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Ich bedanke mich bei den unten aufgeführten Kolleginnen und Kollegen für ihre wertvolle Mitarbeit, die sie in den vergangenen zwei Jahren geleistet haben.

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Orthodontic retention procedures in Switzerland

A survey

KEYWORDS
relapse,
retention,
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orthodontic treatment

SUMMARY

Objective: To survey retention procedures used in orthodontic practices in Switzerland.

Material and methods: A questionnaire previously developed by Renkema et al. (2009) was sent to 223 Swiss orthodontists. The questionnaire comprised six parts, mainly containing multiple-choice questions. Information as to background education of the individual orthodontist, retention in general, frequency of different types of removable or bonded retainers that were used, retention protocol, and the type and size of the wire used for bonded retainers was assessed.

Results: The overall response rate was 65 percent. Most orthodontists placed a bonded retainer in the upper and lower arch, except when the upper arch was expanded during treatment or when extractions were performed in the upper arch, in which case they placed a combination of fixed and removable retainers. Opinions varied with regard to how many hours the removable retainers should be worn and the duration of the retention phase. As far as bonded retainers were concerned, 87 percent of the orthodontists preferred life-long retention. Ninety-three percent of the orthodontists considered that the development of a guideline on retention procedures would be useful.

Conclusions: The choice of retention procedures is mostly based on orthodontist's personal preference. A further research into the long-term effectiveness of individual retention protocols is needed.

Introduction

Teeth have a tendency to return to their initial positions once active orthodontic treatment has been completed. This phenomenon is known as relapse. A search for the mechanisms of relapse identified a range of putative causative factors such as continuing craniofacial growth, forces acting on the dentition from the orofacial musculature, stretching of periodontal tissues, and inadequate occlusal contacts, the nature and modality by which the correction was achieved, and others (Blake & Bibby 1998). These factors likely act in concert in order to bring about relapse, which occurs to some extent in the vast majority of patients (Littlewood et al. 2006, Joondeph 2011).

To counteract relapse, orthodontic retention is used for varied times in practically every patient. Recent surveys about retention procedures (Wong & Freer 2004, Renkema et al. 2009, Singh et al. 2009, Valiathan & Hughes 2010, Pratt et al. 2011, Vandevska-Radunovic et al. 2013) demonstrated some similarities among orthodontists practicing in various countries, such as a frequent use of fixed wire retainers in the mandibular dental arch or a growing popularity of removable vacuum-formed retainers. Many differences in retention protocols regarding the choice of the retainer type and duration of retention were, however, also noted. For example, removable vacuum-formed retainers were most often used for retention of the maxillary

dental arch in the UK (Singh et al. 2009), Australia and New Zealand (Wong & Freer 2004), while a combination of fixed and removable retainer was commonly used for the maxillary dentition in Norway (Vandevska-Radunovic et al. 2013). In addition, there were substantial differences between orthodontists working in the same country. Renkema et al. (2009) noticed that "individual orthodontists used removable retainers either very often or rarely". Presumably, this resulted from the fact that a selection of retention method was based largely on personal preference, experience and other nonscientific criteria.

Several recent investigations with high methodological quality (Rowland et al. 2007, Horton et al. 2009, Edman et al. 2010) showed that, in the short term, there is little difference between various retention protocols. It is unclear, however, which retention strategy is most effective in the long term. In order to answer the question "What retainer(s) and for how long should I use?" methodologically rigorous randomized clinical trials (RCTs) should be carried out. However, large variations in retention strategies used by orthodontists make it difficult to select these retention protocols, which should be tested later through RCTs. The development of a database of retention procedures is important because it can help select most common retention strategies for further investigation. Therefore, the aim of this study was to evaluate retention procedures used by specialists in orthodontics practicing in Switzerland.

Materials and Methods

In this survey, a questionnaire developed by Renkema et al. (2009) was sent to orthodontists working in Switzerland. A list of all names and addresses of specialists in orthodontics was obtained from the Swiss Orthodontic Society. The questionnaire was prepared in two languages, German and French. The German version was sent to 182 orthodontists and the French version to 41 in March 2012. The orthodontists were asked to fill out the questionnaire anonymously, except for a situation when a personal feedback was required. One month later, a reminder was sent to all orthodontists.

