A Lingual Approach of Orthodontic Treatment: A Case Report

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Abstract

Adult patients seeking orthodontic treatment at all times present with an esthetic demand even during the course of treatment. Such a demand may be attributed to their professional and social life. This has lead to the introduction of Lingual Orthodontics in 1970s by Dr. Craven Kurz of USA and Dr. Kinya Fujita of Japan. The Lingual orthodontics, apart from its esthetic values, also presents several other advantages. Currently, it has become a complete system in itself, starting from an accurate diagnosis, treatment protocol, laboratory procedure to placement of the appliance in the patient's mouth. This article presents a case report of a patient treated successfully using the Lingual appliance therapy.

Keyword: Adult Patients, Laboratory Procedure, Lingual Orthodontics

Introduction:

The increasing demand for an esthetic appearance among adult orthodontic patients, even during orthodontic treatment period has led to the advent of invisible orthodontic treatment. Tooth colored brackets and archwires, clear aligner therapy and lingual orthodontic treatment are the invisible way of treating the malocclusion so far available.[1,2] However, these brackets and archwires are invisible from a certain distance only. Also, the clear aligners are not purely invisible as it is a transparent sheet closely adapted to the teeth. The lingual orthodontic appliances are in a true sense the only invisible appliance system available. This appliance system consists of placing specially designed lingual brackets onto the palatal / lingual surface of the teeth.[3,4]

In this article, we will present a case report wherein a lingual appliance has been successfully used to treat a patient.

Case Report:

A female patient aged 22 years presented with gap in between her upper front teeth & lower side teeth. She had a midline diastema of 6 mm in the upper arch , space in the lower arch, rotation in relation to 14 & 45, overjet of 4 mm, overbite of 3.5mm and Angle's Class I molar and canine relationship.

Treatment Objectives:

- ✓ Closure of midline diastema
- ✓ Correction of overjet and overbite
- ✓ Correction of rotation
- ✓ Closure of lower space
- ✓ Maintain molar and canine relationship
- ✓ Achieve optimal facial esthetics

Treatment Plan:

- ✓ Non extraction
- ✓ 7th Generation Lingual Appliance
- ✓ Indirect Bonding technique

