Attitudes of general dental practitioners to the maintenance of Locator retained implant overdentures

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VERIFIABLE CPD PAPER

IN BRIEF

- Investigates the attitudes of GDPs to the maintenance of Locator retained implant overdentures in primary care.
- Reports that most GDPs are not familiar with the Locator attachment system and are reluctant to maintain Locator retained implant overdentures.
- Highlights barriers to the shared care of patients with Locator retained implant overdentures between hospital practitioners and GDPs.

RESEARCH

Introduction Locator retained implant overdentures are associated with a high incidence of prosthodontic complications. This study investigated whether general dental practitioners (GDPs) were willing to maintain these prostheses in primary dental care. **Method** A questionnaire was distributed to all GDPs referring patients for an implant assessment to the Charles Clifford Dental Hospital, Sheffield between 1 January 2012 and 30 June 2012. **Results** Ninety-four out of one hundred and forty-six questionnaires were returned (response rate: 64%). Thirteen GDPs (14%) were able to identify the Locator attachment system from clinical photographs. Eighty-two GDPs (87%) would adjust the fit surface of a Locator retained implant overdenture. Twenty-three GDPs (25%) would replace a retentive insert, 18 GDPs (19%) would tighten a loose abutment, 68 GDPs (72%) would debride abutments and 25 GDPs (27%) would remake a Locator-retained implant overdenture. Forty-seven GDPs (50%) felt that the maintenance of these prostheses was not their responsibility. The main barriers identified to maintenance by GDPs were a lack of training, knowledge and equipment. Seventy GDPs (74%) would like further training in this area. **Conclusions** GDPs are not familiar with the Locator attachment system and are reluctant to maintain implant retained overdentures. GDPs would like further training in this area.

INTRODUCTION

Implant retained overdentures have been used to successfully rehabilitate edentulous patients for over 30 years.¹ These prostheses have been advocated as the standard of care in the edentulous mandible.^{2,3} The 2009 Adult Dental Health Survey revealed that 6% of the adult population in England, Wales and Northern Ireland was edentulous.⁴ There would therefore appear to be a significant need for implant retained overdentures in England, Wales and Northern Ireland at the present time.

Implant retained overdentures may be retained by a variety of attachments including bars, balls, magnets and Locators,⁵ (Figs 1–4). Regardless of attachment type, following insertion, implant retained overdentures appear to be associated with a high incidence of prosthodontic complications.^{6–9} Commonly reported complications include denture adjustment, loss of retention, abutment

Fig. 1 Cast bar linking implants at the 42 and 32 sites

Fig. 3 Magnet abutments at the 14 and 24 sites

Fig. 2 Freestanding ball abutments

Fig. 4 Locator abutments

loosening and fractured prosthetic teeth.⁵ These complications can occur on a frequent basis and their management can be inconvenient for patients, who may have to travel long distances to access care, and accompanying family members, who may have to have time off work. These complications also impact

upon service delivery within the secondary care environment.

The Locator attachment system (Zest Anchors) has been available since 2000.⁹ This system appears to be associated with a similar incidence of prosthodontic complications as other attachment systems.^{9–11}

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However, the prosthodontic complications associated with this system are often simpler to resolve than those associated with other attachment systems. As a result, the Locator attachment system has been adopted as the attachment mechanism of choice at the Charles Clifford Dental Hospital, Sheffield in cases where implants are parallel to each other.

If the prosthodontic complications associated with Locator retained implant overdentures could be managed within primary dental care it would be more convenient for both patients and secondary care providers. However, the attitudes of general dental practitioners (GDPs) to the maintenance of Locator retained overdentures within primary dental care have not previously been investigated. The aims of this study were:

1. To determine whether GDPs were willing to maintain implant overdentures retained using the Locator attachment system within primary dental care
2. To identify barriers to the maintenance of Locator retained implant overdentures within primary dental care.