The questionnaire comprised six sections (A to F), containing multiple-choice and free response questions. In section A, the individual orthodontist's background was assessed. An orthodontist was asked about employment status, i.e. whether he/she was working in a private practice, at a university, as a substitute or was retired. Answers from substitute and retired orthodontists were excluded from further analysis. In section B, general questions about retention, for instance "What was the reason for choosing a specific kind of retainer?" were asked. Section C was dedicated to removable retention and section D – to fixed retention. Section E contained multiple-choice questions, in which orthodontists were asked to choose in what specific situation a certain type of retention was used. In the last section, F, opinion about the need for possible retention guidelines after active orthodontic treatment had to be stated.

Statistical analyses

All statistical analyses were carried out using the Statistical Package for Social Sciences (SPSS), version 20 (SPSS Inc, Chicago, Illinois, USA). Background information on the individual orthodontist was described in frequencies (i.e. data referring to type of employment, place of specialization, and number of excluded replies) and the other results in percentages. Tests for the association between items in the questionnaire were based on the chi-square tests or Fisher's exact tests.

Results

General

In total, 145 orthodontists (65%) returned questionnaires. The return rate was slightly higher among French-speaking (68.3%) than German-speaking (64.2%) orthodontists.

12.5% respondents had 30 or more years of experience in treatment of orthodontic patients, 29.2% between 20 and 30 years, 30.8% between 10 and 20 years, and 27.5% had 10 years or less of experience. Of the 145 clinicians, 120 worked in individual or group private practices, 21 at a university, 2 substituted other orthodontists, and 6 were retired. Combinations, such as working in a practice and at a university, were noted. One orthodontist did not provide information on the employment status. The answers from 9 orthodontists (2 substitutes, 6 retired, and 1 whose employment status was unknown) were excluded from analysis. 136 questionnaires were finally analyzed.

The vast majority of orthodontists were trained in Switzerland (n = 122; 89.7%), while 14 (10.3%) in other, mostly European, countries.

Selection of type of retainer

Several factors influenced the selection of a certain type of retainer (Tab. I). The situation prior to treatment was the most important reason – more than ¾ of orthodontists listed it as a dominating factor dictating the choice of retention. The final result of treatment, the degree of interdigitation, and motivation of patients were mentioned by more than half of the orthodontists as influencing their retention procedure. Furthermore, the type of orthodontic treatment also influenced the choice of a given retainer (Tab. II). As presented in Table II, most orthodontists preferred fixed retention in both upper and lower dental arches except for two clinical situations: extraction treatment and maxillary expansion. In these cases a combination of fixed and removable retainers was preferred in the upper jaw.

Only one orthodontist (0.7%) did not use fixed retention, while eleven orthodontists (8.1%) did not use removable retainers.

Tab. I Percentage of orthodontists indicating that a certain factor influences their choice for a specific type of retainer

Factors	%
Pre-treatment situation	79.4
Interdigitation after treatment	69.9
Poor oral hygiene	47.8
End result	54.4
Periodontal tissues	43.4
Motivation	58.1
Age	42.6
Myofunctional aspects	41.2
Anatomy of teeth	19.9
Third molars	9.6
Others	8.8

Tab. II Percentage of orthodontists who used fixed, removable, or both types of retainers in specific situations (percentages for missing responses are not shown)

Type of treatment/situation	Type of retention					
	Upper arch			Lower arch		
	Bonded	Removable	Bonded and removable	Bonded	Removable	Bonded and removable
Extractions	26.5	19.1	47.8	80.9	2.2	9.6
Closing a diastema in the anterior region	56.6	4.4	34.6	83.1	2.9	8.8
Crowding in the anterior region	66.9	8.1	19.1	91.9	0.7	2.9
Expansion of the respective arch	17.6	28.7	46.3	62.5	4.4	6.6
Impacted anterior teeth	60.3	9.6	21.3	87.5	0.7	2.9
Intrusion of the anterior teeth	55.9	14	21.3	87.5	1.5	2.9
Extrusion of the anterior teeth	64.7	8.1	17.6	86	1.5	2.2
Severe rotations of the anterior teeth	77.9	1.5	16.9	93.4	0	2.9
Root resorption of the anterior teeth	66.2	5.1	16.2	78.7	2.9	2.9