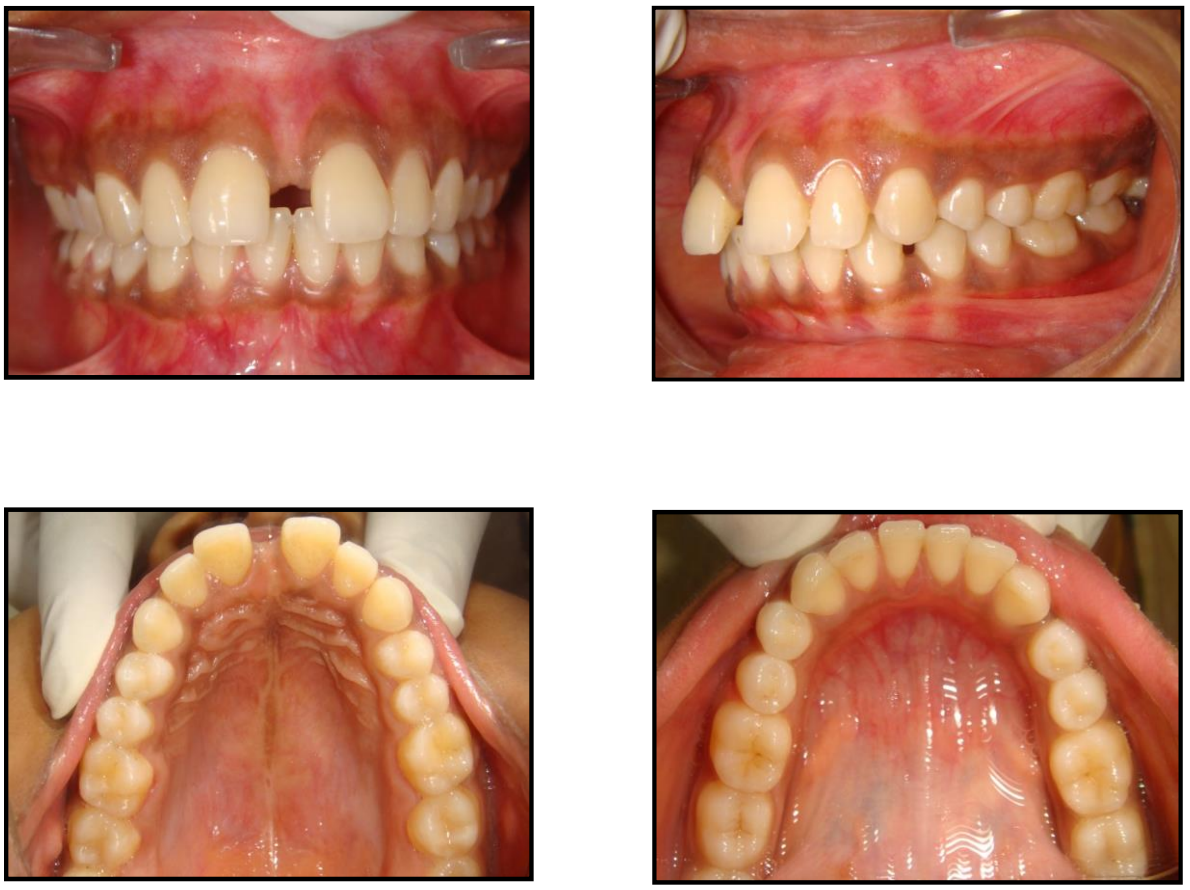


Figure No. 1: Pre-treatment Intra-oral Photographs of the Patient

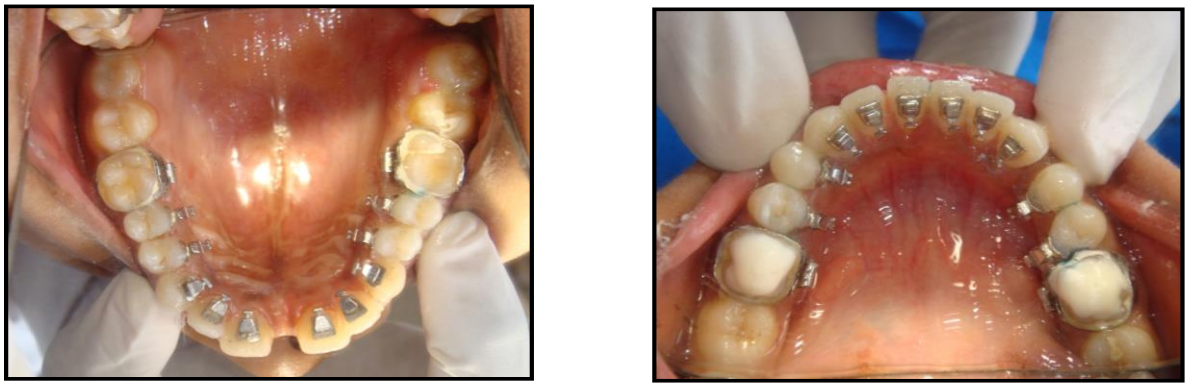
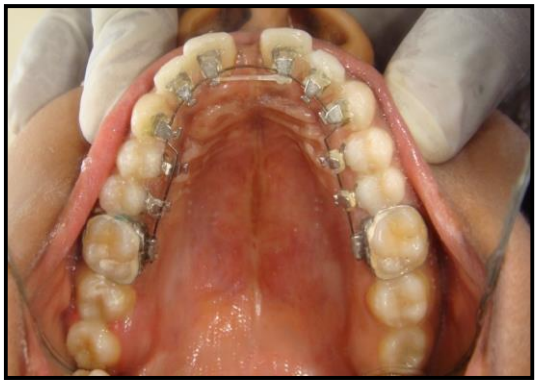


Figure No. 2: Intra-oral Photographs of the Patient after Indirect Bonding of Lingual Brackets



