

# Management of Hypodontia of Lateral Incisors

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**Abstract:** *In the diagnosis of the agenesis of the lateral incisors, it is essential a good clinical examination and a proper x-ray image, which will define not only the agenesis of the teeth, but it will rule out any other anomalies that can be associated with this condition. When we make plan for the treatment, whether we use opening or closing the space, we need to take in consideration the aesthetic, skeletal, dental, periodontal and functional factors. There are clinical cases in which the residual space is minimal and the patient is satisfied with the aesthetic look. In other cases, the patients are not completely satisfied with the aesthetics of their teeth, but due to the price and the time consuming therapy, they do not undergo the procedure. The resolution to this problem should be multidisciplinary. Any type of experimenting may lead to mistake and it will compromise the final look.*

**Keywords:** hypodontia, x-ray, implant, aesthetics

## 1. Introduction

Many etiological factors are related to agenesis of lateral incisors such as: physical barrier, rupture of the dental lamina, limited amount of space and functional anomalies. Besides the factors given, the etiopathogenesis of the hypodontia of the lateral incisors still remains idiopathic. There is evidence which states that the congenital absence of the incisors may be due to the environmental or hereditary factors, or both combined.[1]

Early diagnosis is essential due to the evaluation and treatment plan of the patient. There are direct and indirect significant clinical signs that will lead us to the right diagnosis. Seeking help from orthodontist is primarily from aesthetic reasons since there are no lateral incisors. Furthermore, another significant sign are the persistent deciduous lateral incisors in the dental arch combined with the late eruption of the permanent successors. This is the indirect clinical sign of the agenesis of the lateral incisors.[2] For definite diagnosis it is essential to do an x-ray, which will confirm the absence of the lateral incisors. Panoramic x-ray in these cases is the method of choice. It can be done in individuals that are younger than 8 years old and in individuals that do not have presence of lateral incisors in the dental arch. This is one of the early diagnostic methods in the agenesis.[3]

## 2. Material and Methods

There are clinical cases in which the residual space is minimal and the patient is satisfied with the aesthetic look. In these cases, we do not treat the patients radically. In other cases, the patients are not completely satisfied with the aesthetics of their teeth, but due to the price and the time consuming therapy, they do not undergo the procedure. In this case, we had 25 year old male patient with hypodontia of the lateral incisors. The hypodontia was diagnosed with clinical examinations and with an x-ray image. The patient asked for orthodontic and prosthetic

treatment to correct the hypodontia. The therapy plan was made, and we have decided to use the straight arch orthodontic therapy by Roth. The goal of this therapy was to achieve mesialization of the central incisors and distalization of the canines, which will result with bigger space to place the dental implants. The patient was aware that the therapy is very time-consuming and it might last a long time period. We have collaborated perfectly fine with this issue. After 18 months of continuous one month dental check up, we have decided that is time to do the next step. We have removed the fixed appliance. The patient was examined by dental prosthetist and oral surgeon, and finally we have decided to place the dental implants. Nine months after the procedure, with the patient's full collaboration, we have placed the crowns. Short time after the procedure, the patient was very satisfied with the result and he wanted to finish his look with crowns on the central incisors. The patient was very pleased with his final aesthetic look.

## 3. Results and Discussion

Whether the agenesis of the lateral incisors aesthetically doesn't satisfy the orthodontist, there are two possibilities – opening or closing the space. It is not easy to make a decision on which of these treatments the patient will undergo. It will rely on the maxillary disharmony with crowded teeth in the front, class I with crowded teeth, with indicated extractions in the mandible, also mesialized canines that can easily be remodeled into lateral incisors and malocclusions that do not seek for extractions in the mandible. In most cases, the presence or absence of malocclusion indicates to open or close the space. Some factors such as the proportion of the molars, the degree of protrusion of the incisors, the skeletal ratio of the alveolar ridge, the configuration of the dental arch, the inclination of the teeth, the form of the teeth, the incisal contact, the contour of the marginal gum, the form of the lips and the aesthetical result should be taken in consideration when the plan of the therapy is being made.

