



Full mouth rehabilitation of a patients with gastro-oesophageal reflux disease - A case report

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ABSTRACT

Gastro esophageal reflux disease (GERD) is a chronic digestive disease caused by backwash (reflux) of stomach acid or contents into the esophagus or the oral cavity. Erosion of the teeth and subsequent wear is a common manifestation of GERD. This clinical report describes the dental rehabilitation of eroded maxillary and mandibular teeth along with other dental complaints in a 45-year-old female GERD patient. Full mouth rehabilitation of natural teeth together with metal-ceramic fixed partial dentures was selected as a treatment modality. Ideal occlusion, optimum esthetics, maintainable oral hygiene were all ensured for a favorable prognosis.

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INTRODUCTION

Gastroesophageal reflux disease (GERD) is a “condition which develops when the reflux of stomach content causes troublesome symptoms and/or complications” (Ginzburg, 2017).

It is an involuntary relaxation of the upper esophageal sphincter that allows the reflux of stomach acid and contents into the esophagus and oral cavity (Abdul-Hussein *et al.*, 2018; Natali *et al.*, 2017). Complications of GERD are regurgitation, chest pain, esophagitis, Barrett’s esophagus, oesophageal Adenocarcinoma, cough, asthma, and dental erosion (Natali *et al.*, 2017; Takeuchi *et al.*, 2018). In adults, GERD is a highly prevalent disease (25%), which causes dental erosion (Vardar *et al.*,

2017).

The degree of erosion depends upon the duration of the disease, and the frequency of reflux and quantity of content refluxed (Souza *et al.*, 2017). Patients with worn out dentition frequently require full mouth rehabilitation to restore function and esthetics, thereby reinforcing their confidence (Ginzburg, 2017).

While making a diagnosis of dental erosion, which is defined as ‘chemical loss of tooth structure without bacterial involvement,’ it is imperative that we first ascertain the type of erosion. Based on the source of the acid, dental erosion is differentiated into extrinsic (dietary acids) and intrinsic (acid from gastric contents in patients with bulimia or GERD) (Vardar *et al.*, 2017). The critical pH value of enamel when it begins to dissolve is around 5.2 (Kumar *et al.*, 2015).

The cause of erosion can sometimes be diagnosed based on a pattern of wear. Intrinsic erosion generally occurs on palatal surfaces of maxillary anterior and mandibular posterior teeth. Other oral symptoms associated with GERD are burning mouth syndrome, dental sensitivity, secondary to erosion loss of vertical dimension, etc.

The wear results in shorter clinical crowns with increased risk of pulp exposure (Anand *et al.*, 2015). This case report presents clinical findings, diagnosis, and dental management of a patient with GERD.

Case report

Preoperative history, diagnosis, treatment planning

A 42-year-old female patient reported to the Department of Prosthodontics, Saveetha Dental College, Chennai, with a chief complaint of missing teeth. The patient lacked self-confidence and was highly conscious of her smile (Figure 1).

The patient had no other medical illness except for acidity, for which she wasn't taking any medication. She didn't smoke or consume alcohol. It was noted that the patient did not have any medical contraindication to dental treatment. Over the past 2 years, she had undergone dental treatments such as extraction and composite restorations. Clinical examination revealed (Figure 2), missing teeth #22, 23, 26, 27, 44, 42, 41, 31, 32 and 47.

There was generalized erosion and attrition present. The maxillary midline was coincident with the facial midline. The lower facial height appeared collapsed, and angular cheilitis was also observed. After evaluating aesthetics and phonetics, the occlusal vertical dimension (OVD) was found to be reduced by 8mm. Alveolar compensation was not observed. Various treatment options such as implant-supported Fixed Dental Prostheses (ISFDP) vs. Tooth supported Fixed Dental Prostheses (TSFDP) were discussed with the patient to replace edentulous areas. She decided upon the latter due to financial and time constraints.

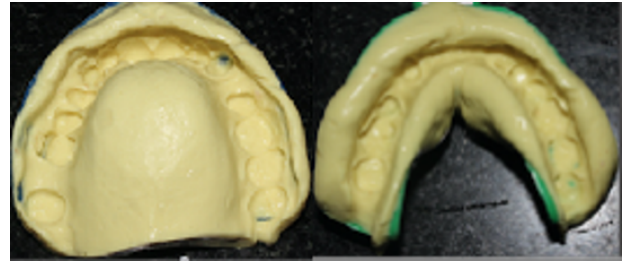


Figure 3: Upper and Lower Alginate impressions made with stock trays



Figure 4: Tooth preparations with Retraction Cords placed prior to impression making



Figure 5: Master impressions (upper and lower)



Figure 1: Preoperative Smile



Figure 6: Metal Trial



Figure 2: Preoperative Intra oral Photos (Right, Frontal and Left)