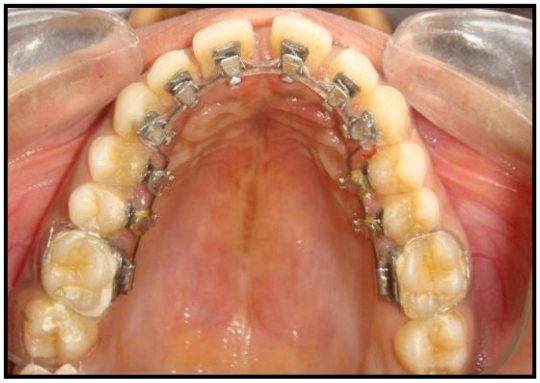
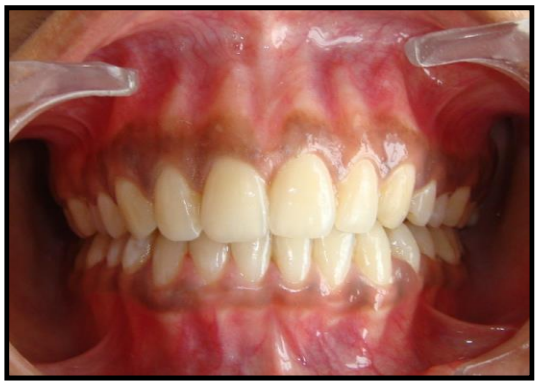
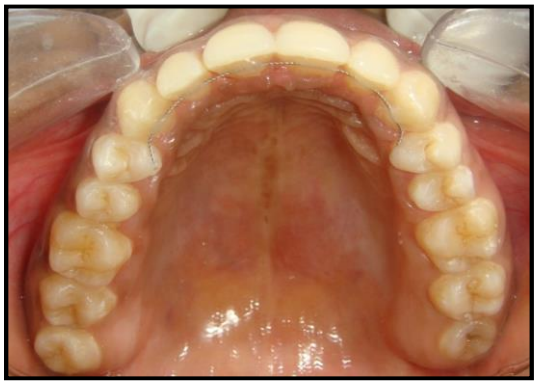


Figure No. 3: Intra-oral Photographs of the Patient's Maxillary Arch during the Course of Lingual Appliance Therapy Depicting the Progressive Space Closure





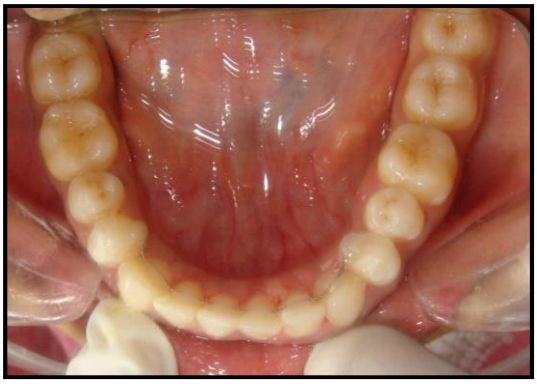


Figure No. 4: Post-treatment Intra-oral Photographs of the Patient with Fixed Lingual Retainer

Indirect Bonding:
The indirect bonding technique is an important component of lingual orthodontics. Over the past few years, the indirect bonding technique has evolved and become more widely accepted and practiced by orthodontists using both labial and lingual techniques. The major advantage associated with indirect bonding is the high degree of accuracy that can be achieved with bracket positioning. A secondary advantage is the reduced chairside time required for the initial bonding appointment. The difficulty in access and lack of easy direct visualization makes indirect bonding an essential procedure for high quality lingual orthodontics.

The upper and lower arches were bonded **(Figure No. 1)** and 0.012 NiTi wire was inserted for initial leveling. Once the initial leveling was done, upper and lower archwire was subsequently stepped up to 0.016x0.022" SS and E-chain was placed to closer the space **(Figure No. 2)**. Active Orthodontic treatment time was 11months **(Figure No. 3)**. Lingual retainer was given to the patient at final stage **(Figure No. 4)**.

Conclusion:

Lingual Orthodontics is the most aesthetic treatment modality, and is the best treatment option for adult patients, as the brackets are invisible.[5] It provides a high level of control, and is suitable for the treatment of all kinds of malocclusions.

Over the past 25 years, there have been many improvements in appliance design, laboratory and bonding procedures, and in clinical, mechanical techniques[6], that simplify the lingual treatment. Thanks to the pioneers of Lingual Orthodontics, Dr. Craven Kurz, Dr. Fujita and the Lingual Task Force of ORMCO Company, and thanks to the recent developments (computerized brackets positioning, small comfortable and reduced friction brackets), the lingual technique today is very reliable and almost as easy as the labial technique.

By offering 'invisible braces', the orthodontist provides a valuable and unique service to the patient.[7] If the practitioner makes the commitment to make lingual orthodontics a part of his or her treatment mechanics, the practice is bound to grow.

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