Tab. III Percentage of orthodontists who stated contraindications for the placement of bonded retainers (percentages for missing responses are not shown)

Contraindications	%
Poor oral hygiene, periodontal problems, caries	56
Occlusion (deep bite)	27
Incomplete treatment result (i.e. diastema)	0.6
Motivation	3
Anatomy	2.3
Type of treatment	0
Expected relapse	0
Side effect torque	0
Others	8.3

Eighty percent of orthodontists requested the technician to fabricate retainers. The rest used retainers prepared by themselves or by their dental assistant. Some orthodontists (7%) make the retainers directly in the mouth of the patient. There was no agreement among orthodontists regarding optimal type of the wire for retainers – various combinations of stainless steel or TMA, braided or twisted, rectangular or round wires in various sizes ranging from 0.016" to 0.032" were utilized. Irrespective of the type of wire, retainers were placed with the help of a transfer tray by almost half of the orthodontists. Approximately 17% of orthodontists used dental floss for positioning of the retainer. The remaining clinicians used other methods.

Clinicians using bonded retainers listed several contraindications of fixed retention (Tab. III). The most important were poor oral hygiene, periodontal problems, and caries – 56% of orthodontists did not recommend placement of the fixed retainers in any of the dental arches in patients with these problems. Also, 27% of orthodontists do not advise fixed retention in the upper dental arch in the case of a deep bite.

The most popular type of removable retainer in the upper arch (Tab. IV) was a Hawley plate. It was used in 48% of the patients.

Three types of fixed retainers were frequently recommended by orthodontists: (1) a retainer bonded to all anterior teeth, (2) a retainer bonded to the canines only, and (3) a retainer bonded to all incisors (Tab. IV). The first type was used more or less equally often in the upper and lower dental arches, whereas a retainer fixed to the canines only was used predominantly in the lower arch and a retainer bonded to incisors was used mainly in the upper arch. It must be taken into consideration, however, that the percentages of patients that received a specific type of retainer are not directly comparable between the various types of retainers, due to the difference in the number of orthodontists who responded to each question (Tab. IV).

Retention period

Orthodontists varied in their opinions regarding how many hours per day and how long a removable retainer should be worn. On average, during the first phase of retention (mean = 7.4 months, SD = 5.6, range: 1–24 months) the orthodontists advised that a removable retainer should be worn for 15.8 hours per day (SD = 6.6, range: 2–24 hours) for 7 days a week (SD = 0.34, range: 4–7 days). There was no consensus among clinicians regarding the length of a period when removable retainers should be worn – 5.1% of the orthodontists ended the retention period within 6 months, while 88% continued for more than 1 year. When fixed retainers were applied, the vast majority of orthodontists (87%) advised their patients to wear them permanently, while 13% of the orthodontists removed the bonded retainers at certain moments determined by factors such as pre-treatment situation, oral hygiene, and patient's request.

Check-ups

There was a difference in the number of annual control visits after placement of removable *vs.* bonded retention (visits for

Tab. IV Distribution of responders (N) using a specific type of retainer as well as mean and standard deviation (SD) of the percentage of patients receiving such a retainer

		Upper arch			Upper and lower arch			Lower arch		
		N	Mean	SD	N	Mean	SD	N	Mean	SD
Removable retainers	Hawley-type retainer	109	48.2	35.7				92	2.7	10.9
	Clear (vacuum-formed) retainer	101	10.1	17.3				90	7.4	17.9
	Spring retainer	71	1.7	11.8				75	2.2	10.8
	Positioner				82	6.8	16.6			
Bonded retainers	Bonded to the canines only	73	3.6	16.9				97	54.3	39.2
	Bonded to all anterior teeth	114	47.6	39.7				110	51.4	40.7
	Bonded to central incisors	66	2.4	9.9				58	0.1	0.7
	Bonded to all incisor teeth	91	51.3	37.1				63	0.7	3.2
	Bonded to all teeth from the first premolar to the first premolar	66	1.3	2.8				69	4.4	14.1

Tab. V Number of check-ups during the first year after placement of a removable or bonded retainer (percentages for missing responses are not shown)

Number of check-ups during the 1st year	Removable (% orthodontists)	Bonded (% orthodontists)
0	0	1.5
1	1.5	14.7
2	15.4	34.6
3	32.4	29.4
4	30.1	14.7
>4	12.5	4.4

