

Fixed Full-Arch Implant-Supported Prostheses in a Patient with Epidermolysis Bullosa: A Clinical Case History Report

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Epidermolysis bullosa (EB) is a rare skin disorder characterized by blister formation in response to minor trauma and accompanied by extracutaneous manifestations. The use of endosseous implants to support fixed prostheses for the rehabilitation of patients with recessive dystrophic EB might provide a considerably better clinical treatment outcome than traditional prosthodontic interventions. This case history report describes the clinical management of such an afflicted patient. Implants were placed immediately following teeth extractions and subsequently loaded with fixed full-arch prostheses. This treatment option is proposed for patients with recessive dystrophic EB to preclude mucosal irritation associated with wearing removable prostheses. *Int J Prosthodont* 2015;28:33–36. doi: 10.11607/ijp.4092

Epidermolysis bullosa (EB) is a group of infrequent hereditary skin disorders characterized by mechanical fragility of the skin accompanied by recurrent development of blisters and vesicles.^{1–4} The disorder is classified as three main types (simplex, junctional, and dystrophic) and 25 subtypes; the recessive dystrophic form with generalized involvement is the subtype with the greatest oral mucosa involvement.⁵

Oral features include recurrent blistering and scar formation. The latter leads to limited oral opening, ankyloglossia, elimination of buccal and vestibular sulci and circumoral structure, severe periodontal disease, marginal bone resorption, atrophy of the maxilla with mandibular prognathism, and an increased mandibular angle. Routine dental care or even normal tooth brushing can cause bullae on the oral mucosa.² In some cases, rampant caries is observed, together with associated hypoplastic enamel and poor oral hygiene. The disorder also is related to an increased risk of oral carcinoma.⁴ The systemic features of this

disease include blisters all over the body, especially in areas of friction such as hands, feet, elbows, and knees, which break and leave painful ulcerations that often heal with soft tissue contraction. In its most severe forms—junctional and dystrophic EB—tissue contraction frequently causes digit syndactyly, which leads to stump formation and stenosis of the upper third of the esophagus with accompanying dysphagia.⁵

Dental treatment of patients with EB by means of a conventional removable prosthesis has led to frequent mucosal blister formations resulting from mechanical friction of the denture on the mucosa. For this reason, rehabilitation with dental implants supporting a fixed prosthesis is likely to be more comfortable for the patient and to limit the possibility of soft tissue ulcerations.^{3–5}

This case history report describes maxillomandibular, fixed, full-arch implant therapy management of a patient with severe recessive dystrophic EB (RDEB).

Case History Report

A 19-year-old white woman diagnosed with EB presented with systemic clinical signs of EB: blisters all over the body, especially in areas of friction, with sequelae of painful ulcerations that had often healed with soft tissue contraction. Blistering and scar formation in the mouth led to limited oral opening, ankyloglossia, and the elimination of buccal and vestibular sulci. Both maxillary and mandibular residual dentitions demonstrated rampant caries and severe untreatable periodontal disease.

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Fig 1 (a) Pretreatment views of the 19-year-old patient showing the (b) lesions on the hands, (c) limited mouth opening, (d) initial occlusal view of the maxilla, (e) initial view in occlusion, (f) initial panoramic radiograph, (g) computed tomography scan.

Clinical and radiographic examinations (panoramic film and computed tomography) showed that the patient's teeth were in a poor state, with accompanying severe alveolar bone atrophy (Figs 1a to 1g). It was decided to selectively extract teeth in areas of proposed implant placement to support fixed prostheses (Figs 2a to 2d). Surgery was carried out under intravenous conscious sedation and local anesthesia (4% articaine and adrenaline 1:100,000; Ultracain, Aventis Pharma). Tissue friction and irritation of the mucosa or bulla formation were avoided by lubricating the patient's lips with petroleum jelly. A supracrestal incision was made, and full mucoperiosteal flaps were raised. Eight TSA implants with Avanblast surface (Phibo Dental

Solutions) were immediately inserted using slow drilling without irrigation to avoid damage caused by the action of the dental aspirator.

Surgical management was complicated because of the formation of bleeding bullae caused by minor trauma. Blister complications also were recorded during the operation.

Oral antibiotics (amoxicillin 500 mg every 8 hours for 7 days) and anti-inflammatory drugs (ibuprofen 600 mg every 8 hours for 3 days) were administered. Sutures were removed after 1 week, and stage-two surgery was performed 4 months later. The implants were allowed to osseointegrate for a total of 6 months prior to prosthetic loading.

