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Case Report **Dentofacial Orthopedics**

Bilateral Agenesis of Maxillary Lateral Incisors: Orthodontic Case Report with Space Opening and Prosthetic Rehabilitation

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Abstract

Maxillary lateral incisor agenesis is a common dental anomaly with significant esthetic and functional repercussions. This case report describes a 17-year-old female patient presenting with bilateral agenesis of the maxillary lateral incisors (teeth 12 and 22), managed through orthodontic treatment using the Roth technique with space opening, followed by implant-prosthetic rehabilitation. The treatment outcome demonstrated a significant improvement in esthetics and function. The discussion compares possible therapeutic approaches: space closure versus space opening, and implant-supported versus resin-bonded bridge rehabilitation.

Keywords: lateral incisor agenesis, orthodontics, space opening, implant, resin-bonded bridge.

INTRODUCTION

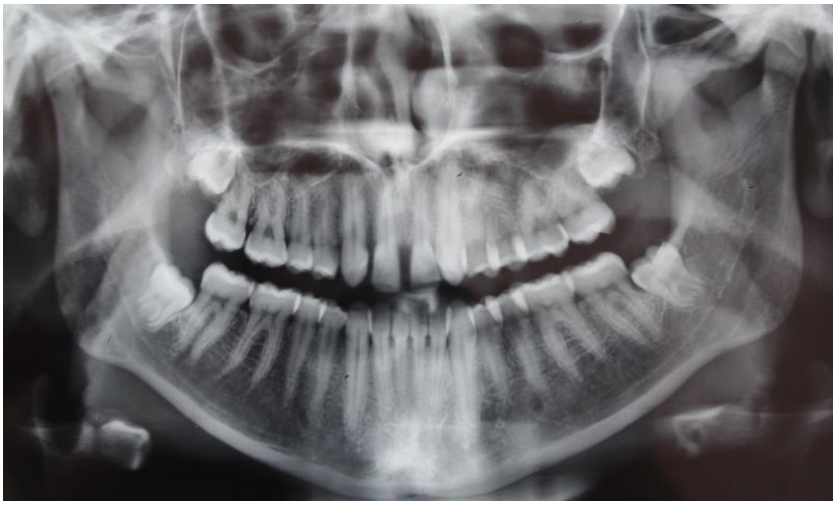
Maxillary lateral incisor agenesis is one of the most frequent congenital dental anomalies, with a reported prevalence of 1–2% in the general population. It leads to esthetic disharmony in the smile, functional occlusal disturbances, and sometimes psychological repercussions. Two main therapeutic strategies are generally considered: orthodontic space closure and orthodontic space opening followed by prosthetic rehabilitation. The choice depends on factors such as age, growth stage, facial profile, and patient expectations. This report illustrates a clinical case managed with orthodontic space opening and combined prosthetic rehabilitation (implant and resin-bonded bridge).

CASE PRESENTATION

A 17-year-old female patient (Bochra Dammak) presented with the chief complaint of a midline diastema. Extraoral examination: slightly convex profile, narrow smile. Intraoral findings: bilateral agenesis of the maxillary lateral incisors (12 and 22), midline and posterior diastemas, Class II canine relationship, Class I molar relationship, anterior deep bite.

Radiographic findings: panoramic radiograph confirmed the absence of teeth 12 and 22, presence of third molar buds, and tapered roots of mandibular incisors. Cephalometric analysis: revealed a mild skeletal imbalance requiring orthodontic correction.