Tab. VI Percentage of orthodontists who provide the patient with instructions after the placement of a bonded retainer

Instructions	%
With regard to breakage/loosening	93.4
Oral hygiene	94.1
Floss	88.2
Interdental brushes	67.6
With regard to nutrition	50.7
Electric toothbrush	39
Toothpicks	36.8
Others	8.8

repair not included) (Tab. V). The orthodontists tended to schedule more check-ups per year of removable than fixed retainers – the former were controlled 3 or more times a year by 75% of orthodontists, whereas the latter were controlled 3 or more times a year by 48.5% of orthodontists. Almost 13% of orthodontists checked up removable retainers even 5 times or more per year. In contrast, only 4.4% of orthodontists scheduled 5 or more check-ups of fixed retainers.

Adverse effects of fixed retainers

When asked about potential side effects of long-term use of bonded retainers, 43.3% of orthodontists stated they did not notice any harmful effects of fixed retention, whereas 56.7% of orthodontists confirmed that they observed adverse effects of bonded retainers. The most common adverse effect (84.2%) was a change of torque in a small number of patients (0.1–5%). Also, mild rotations or spacing were observed, but much less frequently than torque problems.

Information and instructions

The vast majority of the orthodontists gave their patients information concerning the retainer. The orthodontists who used removable retainers almost always (91.2%) provided written instructions, whereas the orthodontists who applied fixed retainers gave written instructions in approximately 33% cases (oral instructions were given in the remaining situations). Most instructions regarded two issues: (1) how to properly clean teeth and (2) what to do when a retainer breaks/gets loose (Tab. VI). Addressing the first issue, most of the patients were instructed to use proper toothbrushing technique, to floss teeth regularly, and to use interdental brushes to keep optimal oral

hygiene. Less than half of the orthodontists recommended electric toothbrushes or toothpicks. In the case of failure of the retainer, patients were advised to return to the orthodontist (91%) or make an appointment with a dentist (34%) as soon as possible. In general, 62% of the orthodontists were in communication with the dentist about checking and repairing fixed retainers. Most of them asked the dentists to refer the patient with a broken retainer back to the orthodontist. However, some orthodontists (6.6%) requested the dentists to repair broken retainers if they found during a routine check-up that a retainer caused a problem.

The need for a practice guideline

Ninety-three per cent of the orthodontists were of opinion that a guideline on retention procedures is useful (64% – "useful", 29% – "partially useful"), while 3% of orthodontists answered that they considered development of a practice guideline as useless.

Discussion

In this survey the questionnaire return rate was 65%. It was slightly less than the reported average response rate for dental specialists of 69.6% (Tan & Burke 1997). However, surveys of specialists in orthodontics published after 2000 showed varied response rate ranging from 18% (Pratt et al. 2011) to 91% (Renkema et al. 2009). Therefore the current return rate is relatively high. As a result, non-responder bias is considered to be limited.

The objective of this study was to evaluate retention procedures used by Swiss specialists in orthodontics. We found that bonded retainers are the most popular type of retention in the upper and lower dental arches. They are applied as the sole retention appliances in many clinical situations but may be supplemented with removable retention in cases such as extraction treatment or in patients who had maxillary expansion. Several surveys carried out in Australia and New Zealand (Wong & Freer 2004), the Netherlands (Renkema et al. 2009), the UK (Singh et al. 2009), the US (Valiathan & Hughes 2010, Pratt et al. 2011), and Norway (Vandevska-Radunovic et al. 2013) confirmed a preference for fixed retention in the mandibular arch – bonded retainers were the most popular retention appliance in the mandible in all surveyed countries except the UK, where removable retainers were used most often. There is no consensus among orthodontists from various countries regarding the choice of retention strategy for the maxillary dental arch (Wong & Freer 2004, Valiathan & Hughes 2010). Our findings suggest that Swiss orthodontists use fixed retainers in the maxilla in a high percentage of patients, with a big variation seen among clinicians. Depending on the clinical situation, a variable percentage of orthodontists additionally use removable retainers to increase stability. Renkema et al. (2009) demonstrated that Dutch orthodontists use fixed retention in the maxillary dental arch in approximately 62% of patients (some of them also receive removable retainers). Also here a big variation between clinicians was observed. Vandevksa-Radunovic et al. (2013) showed that fixed retainers are applied in about 50% of Norwegians (they are supplemented with removable retention in the majority of patients). In Australia and New Zealand, fixed retention in the maxilla is used in less than 20% of patients (Wong & Freer 2004) and in the US only 2.4–11% of orthodontic patients have fixed retainers (Valiathan & Hughes 2010, Pratt et al. 2011). An interesting observation was made in the British survey (Singh et al. 2009): preference regarding the type of retention depended on the type of practice (National Health System [NHS] *vs.* private *vs.* hospital *vs.* community). For example, orthodontists practicing privately used fixed retention in the maxilla in 37% of the patients, whereas clinicians working for the NHS applied it only in 12% of patients.