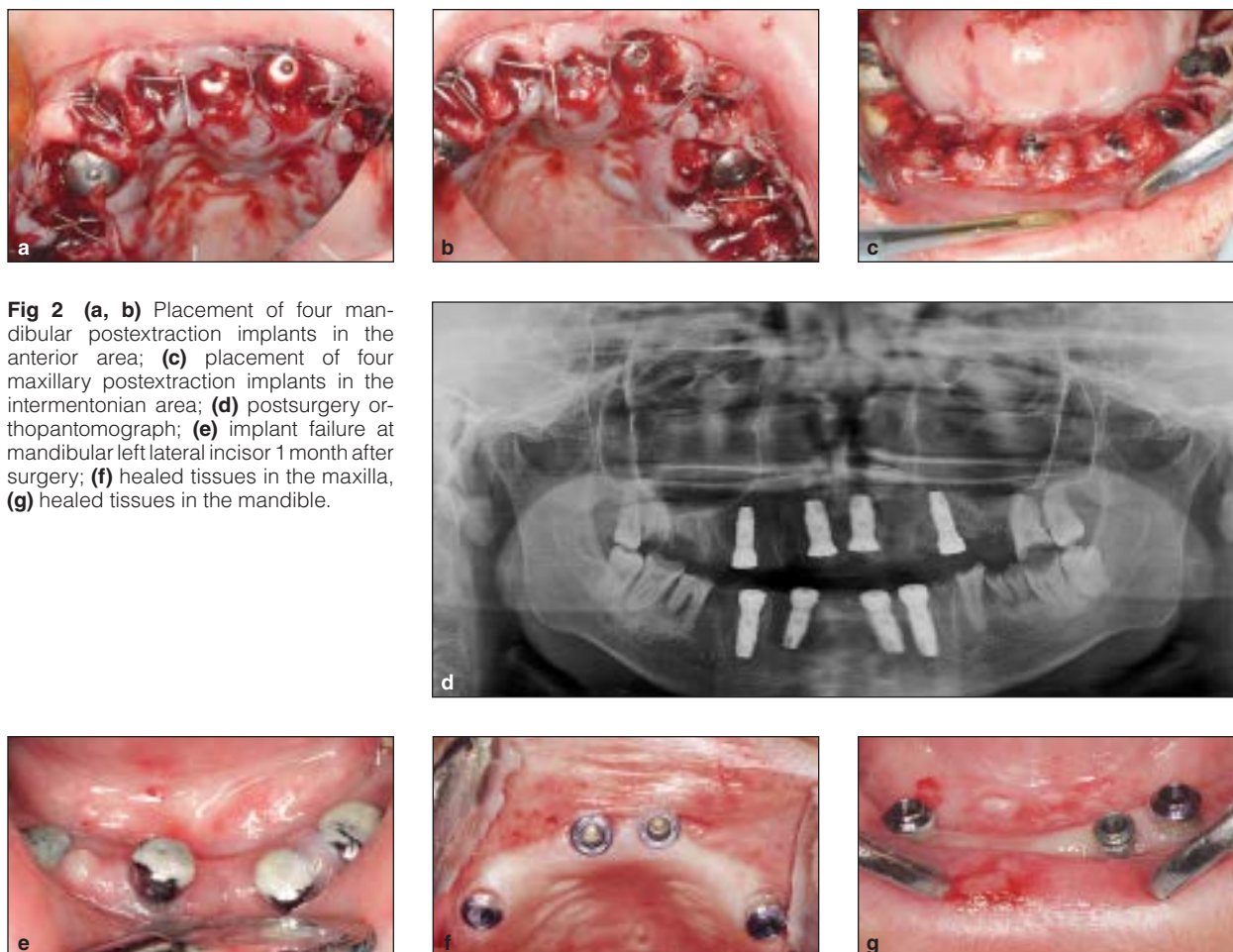


Fig 2 (a, b) Placement of four mandibular postextraction implants in the anterior area; (c) placement of four maxillary postextraction implants in the intermentonian area; (d) postsurgery orthopantomograph; (e) implant failure at mandibular left lateral incisor 1 month after surgery; (f) healed tissues in the maxilla, (g) healed tissues in the mandible.

Seven of the eight implants successfully osseointegrated and the failed one was not replaced (Figs 2e to 2g). Six months after placement, implants at the maxillary left second premolar, mandibular left first premolar and lateral incisor, and mandibular right first premolar had lost 2 mm of peri-implant marginal bone. Prosthodontic treatment comprised maxillo-mandibular shortened dental arch design prostheses with metal-ceramic replacement teeth bonded in place due to the limited mouth opening. The latter precluded a screw type of retention.

For impression taking, a conventional tray was used to carry out the closed tray technique using an elastomeric material (Impregum, 3M ESPE). Afterwards, artificial stone type IV (FujiRock, GC) and a gingival mask (Gi-Mask Automix, Coltène/Whaledent) were used for pouring the impression material.