### 3.1 Closing the space

This procedure represents the definite orthodontic treatment with mesialization of the canines, replacing them with lateral incisors and in the same time closing the gap between the central incisors. For many authors, this treatment is the method of choice in which adequate aesthetics is being achieved. When we decide to close the gap, it is essential that the canines are remodeled to look and have the function of the lateral incisors.

The benefits of this treatment are that no dentures are needed, the limited orthodontic treatment, and the price is lower due to the cost of the prosthetic treatment.

On the other hand, there are some consequences and the main flaws are the loss of the function of the canines and the loss of the class I in the same region.

### 3.2 Opening the space

Placing an intraosseous implant and finishing it with a crown is a method of choice in case of orthodontic space opening or preserving the one in adults. The diagnosis and the treatment in children that have no presence of lateral incisors is a problem since the placement of the implant is impossible due to the facial growth and development. Female patients mature faster, so their adolescent development finishes quicker [4]. The space needed for placing the implant is defined by the occlusion. It should be from 5 – 7 mm for ideal placement of the lateral incisor. Some authors state that the minimal interdental space should be 6 mm in mesio - distal width and 5 mm in labio – lingual spread [5]. Anyhow, there are biological restrictions in which the bone between the implant and the bordering tooth should be 1.5 mm. Whether this minimal space is not preserved, the attachment of the soft tissue to the tooth will be compromised and will lead to reduction or loss of the interdental papilla, which will have repercussion in the final aesthetic look. In most cases of lateral incisors hypodontia there is not enough amount of bone mass. It might lead to high risk of recession of the soft tissue around the implant and the prosthetic restoration. Therefore in these cases augmentation of the dental ridge is essential [6].

The indications for this treatment are: canine that cannot be easily remodeled and doesn't aesthetically satisfy, concave profile, general microdontia, not associated with anomalies and good intercuspitation. Placing implants in agenesis of lateral incisors should be considered as final and definite solution to this problem. The treatment should start as soon as all the permanent teeth erupt and the facial development and growth is finished.

The benefit of this treatment is the preserved intercuspitation with neutroculision and at the same time it is preserved the relation of the class I canines and the first molars.

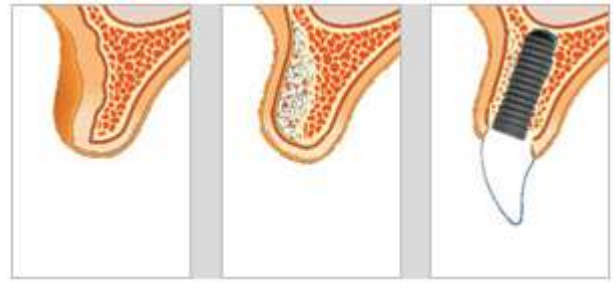


Figure 1: Augmentation of the dental ridge



Figure 2: An x-ray image as proof of the existing malocclusion. It is clear that the hypodontia in lateral incisor is present



Figure 3: The patient during the orthodontic treatment. It is clear that the hypodontia in the lateral incisors is present.



Figure 4: An x-ray image after placing the implants



Figure 5: Picture of the patient's teeth after placing the crowns on the later and the central incisors

#### 4. Conclusion

In the diagnosis of the agenesis of the lateral incisors, it is essential good clinical examination and proper x-ray image, which will define not only the agenesis of the teeth, but it will rule out any other anomalies that can be associated with this condition. When we make the plan for treatment, whether we use opening or closing the space, we need to take in consideration the aesthetic, skeletal, dental, periodontal and functional factors. The therapy decision depends on the experience of the doctor specialist in orthodontics, and of course on the collaboration with the dental implantology and the dental prosthetics specialists. The resolution to this problem should be multidisciplinary. Any type of experimenting may lead to mistake and it will compromise the final look.

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