Malaysian Dental Journal (2016)
Vol 39; Issue 1

MALAYSIAN DENTAL JOURNAL

Care to care: An innovative oral health educational method for patients with hearing and/or speech impairments

Mas Suryalis Ahmad, Fouad Hussain Al-Bayaty, Farhana Abdul Ghani
Faculty of Dentistry, Universiti Teknologi MARA, Malaysia

ABSTRACT

People with hearing and/or speech impairments (HSI) reported having difficulty communicating with the dental team, indicating the need for the profession to develop an effective communication strategy when dealing with these patients. This paper discusses the development of a toolkit designed to guide delivery of oral hygiene instruction, oral health education and dental consultation for patients with HSI, and how its use had resulted in an improved oral health outcome in a patient with such disabilities.

INTRODUCTION

People with hearing and/or speech impairments (HSI) demonstrated low dental attendance, resulting in unmet dental treatment needs and poor oral health status (1-3). One of the barriers to achieving satisfactory oral health was communication barrier (4). It was found that dentists demonstrated poor communication skills, as well as low level of competence and knowledge while providing care for this patient cohort (4). Therefore, the dental profession needs to establish an effective method to communicate with these patients, as it is

important during oral health education, consultation and delivery of dental treatment.

DEVELOPMENT OF THE 'CARE TO CARE' ORAL HEALTH EDUCATIONAL TOOLKIT

This innovation was developed to establish a method aimed at facilitating effective communication between dentists and patients with HSI. The method involves the use of a toolkit containing an innovative communication flipchart with integrated sign language and picture guide, instruction cards, picture booklets and an oral hygiene instrument kit. It was designed based on the inventors' clinical experience in managing patients with HSI and knowledge of Malaysian sign language. The technique integrates the use of hand symbols, body gestures and facial expression, together with info graphics, visual stimulation, hands-on demonstration and written instructions. The toolkit was used to 1) facilitate introduction and building of rapport between dentist and patient, 2) demonstrate proper oral hygiene techniques including tooth brushing and interdental cleaning, 3) describe the process of caries and periodontal disease, 4) illustrate the proposed dental procedure including restoration and periodontal therapy, and 5) educate patients about healthy behaviour and lifestyle as preventative measures against oral diseases and systemic disorders. Patients' improvement in oral hygiene practice, plaque score, bleeding index and pocket depth was noted to assess the efficacy of techniques utilized using this intervention. Application for intellectual property of the product has been registered (MyIPO: LY2016002153).

CASE STUDY

A 52-year old male patient with HSI, and no other systemic disorders, came to our clinic complaining of non-painful bleeding from gingiva on the upper left quadrant, aggravated by vigorous tooth brushing.

He was a non-smoker, non-alcohol drinker, and currently unemployed. He lived with his wife and two children who were all fit and healthy. He brushed his teeth twice daily using fluoridated toothpaste and a soft-bristled toothbrush. He did not practice interdental cleaning, or use any type of mouthwash. He reported coming to the dental clinic in case of pain or problem. His last visit was 3 months ago for extraction of 2 retained roots (14 and 13), which was uneventful.

An orthopantomogram (OPG) radiograph was taken to obtain an overview of the patient's alveolar bone level. A thorough dental and periodontal examination was performed, along with assessment of plaque score and bleeding index. Upon investigation, he was diagnosed with:

- Generalized mild chronic periodontitis with localized severe chronic periodontitis at 12 (distal) & 25 (disto-palatal), and furcation involvement of 26.
- Caries on 12 (mesial), 11 (mesial), 21 (mesial, distal), 22 (mesial, distal), 23 (mesial), 47 (buccal) and 26 (occlusal-mesial).
- Gingival recession at buccal of 23, 24, 25 and 26.
- Partial edentulism of upper and lower arch.

His treatment plan included:

1. Oral hygiene motivation and instruction (using our innovative oral health educational toolkit, Figure 1).

2. Full mouth scaling and prophylaxis.
3. Root debridement on 12 (distal) and 25 (disto-palatal).
4. Restoration of 12 (mesial), 11 (mesial), 21 (mesial, distal), 22 (mesial, distal), 23 (mesial), 47 (buccal) and 26 (occlusal-mesial) with composite.
5. Full mouth fluoride therapy.
6. Reviews (1 week for compliance review, 6-8 weeks for periodontal review and 3-monthly for maintenance).