Figure 1: Pretreatment extraoral and intraoral photographs



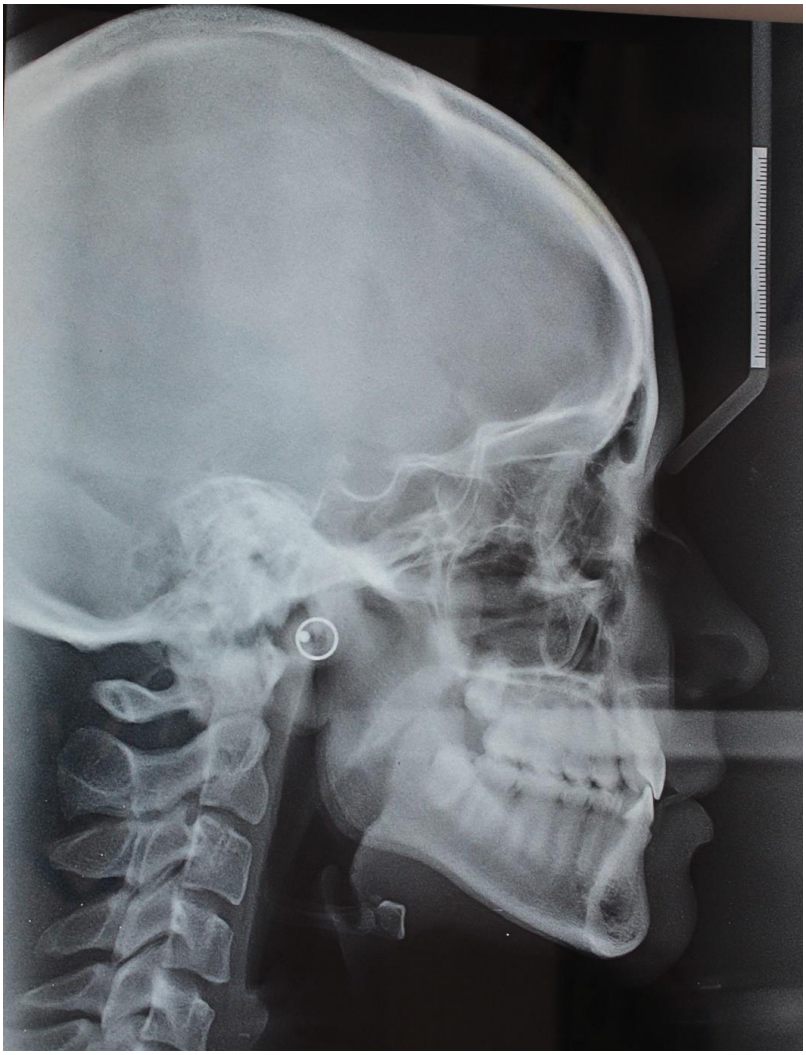


Figure 2: Initial panoramic and cephalometric radiographs

Treatment Plan

Objectives:

- Establish a functional Class I occlusion.
- Achieve arch coordination.
- Normalize overjet and overbite.
- Open spaces for prosthetic rehabilitation.
- Improve smile esthetics and correct swallowing habits.

Treatment alternatives:

1. Space closure through medialization of canines.
2. Space opening followed by prosthetic replacement.

Final decision: Option 2 was selected. Orthodontic treatment was performed with the Roth prescription (.022 × .028 slot) to open the spaces, with implant placement at site 12 and a resin-bonded bridge at site 22.

Treatment Progress

Orthodontic bonding, leveling, canine distalization, and space opening with coil springs were sequentially carried out.

Figure 3: Treatment stages – bonding, leveling, canine retraction, and space opening

RESULTS

At the end of treatment, functional occlusion, improved smile esthetics, and appropriate space rehabilitation were achieved.