Experimental study showed that retention strongly decreases total amount of relapse when teeth were moved orthodontically over considerable distances (Van Leeuwen et al. 2003). A related issue is the minimum length of retention period. During active orthodontic treatment, increasing stresses and strains are stored in the periodontal tissues. Following removal of the orthodontic appliance, they are released, and the teeth begin to relapse to their original positions. Earlier studies by Reitan (1967, 1969) demonstrated that periodontal fibers needed on average approximately 8 months to reorganize and adapt to the new tooth position. Now, it is thought that elastic fibers (Redlich et al. 1996) along with active osteoclastic resorption and osteoblastic formation of surrounding alveolar bone are central for relapse to occur (Han et al. 2010, Franzen et al. 2013). These causative factors can act over prolonged time. Unfortunately, even if teeth are held in post-treatment positions over an extended period, some relapse may occur after discontinuation of retention (Little et al. 1998, Freitas et al. 2004). Our results show that Swiss orthodontists are aware of the risk of the potential lack of stability of dental alignment many years after orthodontic treatment because the vast majority of them recommend that patients wear the retainers permanently. A similar percentage of Dutch orthodontists recommend permanent retention to their patients (Renkema et al. 2009). In the UK, in turn, the vast majority of patients having bonded retainers were asked to wear them indefinitely, whereas 72–80% of the patients with removable retention were requested to use it permanently but only at night (Singh et al. 2009). Contrary findings are demonstrated by Vandevska-Radunovic et al. (2013) who showed that most Norwegian orthodontists kept retainers for 2–5 years in the maxilla, and more than 5 years in the mandible. Permanent retention was recommended in less than 20% of patients.

Permanent retention with bonded retainers, as used by the majority of Swiss orthodontists, begs the question who is responsible for supervision of orthodontic patients many years out of treatment – the orthodontist, the dentist, or both? The extended duration of the retention period substantially increases the number of patients under supervision. In case of permanent retention, the load of patients may be unmanageable. It seems more logical that routine controls of retainers are taken over by the dentist at a certain point in time and carried out during regular dental check-ups. This requires, on the one hand, good communication between the orthodontist and the dentist and, on the other, the awareness among dentists of potential complications caused by bonded retainers. Katsaros et al. (2007) and Pazera et al. (2012) presented unwanted side effects of one of a popular type of bonded retainers – a flexible spiral wire (FSW) retainer. The authors demonstrated that FSW retainers bonded on all mandibular anterior teeth caused unwanted movements to such an extent that retreatment was necessary. In the extreme situation (Pazera et al. 2012), a root of the tooth was moved out of the alveolar bone completely. Moreover, in light of the findings of Pandis et al. (2007) that the long-term wear of fixed retainers promotes plaque and calculus accumulation leading to gingival inflammation, periodontal status should also be periodically checked. Therefore, taking

into consideration that some patients wearing bonded retainers can develop complications associated with their presence and that patients are checked regularly by dentists we propose that the dentists examine bonded retainers during routine check-ups. It is a relatively easy task, demanding little time. The knowledge, which these inspections require, could be provided during dental studies and relevant courses of continuing education.

