraction was continued (Fig3).

#### Appliance design<sup>5,6,7,8</sup>

Modified Hass expansion appliance- has molar bands with palatal wire framework, buccally extended hook soldered to bands for attachment of extra oral elastics, acrylic plate connecting bilateral wire frame with incorporated jackscrew in the middle and posterior bite plane to open the bite.

- 0.036 inch SS wire was adapted on buccal aspect of molar bands extended anteriorly till junction of lateral incisor and primary canine, bent a hook.
- 0.036 inch SS wire adapted on the palatal aspect. Two more wires extended with retentive tags towards palate. Wire components were stabilized and soldered .
- Acrylisation done with a incororated jackscrew in middle. Posterior bite plane till the last erupted tooth with 2 mm thickness was added (fig 2).

#### Treatment progress<sup>9,10,11</sup>

Appliance cemented in mouth, patient was instructed to open the screw two times a day, morning and evening with 180 degree/time. Petit face mask were worn initially with extraoral elastics of 8 ounce for 14 hrs/ day. After 10 days screw was sealed and protraction continued. After 2 weeks 8 ounce elastics were replaced with 14 ounce force per side. After 3 months of protraction reverse overjet was corrected so posterior bite plane removed, appliance recemented and protraction continued. After 6 months plate was removed, 2x4 appliance bonded in maxilla with hook extending from molar buccal tubes for protraction face mask. Following the eruption of premolars bonding of premolars included and use of open coil spring (NiTi 0.030 inch) for the space creation of maxillary canines(Fig.3). Sufficient space was created for maxillary canines in 2 months.

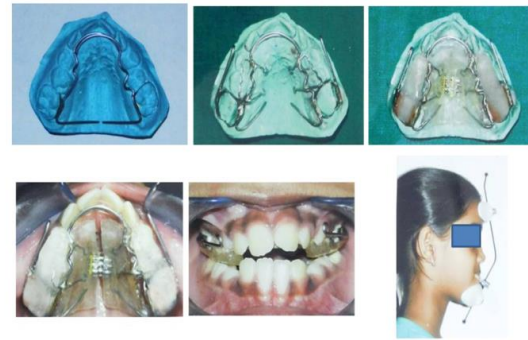


Fig. 2: Fabrication and cementation of modified Hass expansion appliance along with Petit facemask.

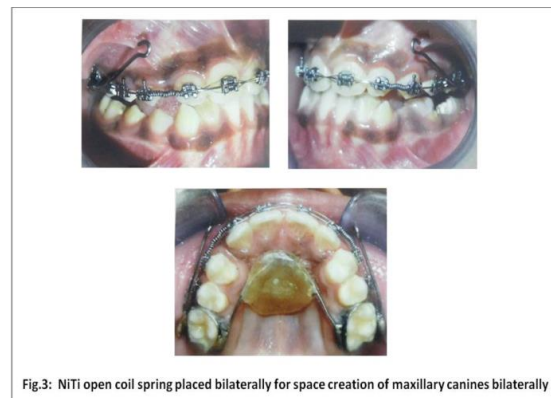


Fig.3: NiTi open coil spring placed bilaterally for space creation of maxillary canines bilaterally

As soon as canine erupted in the oral cavity 0.014 NiTi was ligated in the upper arch for its alignment. Subsequently heavier wire(0.017x0.025 NiTi, 0.017x0.025 S.S and 0.018x0.025 S.S) were ligated for torque expression. Fig.4 shows the post-treatment photograph of the patient with the post-treatment radiographs. The treatment was completed in 3 yrs with establishment of proper occlusion. Retention was kept for 8 months with simple maxillary Hawleys appliance as positive overjet and normal occlusion achieved is self retaining. Fig. 5 shows the intra-oral photographs of the patient 1 yr post-treatment.

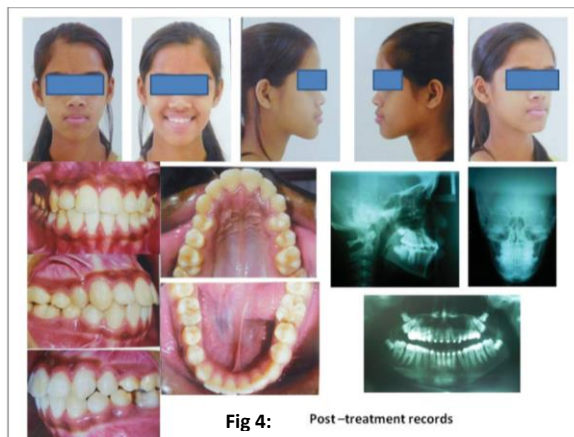


Fig 4: Post-treatment records



Fig 5: Intraoral photographs 1 year post-treatment.

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