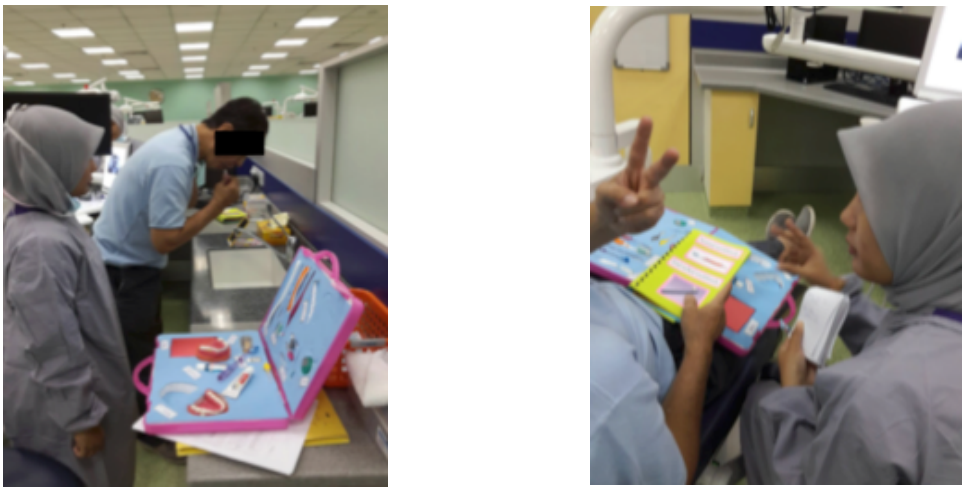
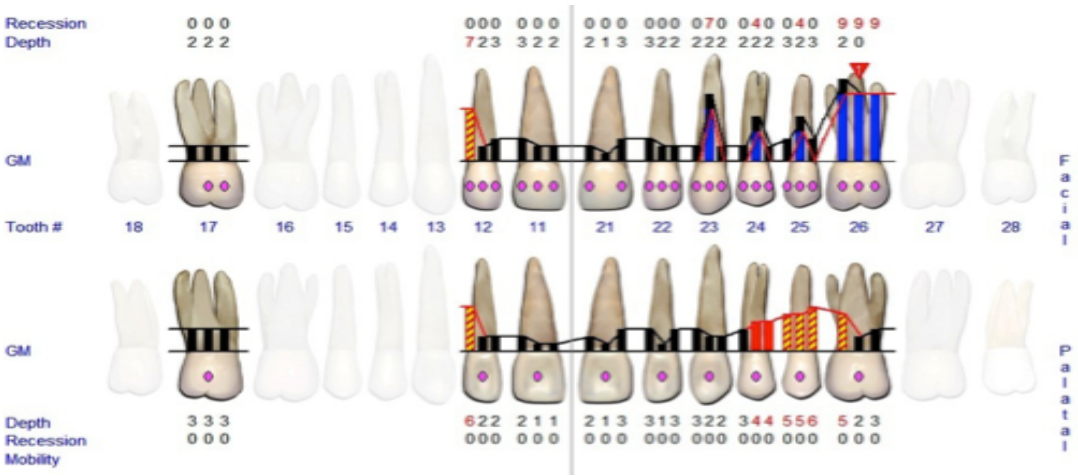


Figure 1. Oral hygiene instruction and motivation activity was conducted chair-side using our innovative toolkit.

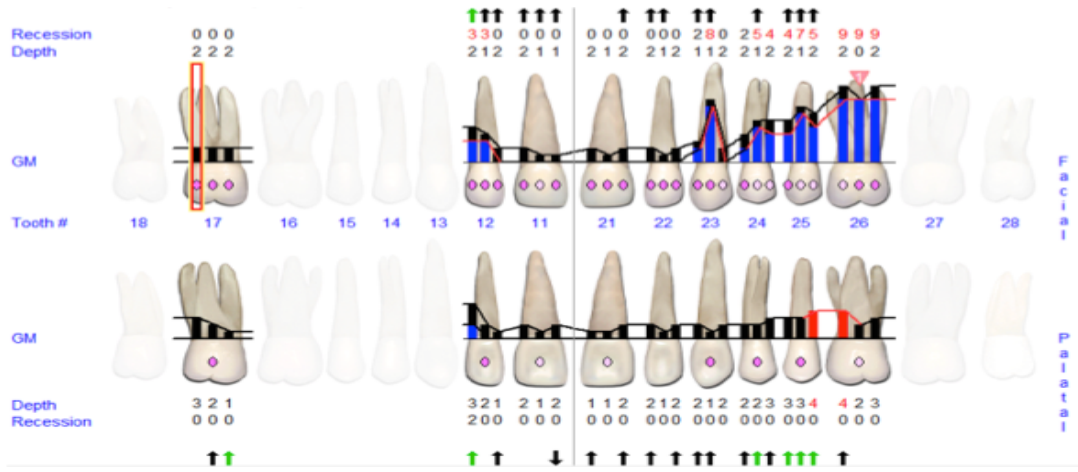
A dental software program was used to record patient's periodontal health status and the disease progression (Figure 2). Patients' improvement in oral hygiene practice, plaque score, bleeding index, along with pocket depth were noted after 3 months to assess the efficacy of techniques utilized using this intervention. After undergoing our innovative oral health educational program and dental treatment, the patient showed improvements in plaque score and bleeding index (Table 1), as well as a reduction of pocket depth at third month review visit (Figure 2 and Figure 3).