METHOD

All GDPs referring patients to the Charles Clifford Dental Hospital, Sheffield for an implant assessment between the 1 January 2012 and 30 June 2012 were identified from a clinical database. GDPs referring multiple patients were only identified once.

A questionnaire was developed and piloted on ten dentists working within the Charles Clifford Dental Hospital. All ten dentists had previous experience of working within a primary dental care setting.

The modified questionnaire (Appendix 1) was subsequently posted, with a covering letter explaining the nature of the study and a stamped addressed return envelope, to all GDPs identified for inclusion in this study. Non-responders were sent a second questionnaire one month later. The database of GDPs was maintained for the sole purpose of establishing which questionnaires were returned. However, all results were anonymised.

RESULTS

One hundred and forty-six GDPs who had referred patients to the implant assessment clinic between the 1 January 2012 and the 30 June 2012 were identified and sent questionnaires. Ninety-four completed questionnaires were returned (response rate 64%). Forty-three GDPs (46%) worked in purely NHS practice, 8 GDPs (8%) worked in private practice and 43 GDPs (46%)

Fig. 5 Year of qualification of respondent GDPs

Fig. 6 Percentage of GDPs who were prepared to manage various complications associated with Locator retained implant overdentures

worked in mixed NHS/private practice. Responses were received from GDPs who had been qualified for 1-41 years (Fig. 5). Thirty-nine GDPs (41%) qualified from Sheffield Dental School and 13 GDPs (13%) qualified overseas. The remaining 42 GDPs (46%) qualified at various dental schools throughout the United Kingdom.

Ten GDPs (11%) reported that they were involved in the placement and restoration of dental implants. Six GDPs (6%) reported that they were only involved in the restoration of dental implants. The remaining 78 GDPs (83%) reported no involvement with dental implants.

Seventy-seven GDPs (82%) had not received formal postgraduate training in

dental implantology. Eight GDPs (9%) had completed the 18 month University of Sheffield One-to-One dental implant course. The remaining 9 GDPs (9%) had attended independent courses and manufacturers courses or completed a postgraduate certificate, postgraduate diploma or master's degree in dental implantology.

Only 13 GDPs (14%) were able to correctly identify the Locator attachment system from clinical photographs. Eighty-two GDPs (87%) were prepared to adjust the fit surface of the denture at a site distant from the Locator attachment system. Twenty-three GDPs (25%) were prepared to replace the retentive inserts. Eighteen GDPs (19%) were prepared to tighten a loose Locator abutment.

Fig. 7 GDPs estimation of frequency of prosthodontic complications associated with Locator retained overdentures

Fig. 8 Barriers to the maintenance of Locator retained overdentures within primary dental care (multiple responses were permitted)

Eighty-five GDPs (91%) were prepared to replace a fractured prosthetic tooth and 25 GDPs (27%) were prepared to remake a Locator retained implant overdenture. Sixty-eight GDPs (72%) were prepared to debride Locator abutments to remove supra-mucosal calculus (Fig. 6). However, only 32 of these 68 GDPs (47%) reported that they would use a specific implant scaler or ultrasonic insert.

Thirty-two GDPs (34%) reported that they had seen implant retained overdentures with prosthodontic complications. However, GDPs appeared uncertain about how frequently these complications were likely to occur (Fig. 7).

Forty-seven GDPs (50%) felt that they should not be responsible for the maintenance of Locator retained implant overdentures, 39 GDPs (41%) felt that they should be responsible for maintenance and 8 GDPs (9%) were unsure who should be responsible for maintenance. Of the 47 GDPs who did not believe that prosthodontic maintenance was their responsibility, 27 felt that maintenance should be provided in secondary care, 7 felt that maintenance should be provided by

specialist practitioners, 1 advocated a shared care approach and 12 offered no solution. No relationship was observed between time since qualification and willingness to retain Locator retained implant overdentures.