Numerous differences in retention protocols between orthodontists practicing in the same country and in various countries imply that there does not seem to be much consistency in how clinicians choose the retainer types they use. For example, both Swiss and Dutch (Renkema et al. 2009) orthodontists used more than 20 different types of wires for mandibular retainer alone. This made finding associations between retention protocol and, for example, observation of adverse effects of permanent retainers impossible. Therefore, in the absence of reliable scientific evidence regarding the long-term effectiveness of various retention appliances, the choice of retention strategy is primarily based on the individual experience. This supports the necessity for practice guidelines for retention. In Switzerland, a need for guidelines was suggested by 93% of the respondents. Only 3% of the Swiss orthodontists did not wish common retention guidelines. A comparable proportion of Dutch orthodontists admitted that the development of guidelines would be advantageous (Renkema et al. 2009). In Norway, almost 50% of the surveyed orthodontists wanted common retention guidelines, while 18% did not (Vandevska-Radunovic et al. 2013).

This survey collected experienced-based information regarding retention procedures used by Swiss orthodontists. The current data and information from similar surveys carried out in other countries show the need and provide the basis for a high quality research of the effectiveness of various retention protocols. Only rigorous testing of various retention strategies may provide evidence-based information that is desired by the vast majority of Swiss orthodontists.

Conclusions

The survey demonstrated that Swiss orthodontists prefer bonded retainers in the maxilla and mandible. In the maxillary dental arch, bonded retainers are frequently supplemented by removable retainers, particularly in extraction treatment and after maxillary expansion. The majority of orthodontists recommends permanent retention. Ninety-three per cent of the orthodontists would welcome the development of common retention practice guidelines.

Résumé

Les dents ont tendance à retrouver leur place initiale une fois que le traitement orthodontique actif est achevé. Afin d'éviter ce phénomène, des appareils de contention orthodontiques sont appliqués pratiquement chez chaque patient. Des enquêtes récentes ont toutefois montré des différences significatives entre les protocoles de contention. Par conséquent, le but de cette enquête était d'évaluer les procédures de contention utilisées par les spécialistes en orthodontie pratiquant en Suisse.

Pour cette enquête, un questionnaire a été élaboré par Renkema et. al. (2009) et envoyé aux spécialistes en orthodontie pratiquant en Suisse.

Le questionnaire traduit en allemand et français comportait des questions concernant la formation professionnelle du spécialiste en orthodontie, la contention en général, la fréquence de l'utilisation des différents types d'appareils de contention amovibles ou fixes, le protocole de contention, les matériaux et la dimension du fil utilisé pour les fils de contention.

Au total, 145 spécialistes en orthodontie ont participé à l'enquête (65%). La situation avant le traitement était la raison principale du choix de contention. La majorité des spécialistes en orthodontie préféraient les appareils de contention fixes aux maxillaires supérieurs et inférieurs, sauf en cas d'extraction ou d'expansion du maxillaire supérieur. Dans ces cas, une combinaison d'appareils fixes et amovibles a été préférée. Plusieurs contre-indications pour l'insertion d'un fil de contention ont été citées par les cliniciens: l'hygiène bucco-dentaire entravée, les problèmes parodontaux et caries dentaires.

Il n'y avait pas de consensus entre les cliniciens sur le nombre d'heures par jour où l'appareil amovible devrait être porté et la durée entière de la contention. Lorsque des appareils de contention fixes ont été appliqués, la grande majorité des orthodontistes (87%) a conseillé à leurs patients de les porter en permanence. 56,7% ont pu constater des effets secondaires négatifs aux dents tenues par le fil de contention au cours des contrôles. L'effet secondaire négatif le plus souvent cité était le changement de torque (84,2%). 93% étaient d'avis que des directives pratiques concernant la contention seraient utiles.

La contention fixe permanente soulève la question de savoir qui est responsable pour l'encadrement des patients ayant terminé le traitement orthodontique depuis plusieurs années – les spécialistes en orthodontie, les dentistes ou les deux? Après un certain temps, le contrôle des fils de contention par le dentiste lors du contrôle annuel semble être plus approprié. Cela nécessite, d'une part, une bonne communication entre le spécialiste en orthodontie et le dentiste et, d'autre part, la prise de conscience chez les dentistes des complications potentielles causées par les fils de contention.

En conclusion, la majorité des spécialistes en orthodontie recommandent les appareils de contention fixe permanente dans la plupart des cas cliniques. Dans un tel cas, les patients devraient avoir des contrôles réguliers chez un spécialiste en orthodontie ou un dentiste pour vérifier le développement des complications possibles.