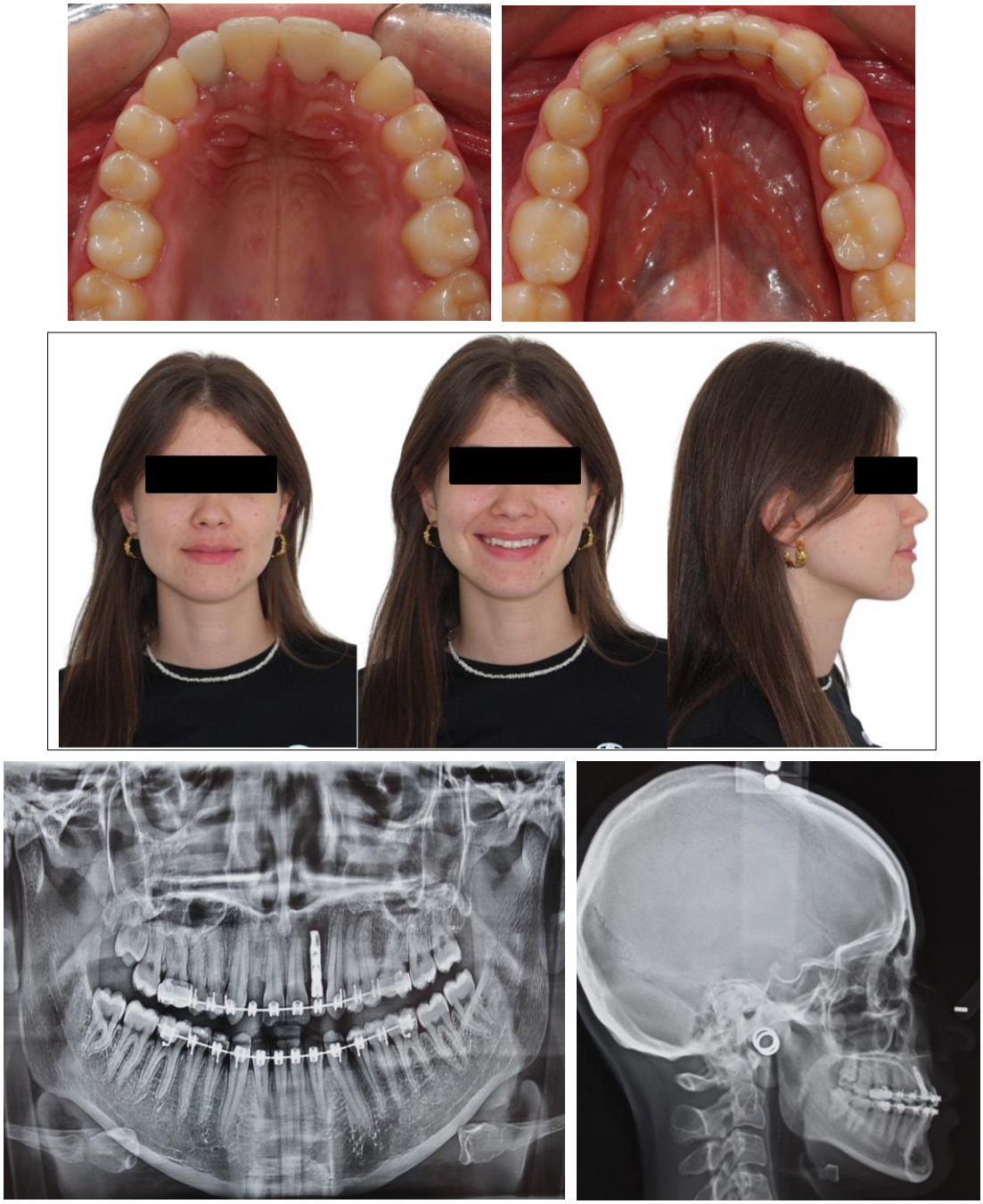


Figure 4: Final outcomes –intraoral, extraoral, and comparative radiographs

DISCUSSION

Space Opening vs. Space Closure

Orthodontic space closure simplifies treatment by avoiding prosthetic rehabilitation; however, it alters smile esthetics since canine's substitute for lateral incisors, often requiring morphological reshaping. In contrast, space opening preserves smile harmony and allows for prosthetic integration, though it increases complexity and requires a multidisciplinary approach.

Resin-Bonded Bridge vs. Implant

A resin-bonded bridge represents a conservative, rapid, and non-invasive option, but its longevity is limited and debonding remains a risk. An implant, on the other hand, provides a durable esthetic and functional solution, although it requires surgery, sufficient bone volume, and cannot be placed before growth completion. In this case, a combined approach (implant at site 12 and resin-bonded bridge at site 22) optimized both functional and esthetic outcomes.

Importance of a Multidisciplinary Approach

Successful management depends on close collaboration between orthodontists, implantologists, and prosthodontists. Treatment planning must integrate esthetic, functional, and biological parameters, as well as patient expectations.

CONCLUSION

Bilateral agenesis of maxillary lateral incisors represents a clinical challenge. Orthodontic space opening followed by implant-prosthetic rehabilitation provides durable esthetic and functional results. The decision between implant and resin-bonded bridge must be individualized. Success relies on careful planning and effective multidisciplinary collaboration.

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