GDPs identified a number of barriers to the maintenance of Locator retained overdentures within primary care. The most commonly cited reasons were insufficient time, inadequate remuneration and lack of training, experience and equipment (Fig. 8). Seventy GDPs (74%) reported that they would like further training in the management of prosthodontic complications associated with Locator retained implant overdentures.

Respondents also provided some interesting comments at the end of the questionnaire. Many GDPs appear happy to maintain Locator retained overdentures if they are provided with the correct equipment, support and appropriate training. For example, GDP A stated that he was 'very happy to maintain IOD [implant overdentures] but would like training to do so confidently'. GDP B was also happy to provide maintenance although he had some

reservations: 'implants should be in the correct position and the patient should attend regularly'. Other GDPs felt that maintenance was not their responsibility. GDP C stated that, 'secondary care specialist treatments should not be left to NHS practices to follow up. My NHS services are to provide basic general dental care for my patients.' Some GDPs reported that they were fearful about interfering with another dentist's work and potential liability for subsequent failures. Others did not believe that the investment in time and equipment was worthwhile.

DISCUSSION

The response rate of 64% achieved in this study is considered satisfactory as it is above the mean response rate (57.5%) of healthcare professionals to postal surveys.¹² The reported results may be affected by non-response bias as non-responders may have different characteristics to those that do respond.¹² However, responses were received from practitioners with a broad range of experience and appear representative of both NHS and private general dental practice. It was not unexpected that local GDPs were most likely to have trained at Sheffield Dental School.

Implant retained overdentures have been advocated as the standard of care in the edentulous mandible.^{2,3} However, only 17% of GDPs reported that they were involved in the placement or restoration of dental implants. Nevertheless, the prosthodontic complications included within this questionnaire were selected because of their high incidence and the ease with which they could be managed. Proficiency in the placement or restoration of dental implants was not seen as an essential requirement for the management of these complications.

Most GDPs were prepared to adjust the fitting surface of a Locator retained overdenture or repair a fractured prosthetic tooth. However, few GDPs were prepared to replace the retentive insert or tighten a loose Locator abutment. All of these complications can be simply managed with only a Locator tool and replacement retentive inserts. Worryingly, fewer GDPs were able to identify the Locator attachment system from clinical photographs than were prepared to replace inserts or tighten abutments. GDPs should exercise caution before managing prosthodontic complications if they are unable to identify the attachment system as damage may occur if procedures are done incorrectly. It would appear sensible to provide all implant patients with written information regarding any components that have been used to assist maintenance in primary dental care.

Three quarters of GDPs were prepared to debride Locator abutments to remove supra-mucosal calculus. However, only approximately half of these reported that they would use a specific implant scaler. When mechanical debridement is undertaken, plastic or titanium scalers are recommended to avoid damaging the implant or abutment surface.¹³

GDPs were generally uncertain as to how frequently prosthodontic complications with Locator retained implant overdentures were likely to occur. The incidence of complications varies depending upon how complications are defined and recorded. However, most studies suggest that implant retained overdentures require maintenance once or twice per year.^{8–11}

The five most important barriers identified to the maintenance of Locator retained implant overdentures were inadequate remuneration, insufficient time and lack of training, experience and equipment. The prosthodontic complications included within this questionnaire were selected because they are quick and simple to correct, and require only a Locator tool and replacement retentive inserts. Training and experience for local GDPs can easily be provided and the Locator tool is a generic instrument that once purchased can be used with all major implant systems. The reported barriers do not appear insurmountable.

NHS-funded implant retained overdentures at Charles Clifford Dental Hospital, Sheffield are restricted to those who have had head and neck cancer, hypodontia, significant trauma or difficulties with conventional dentures.¹⁴ Some of these patients should be maintained within secondary care. However, most could be maintained within primary care if GDPs were suitably trained, suitably remunerated and had appropriate equipment. Unfortunately, only 42% of respondent GDPs felt that prosthodontic maintenance

of implant retained overdentures was their responsibility.