Table 1. Improvement of patient's plaque score and bleeding index 3 months following our intervention.

	Baseline	3 months review
Plaque score	88.2%	77.8%
Bleeding index	70.0%	33.3%

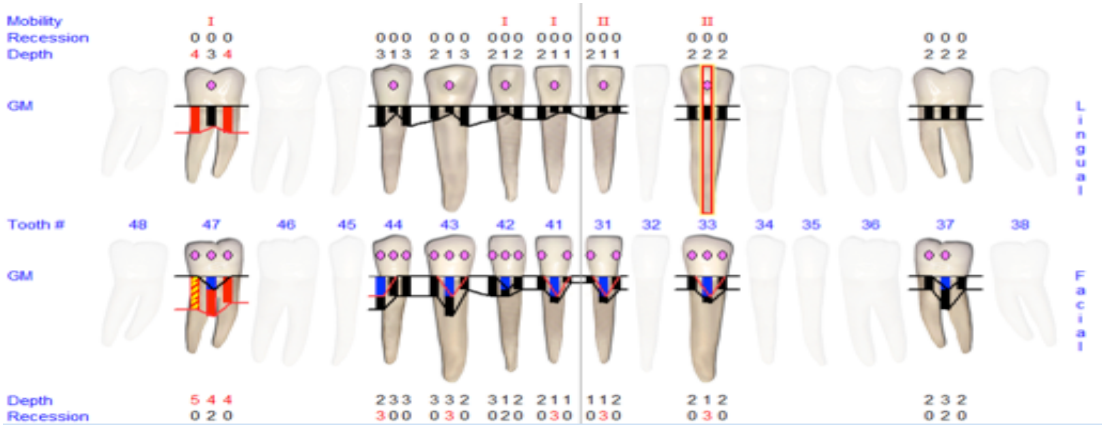


a. Periodontal charting (upper quadrants) at baseline

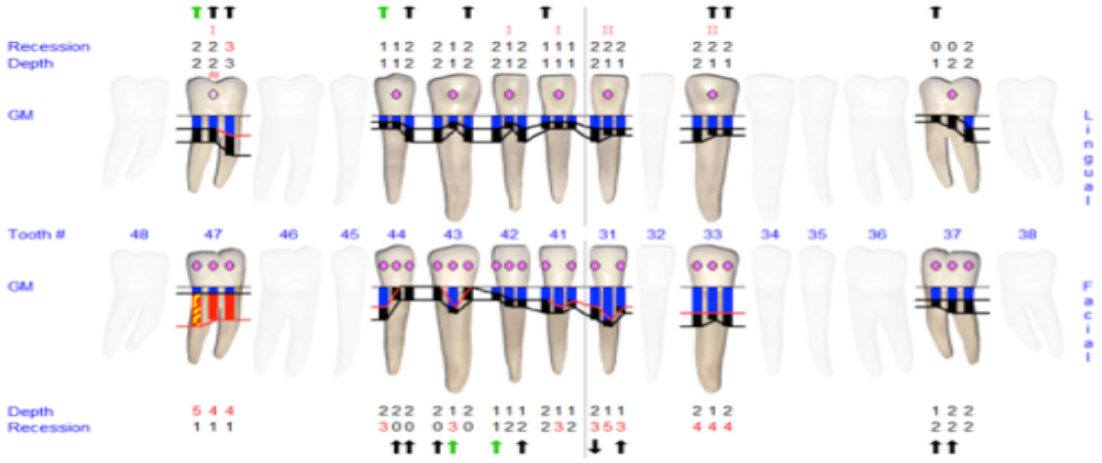


b. Periodontal charting (upper quadrants) after 3 months

Figure 2. Periodontal charting of upper quadrants show reduction in pocket depth after 3 months.



a. Periodontal charting (lower quadrants) at baseline



b. Periodontal charting (lower quadrants) after 3 months

Figure 3. Periodontal charting of lower quadrants show reduction in pocket depth after 3 months.

