Amelogenesis imperfecta is an autosomal dominant disorder. It is a group of hereditary diseases showing abnormal enamel density and crown malformation. This clinical report describes the oral rehabilitation of a young adult diagnosed with a variant of hypoplastic amelogenesis imperfecta with multiple impacted teeth and skeletal class III malocclusion. The treatment procedures of teeth extractions, endodontic treatment of remaining teeth followed by post and core restorations, esthetic and functional crown lengthening, and metal ceramic fixed dental prostheses were performed sequentially in the maxillary arch. The mandibular arch was restored with an overdenture. One-year follow-up revealed satisfactory results. (J Prosthet Dent 2014;111:11-15)
planning for patients with AI is dependent on many factors, including the type and severity of the disorder, extent of destruction, and age and socioeconomic status of the patient. This report presents the complete mouth rehabilitation of a young adult diagnosed as a subtype of AI with multiple impacted teeth, an open occlusal relationship, and a skeletal class III malocclusion.

CLINICAL REPORT

A 23-year-old man with features of a variant of AI was referred to the Department of Prosthetic Dentistry for oral rehabilitation. The patient was particularly concerned about his old-looking appearance and poor masticatory efficiency, which was the result of the destruction of the anterior crowns and multiple missing teeth. The medical and dental history revealed no abnormalities. The family history revealed that his elder sister had a similar condition, but his younger brother had normal features, indicating the genetic origins of the condition. An extraoral examination revealed maxillary retrognathism, mandibular prognathism, and left hemifacial hypertrophy on the lower third of the face (Fig. 1A). A panoramic radiograph revealed multiple impacted teeth in both arches (Fig. 1B). On the basis of clinical and radiographic examinations, multiple deciduous teeth in both arches with compromised alveolar bone support were extracted. After healing, an intraoral examination revealed oligodontia in the maxillary and mandibular arches, multiple spacing between teeth (Fig. 2A, B), anterior reverse articulation, an open occlusal relationship, and an Angle class III skeletal malocclusion (Fig. 2C, D). An increased vertical overlap of the right posterior region and an open occlusal relationship of the anterior and left posterior region were also observed (Fig. 2C, D). According to the Prosthodontic Diagnostic Index for partially edentulous patients, the patient was classified as class IV (severely compromised).11

After preliminary oral prophylaxis and the extraction of the deciduous left first molar, diagnostic casts were obtained. The maxillomandibular relation was recorded with a mandibular occlusion rim, and the casts were mounted on a semiadjustable articulator (Hanau H2; Whip Mix Corp) in a conventional manner.12 The maxillary cast was diagnostically prepared and a waxing was developed against mandibular denture teeth.13 The interocclusal distance was judged to be approximately 2 mm in the right posterior region, 9 mm in the anterior region, and 11 mm in the
left posterior region. A silicone putty index (Aquasil Putty; Dentsply) was recorded from the maxillary waxing and preserved for the fabrication of interim restorations.

The waxed denture was processed, finished, and polished in a conventional manner (Fig. 3A). Endodontic treatment of the mandibular abutment teeth was completed, and the crowns were prepared to receive metal overdenture copings (Fig. 3B). The metal copings (Bellabond Plus; Bego Co) were fabricated in a dome shape to create the undercut (infrabulge) areas apical to the height of the contour. The intaglio surface of the denture in the abutment areas was trimmed to create space for a relining material and relined with a resilient relining material (Sofreliner Tough S; Tokuyama Dental Corp) (Fig. 3C).

The endodontic treatment of all the clinically present maxillary teeth was completed. Surgical crown lengthening (to improve esthetics and to provide a ferrule) was performed on all maxillary teeth and allowed to heal for 2 weeks. Post and core restorations were fabricated in a conventional manner for the maxillary right central incisor, left lateral incisor, canine, and molar with prefabricated metal posts. All maxillary teeth were prepared to receive metal ceramic restorations (Fig. 4A). The interim restorations, made from autopolymerizing acrylic resin (Alike; GC America), were fabricated by using a putty index prepared from the diagnostic waxing and cemented in a conventional manner. A definitive impression was made with a polyvinyl siloxane impression material (Aquasil Soft Putty and Light Body; Dentsply Intl). The anterior interocclusal records were made with the posterior interim restorations and the mandibular overdenture in place. Similarly, the posterior interocclusal records were made with the anterior records and the mandibular overdenture in place. The maxillary definitive cast and the mandibular cast (prepared from the impression of the polished surface of the denture) were mounted in a semiadjustable articulator (Hanau H2; Whip Mix Corp). The metal ceramic (Vita Omega 900-low fusing feldspathic porcelain; Vita Zahnfabrik) restorations were fabricated by using the articulator settings and putty indices made from the diagnostic waxing (Fig. 4B). The restorations were glazed after satisfactory evaluation and cemented with a definitive luting agent (GC Fuji I; GC Corp). The patient was recalled initially after 2 months and followed every 6 months. The most recent recall visit of the patient was 1 year after treatment, and he was pleased with the treatment outcome (Fig. 5A, B) and the esthetic improvement (Fig. 6A, B).
DISCUSSION

The patient was classified by the Prosthodontic Diagnostic Index as class IV; therefore, a treatment was planned with the aim of fulfilling both the patient’s functional and esthetic demands. Although orthodontic intervention was considered, the presence of multiple impacted teeth in both arches made this option unsuitable. Implant-supported fixed or removable prostheses are considerably more extensive and have a greater incidence of clinical complications than conventional fixed and removable prosthodontics. For this patient, the impacted teeth occupied maximum basal bone both in the maxilla and mandible. The removal of these teeth to allow for implant therapy was considered inappropriate because

A, Maxillary arch showing preprosthetic treatments, including post and core restorations. Note regular gingival margin achieved with esthetic/functional crown lengthening. B, Occlusal view of maxillary fixed dental prosthesis.


of the risk of weakening the jaw bone. Therefore, the complete denture was chosen as the most suitable option. In the mandibular arch, 3 teeth were clinically suitable for use as overdenture abutments.

Managing the single complete denture occlusion is a difficult task because of malposed, tipped, or supraerupted teeth and uneven occlusal surfaces in the opposing arch. Balanced occlusion was developed to stabilize the denture in relation to supporting structures during functional and parafunctional movements. Patients should be encouraged to attend regular recall appointments at intervals of at most 6 months so that the condition of the resilient liner can be evaluated and the denture relined if necessary. The deterioration of resilient liners with loss of resiliency, bond failure between the liner and denture base, or increased surface roughness will contribute to bacterial adherence, increasing the risk of oral infections. Care must be taken to keep the liner surface clean and intact.

**SUMMARY**

The teeth of a young adult diagnosed with a hypoplastic AI with multiple impacted teeth and skeletal class III malocclusion were restored. Sequential treatments, including extraction of questionable abutments, endodontic treatment of remaining teeth followed by post and core restorations, and metal ceramic fixed dental prostheses, were performed in the maxillary arch. The mandibular arch was restored with an overdenture as a result of fewer supporting abutments.

**REFERENCES**