The authors advocate a 'shared care' approach to the maintenance of implant retained overdentures where GDPs, hygienists, therapists and clinical denture technicians are supported by dentists with enhanced skills and specialists in primary and secondary care as part of a managed care network (MCN).¹⁵ Many elderly edentulous patients reside in care homes and it is important that social care is integrated within this managed care network. Training needs can be highlighted at MCN meetings and training can be provided for all members. A clear clinical care pathway should be developed to assist and support decision making across primary and secondary care.¹⁶

This study has identified a need to educate GDPs regarding the Locator attachment system and the correct management of common prosthodontic complications. This issue should be addressed, as provision of simple maintenance in primary dental care is beneficial to both patients and secondary care providers. Fortunately, there appears to be a widespread desire for further training in this area. Training should be targeted at all GDPs at a local level in workshops supported by secondary care specialists and at a national level by specialist societies.

CONCLUSIONS

This study has revealed that of all those surveyed:

1. Most GDPs are not familiar with the Locator attachment system and are reluctant to maintain Locator retained implant overdentures
2. GDPs would like further training in the maintenance of Locator retained implant overdentures and this was identified as one of the main barriers to maintaining these prostheses.

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Questionnaire Regarding the Maintenance of Implant Retained Overdentures by General Dental Practitioners

1. What type of practice do you work in?

NHS

Private

Mixed

†

2. In which year did you qualify? .....

3. From which Dental School did you qualify? .....

4. Are you involved in dental implant treatment?

No

Placement only

Restoration only

Placement and Restoration

5. Have you completed postgraduate training in either the surgical or prosthodontic aspects of dental implantology (please circle all that apply)?

One to One course

Postgraduate Certificate

Diploma in Implant Dentistry

MMedSci

MSc

MClintDent

Other .....

The following photographs and questions 6-13 relate to a patient who was provided with a conventional full upper denture and a lower implant retained overdenture at a local Dental Hospital 18 months ago.

6. Can you name the attachment system used in this patient? .....

7. Would you be prepared to adjust the fit surface of the lower overdenture at the site indicated by the arrow if this patient attended with a localised, corresponding area of soreness?

Yes

No

If no, why not? .....

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8. Could you replace the blue retentive elements of this overdenture if required?

Yes

No

If no, would you like training to be able to do this?

Yes

No

9. Would you repair a prosthetic tooth which had fractured off this overdenture?

Yes

No

If no, why not? .....**10. If this patient presented with a loose implant abutment could you tighten the abutment?**

Yes

No

If no, why not? .....**11. Could you remake this lower implant overdenture if required?**

Yes

No

If no, why not? ..... **12. Could you debride these abutments to remove supragingival calculus?**

Yes

No

If yes, what would you routinely use? .....**If no, would you like training to be able to do this?**

Yes

No

13. What do you perceive are the barriers to providing the above treatments in General Dental Practice (please circle all that are appropriate)?

Insufficient training

Insufficient experience

Inadequate fee

No interest

Insufficient time

Incorrect equipment

Other .....

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14. Have you seen patients with implant overdentures in your practice with problems similar to those above?

Yes

No

15. How often do you think that a patient with a lower implant retained overdenture is likely to return with problems similar to those listed above in a 2 year period following denture insertion?

0

1-2

3-4

5-6

7+

Don't know

16. Do you feel that you should assume responsibility for the maintenance of implant retained overdentures constructed in secondary care?

Yes

No

If no, who should? .....

17. Would you be interested in further training in the construction and maintenance of implant retained overdentures (please tick all that apply)?

No

Yes – lectures

Yes – hands on courses

Yes - mentoring

†

Do you have any further comments on the willingness of GDPs to maintain implant retained overdentures constructed in secondary dental care?

.....
 .....
 .....
 .....
 .....

If you would like further information or training in this area please put your contact details in the box below.

Thank you for completing this questionnaire.