Figure 7: Post Operative - Intraoral

Treatment procedure

According to the University's Standard Operating Protocol, three sets of diagnostic impressions were made in alginate (Tulip, Cavex, Holland BV) (Figure 3), and stone casts were poured. The diagnostic casts were articulated on a Whip mix 8500 series articulator (Louisville, KY, USA), using Quickmount® face bow (Whip mix, KY, USA) and a centric occlusal wax record. The plan was to restore the OVD by 4mm, thereby allowing for a freeway space of 4 mm, which is within a normal range. To aid in this, a splint was fabricated, which increased the OVD by 4mm. The splint was delivered to the patient, and she was asked to wear it for a period of six weeks. Regular follow up was done to see how the patient adapted to the new OVD. No symptoms were observed, and the increase in OVD was fixed at 4mm. A diagnostic wax-up was then done to plan the anticipated prosthesis and occlusion. Due to erosion and attrition, the loss of tooth structure posed a risk of pulp exposure of few teeth during tooth preparation. Hence, they were intentionally root canal treated before tooth prep could be done (teeth #15, 14, 13, 12, 11, 21, 24, 25, 33, 34, 35, 36, 43, 45, 46 and 47). Cast post and core was deemed necessary in 44 due to a lack of tooth structure. Teeth were prepared (Figure 4) in subsequent appointments, and prefabricated temporary prosthesis were given. In the following visit, the gingival retraction was done using retraction cord (double cord retraction using #000 and #00, Ultrapak®, Ultadent, UT, USA) and a two-stage putty wash impression (Figure 5) (Aquasil, Dentsply, PA, USA) was made for both the jaws. A metal try-in was performed (Figure 6) and verified clinically as well radiographically for fit. Pattern resin jigs were used to determine the final Jaw relation before trial. Master casts were articulated using this interocclusal record, and reconfirmation of the centric was done during the bisque trial stage. Shade selection (B2) was done based on skin complexion and patients choice. Gingival corrective surgery was advised for tooth numbers# 13 and 21, but the patient refused, and so gingival porcelain had to be used instead. The final prosthesis was cemented (Figure 7) using temporary cement (Zinc oxide eugenol cement- DPI), and occlusal equilibration was done. The patient was reviewed after 2 weeks, and the restoration was permanently cemented after a month using Type 1 GIC (GC, Tokyo, Japan).

RESULTS AND DISCUSSION

Non-carious tooth surface lesions (NCTSL) are usually classified as Abrasion, Attrition, Erosion, and

Abfraction (Ameri *et al.*, 2017). There care multiple systemic factors that could exponentially increase the loss of tooth structure. It has been well documented that GERD can cause dental erosion due to the regurgitation of highly corrosive stomach acids into the oral cavity. Identifying the source of erosive tooth wear is very crucial (Rane *et al.*, 2017). Once that is done, the patient must be referred to a physician to control and correct all etiologic factors. If the damage to the teeth due to the underlying systemic disease is mild, conservative management with composite restorations should be considered first. But, in this case, the damage was extensive and long term. Hence a full mouth rehabilitation was indicated.

CONCLUSIONS

An important aspect of restoring worn out dentition is the protection of the remaining tooth structure. Teeth already weakened by the loss of a large amount of tooth structure are ill-equipped to withstand occlusal forces. Protection can be best provided by restoring them with the crowns, which further restrict their wear. In this patient, Enhanced esthetics and improved function was possible with a full mouth rehabilitation achieved via full coverage, tooth-supported, metal-ceramic Fixed dental prostheses.

Conflict of Interest

The authors declare that they have no conflict of interest for this study.

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REFERENCES

- Abdul-Hussein, M., Zhang, C., Castell, D. 2018. Symptom Index or Symptom Association Probability?: A Closer Look at Symptom Association in Suspected GERD Patients. *Journal of clinical gastroenterology*, 52(1):7-10.
- Ameri, N., Alikhasi, M., Rezayani, V. 2017. Full mouth rehabilitation with retrievable metal-ceramic implant-supported fixed prostheses for a young patient with atrophic jaws: a clinical report. *Clinical Case Reports*, 5(9):1531-1535.
- Anand, M., Bettie, N., Ramachandiran, H., Kularashmi, B. 2015. A telescopic retainer prosthesis in full mouth rehabilitation. *Journal of Pharmacy and Bioallied Sciences*, 7(6).
- Ginzburg, V. E. 2017. Approach to GERD. *Canadian Family Physician*, 63(8):595.

- Kumar, S. A., Radhakrishnan, V., Sandhu, H. S., Sahoo, N. K. 2015. Full mouth rehabilitation of a case of rampant caries using a twin-stage procedure. *Medical Journal Armed Forces India*, 71:429–434.
- Natali, V., Melissari, S., Simonetti, N., Tapete, G., Marchi, S. 2017. Overlap of GERD and gastrointestinal functional disorders. *Minerva gastroenterologica e dietologica*, 63(3):205–220.
- Rane, J. V., Winnie, R. J., Bhatia, R. 2017. Comparative Assessment of Oral Health-Related Quality of Life of Children Before and After Full Mouth Rehabilitation under General Anaesthesia and Local Anaesthesia. *Journal of Clinical and Diagnostic Research*, 11(1):23–26.
- Souza, R. F., Bayeh, L., Spechler, S. J., Tambar, U. K., Bruick, R. K. 2017. A new paradigm for GERD pathogenesis. Not an acid injury, but cytokine-mediated inflammation driven by HIF-2 α : a potential role for targeting HIF-2 α to prevent and treat reflux esophagitis. *Current Opinion in Pharmacology*, 37:93–99.
- Takeuchi, T., Takahashi, Y., Kawaguchi, S., Ota, K., Harada, S., Kojima, Y., Sakamoto, H., Kuramoto, T., Kojima, K., Sanomura, M., Hoshimoto, M., Higashino, T., Itabashi, T., Takada, K., Sakaguchi, M., Tominaga, K., Kusano, M., Higuchi, K. 2018. Therapy of gastroesophageal reflux disease and functional dyspepsia overlaps with symptoms after usual-dose proton pump inhibitor: Acoti-amide plus usual-dose proton pump inhibitor versus double-dose proton pump inhibitor. *Journal of Gastroenterology and Hepatology*, 33:623–630.
- Vardar, R., Keskin, M., Valitova, E., Bayrakci, B., Yildirim, E., Bor, S. 2017. Effect of alginate in patients with GERD hiatal hernia matters. *Diseases of the Esophagus*, 30(10):1–7.