The patient also demonstrated better motivation and compliance towards oral hygiene care, adherence to dental appointments, as well as improved techniques in tooth brushing and flossing.

DISCUSSION

Effective dentist-patient communication is important in ensuring establishment of rapport, which is integral to developing trusting relationship and compliance towards a management plan (5). Besides

that, an efficient exchange of oral health information between the dentist and patient ensures development of understanding and positive attitudes towards maintenance of oral health, resulting in an improved adherence towards dental attendance and regular personal oral hygiene care (5).

In this case study, improvement of patients' oral hygiene practice, plaque score, bleeding index and pocket depth may be associated with an effective oral hygiene education and instruction provided to the patient. Although professional management of periodontal and dental diseases were performed, a successful treatment outcome is still dependent on effective regular oral hygiene care (6), which was reported and demonstrated by this patient. Therefore, it can be deduced that the innovative communication method utilised in this case has led to better patient care and an improved oral health outcome for this patient, who has HSI.

The effective dentist-patient communication technique lead by the use of this innovation provides people with HSI, who are increasingly represented globally (7), with opportunities to attain satisfactory professional and personal oral health care. Thus, this intervention supports the rights of people with HSI to actively participate in healthcare activities on an equal basis with the general population, an obligation highlighted in the United Nation's Convention on the Rights of Persons with Disabilities (Article 25) (8).

Due to the lack of availability of such products in the market, this invention has a potential to be further developed for commercial use, locally and globally, for utilisation by dental and non-dental healthcare

practitioners and students, as well as caregivers or anyone involved with management of individuals with HSI.

FURTHER SUGGESTIONS

To further support the effectiveness of its use, a study involving a larger cohort, with a control group is suggested. A longitudinal study, with a longer follow-up period is recommended to assess the effectiveness of such intervention program on a long-term basis. The study should also include measurement of patients' improvements in knowledge, attitude and practice following an exposure to this program. Meanwhile, perception of students, practitioners and caregivers on the usability of this toolkit should also be assessed in an effort to improve the quality of the product prior to commercialisation.

CONCLUSION

Improvement in patients' oral health outcome, attitudes and practice indicates the effectiveness of our innovative communication method that involves a combination of sign language, visual stimulation, info-graphics, hands-on demonstration and written instructions.

REFERENCES

1. Sandeep V, Kumar M, Vinay C, Chandrasekhar R, Jyostna P. Oral health status and treatment needs of hearing impaired children attending a special school in Bhimavaram, India. Indian J Dent Res. 2016;27(1):73-7.
2. Vichayanrat T, Kositpumivate W. Oral health conditions and behaviors among hearing impaired and normal hearing college students at Ratchasuda College, Nakhon Pathom, Thailand. Southeast Asian J Trop Med Public Health. 2014;45(5):1228-35.

3. Kumar S, Dagli RJ, Mathur A, Jain M, Duraiswamy P, Kulkarni S. Oral hygiene status in relation to sociodemographic factors of children and adults who are hearing impaired, attending a special school. Spec Care Dentist. 2008;28(6):258-64.
4. Champion J, Holt R. Dental care for children and young people who have a hearing impairment. Br Dent J. 2000;189(3):155-9.
5. Burbidge M. How to communicate with your patient. In: Nicholas Lennox JD, editor. People with developmental and intellectual disabilities. Melbourne: Therapeutic Guidelines Limited; 1999.
6. Axelsson P, Nystrom B, Lindhe J. The long-term effect of a plaque control program on tooth mortality, caries and periodontal disease in adults. Results after 30 years of maintenance. J Clin Periodontol. 2004;31(9):749-57.
7. United Nations Economic and Social Commission for Asia and the Pacific. Disability at a Glance 2012: Strengthening the evidence in Asia and the Pacific [Internet]. Bangkok: United Nations Publication; 2012 [cited 2016 August 24]. Available from: http://www.unescapsdd.org/files/documents/PUB_Disability-Glance-2012.pdf.
8. United Nations Web Services Section, Department of Public Information. Convention on the Rights of Persons with Disabilities [Internet]. New York: United Nations; 2006 [cited 2015 December 16]. Available from: http://www.un.org/disabilities/convention/conventionfull.shtml.