Zusammenfassung

Zähne haben eine Tendenz, sich zu ihrer ursprünglichen Lage zurückzubewegen, nachdem die aktive kieferorthopädische Behandlung abgeschlossen wurde. Um dieses Phänomen zu verhindern, werden deshalb fast bei allen Patienten kieferorthopädische Retentionsgeräte eingesetzt.

Aktuelle Umfragen haben jedoch gezeigt, dass signifikante Unterschiede zwischen den Retentionsprotokollen bestehen. Das Ziel dieser Studie ist es, die verschiedenen Retentionsmassnahmen, die Fachzahnärzte und -zahnärztinnen für Kieferorthopädie in der Schweiz treffen, zu untersuchen.

Bei dieser Umfrage wurde ein von Renkema et al. (2009) entwickelter Fragebogen an Fachzahnärzte und -zahnärztinnen für Kieferorthopädie der Schweiz gesendet. Eine deutsche und eine französische Version dieses Fragebogens wurden vorbereitet, die Fragen über den beruflichen Hintergrund, die Retention im Allgemeinen, die Häufigkeit der eingesetzten abnehmbaren oder festsitzenden Retentionsgeräte, das Retentionsprotokoll sowie über das Material und die Dimension der festsitzenden Retention beinhalteten.

Von insgesamt 145 Fachzahnärzten und -zahnärztinnen für Kieferorthopädie (65%) erhielten wir den ausgefüllten Fragebogen zurück. Die Situation vor der Behandlung hatte den grössten Einfluss auf die Wahl des Retentionsgeräts. Die meisten Fachzahnärzte und -zahnärztinnen für Kieferorthopädie bevorzugten eine festsitzende Retention, sowohl im Ober- als auch im Unterkiefer – ausser nach Extraktionen und Dehnung des Oberkiefers. In diesen Fällen wurde eine Kombination von festsitzenden und abnehmbaren Retentionsgeräten gewählt.

Einige Kontraindikationen für festsitzende Retainer wurden genannt: schlechte Mundhygiene, Problem mit dem Parodont und hohe Kariesaktivität. Die genannte Tragedauer pro Tag und die Dauer der gesamten Retention mit abnehmbaren Retentionsgeräten variierten so stark, dass keine Übereinstimmung gefunden werden konnte. Bei festsitzenden Retainern hingegen, waren 87% der Meinung, dass es sich um eine permanente Langzeitretention handelte. 56,7% konnten nach einiger Zeit negative Nebenwirkung bei festsitzenden Retainern feststellen. Unerwünschte Torqueänderungen an einzelnen Zähnen wurden am häufigsten (84,2%) genannt. 93% der Fachzahnärzte und -zahnärztinnen für Kieferorthopädie würden Retentionsrichtlinien für die Privatpraxis begrüssen.

Eine dauerhafte festsitzende Retention impliziert die Frage, wer die Betreuung der Patienten lange Zeit nach abgeschlossener kieferorthopädischer Behandlung gewährleisten sollte – die Fachzahnärzte und -zahnärztinnen für Kieferorthopädie oder die Privatzahnärzte und -zahnärztinnen oder beide? Es erscheint als zweckmässig, wenn die festsitzenden Retainer ab einer gewissen Zeit im Rahmen des jährlichen Recalls durch die Privatzahnärzte/-zahnärztinnen kontrolliert werden. Einerseits erfordert dies eine gute Kommunikation zwischen den Fachzahnärzten und -zahnärztinnen für Kieferorthopädie und den Privatzahnärzten und -zahnärztinnen, andererseits sollten die Privatzahnärzte und -zahnärztinnen über potenzielle negative Nebenwirkungen informiert werden. Schlussfolgernd kann gesagt werden, dass festsitzende Retainer von der Mehrheit der Fachzahnärzte und -zahnärztinnen für Kieferorthopädie und unter den meisten klinischen Voraussetzungen bevorzugt werden und diese lebenslang bestehen bleiben sollten. Aus diesem Grund sollten Patienten mit lebenslanger festsitzender Retention periodische Kontrollen bei den Fachzahnärzten und -zahnärztinnen für Kieferorthopädie oder den Privatzahnärzten und -zahnärztinnen durchführen lassen, damit potenzielle negative Nebenwirkungen früh erfasst werden können.

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