To fabricate the prosthesis, prefabricated titanium prosthesis bars were micromilled to a 2-degree angle, and the superstructure was cast in a chromium-cobalt

(Cr-Co) alloy (Remanium Star, Dentauro). The metal cores were veneered with a feldspathic ceramic (IPS d.SIGN, Ivoclar Vivadent). All the prostheses' screws were tightened with a torque of 30 Ncm according to the manufacturer's specifications. The access hole of the prefabricated abutment was closed with a Teflon pellet, and the prostheses were cemented with noneugenol temporary cement for implant-retained crowns (Premier Implant Cement, Premier Products; Figs 3a to 3d).

Follow-up appointments occurred at 15 days, 1 month, and 3 months. Each time, the patient presented with poor oral hygiene and mucositis at all implant sites but without additional changes in peri-implant bone levels. Dental hygiene sessions were then scheduled at bimonthly intervals, and 12 months after prosthetic loading, the peri-implant mucosal soft tissues were in good condition without the presence of peri-implant bullae. A panoramic radiograph suggested a favorable osseointegrated response (Fig 3e).

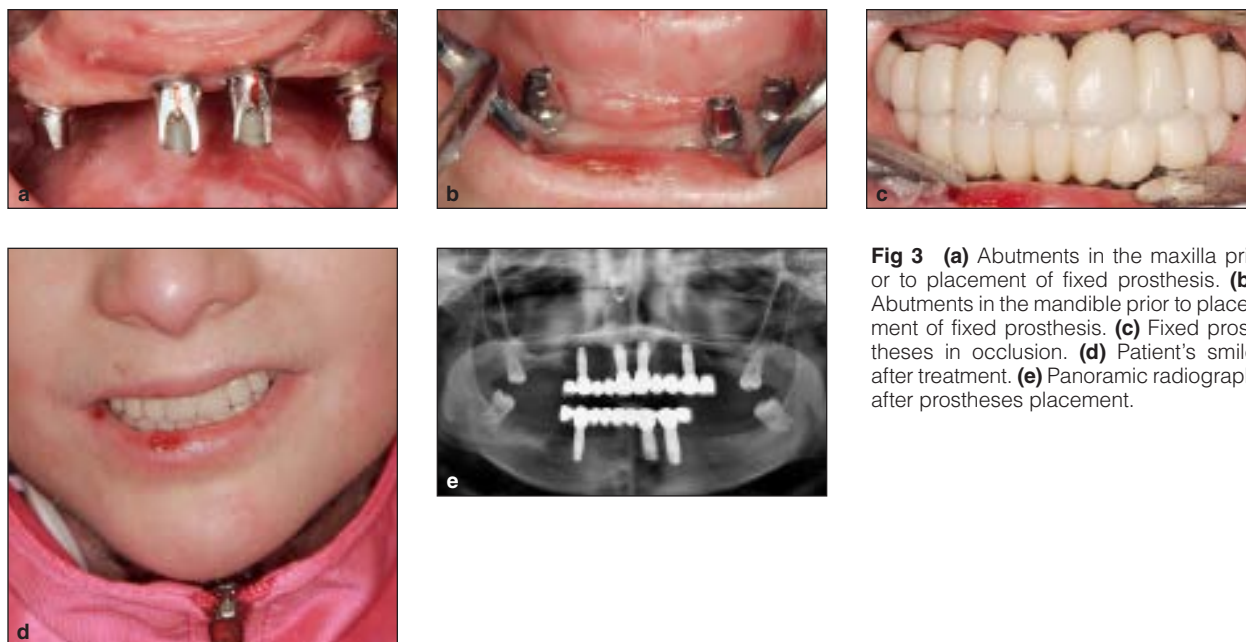


Fig 3 (a) Abutments in the maxilla prior to placement of fixed prosthesis. (b) Abutments in the mandible prior to placement of fixed prosthesis. (c) Fixed prostheses in occlusion. (d) Patient's smile after treatment. (e) Panoramic radiograph after prostheses placement.

The patient's masticatory function and esthetic status were self-reported as having improved considerably as a result of treatment, an observation that was endorsed by the involved professionals' subjective evaluation.

Discussion

Rehabilitating the dentition in edentulous patients with RDEB not only reduces the risk of soft tissue trauma to oral and esophageal mucosa through more efficient mastication, but also can result in improved nutrition.³

Reported implant success rates in patients with EB vary from 97.7% to 100%.⁵ Peñarrocha et al⁴ compared such patients' satisfaction with implant-supported fixed and overdenture prostheses. They reported equally good outcomes and a slightly better one for the fixed protocol.

Circumoral restriction suggests easier prosthesis manipulation with fewer incidences of trauma to the soft tissues as well as a reduced risk of involuntary swallowing of prosthetic components. Occlusal loading is also improved, and lower rates of mechanical complications may also be possible.²

Conclusions

The limited available data endorse the use of maxillo-mandibular full-arch implant-supported prostheses for patients with EB, as reflected in this case history report.

Acknowledgments

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