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STUDIES IN PARTIAL DENTAL PROSTHESIS

III. A LONGITUDINAL STUDY OF MANDIBULAR PARTIAL DENTURES WITH DOUBLE EXTENSION SADDLES

by

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INTRODUCTION

In a longitudinal investigation of 90 patients wearing various types of partial dentures we recorded a fairly high incidence of local tissue injuries after an observation period of only one year (Study I, 1960). In further analyses (Study II, 1961) of the most homogeneous group in this material, viz. Kennedy Class I mandibular cases with full maxillary dentures, tissue changes at the abutments seemed more frequent and severe in this group than in the material as a whole. The observation period for the latter case series has now been extended in an attempt to find whether, for example, the observed tissue changes would continue or whether a stable situation would develop, and whether the denture design might influence the degree of tissue injury, etc. This article records the findings after two years.

MATERIAL AND METHODS

The case series, the same as that for Study II, comprised 54 persons in good health, who had been provided with full upper and partial lower dentures of the double extension type at the

Royal School of Dentistry, Umeå, Sweden, during the period from March to June 1959. In June 1960, that is to say 12—15 months after completion of the denture treatment, 49 of the series (91 per cent) appeared in response to a re-call for a follow-up examination. The results of the observations were given in Study II.

After a further 12 months, in June 1961, the patients were recalled for a second follow-up and 51 (94 per cent) attended. Apart from three patients who could neither be reached by telephone nor by letter (one had not attended the one-year follow-up) all the patients attended at least one of the two re-examinations, and 47 of them attended both. Two of the latter had had their remaining lower teeth extracted. The present study is concerned with the remaining 45 patients.

The sex and age distribution and denture-wearing habits differed little from the data for Study II, to which the reader is referred. Nor were there large differences between the denture wearers and the non-denture wearers (referred to below as the control group) in respect of the average number of remaining teeth, or in the types of denture. The case series is surveyed in Table 1.

Table 1

Denture-wearing habits	Sex	No. of cases	Abutment teeth	Indirect abutment teeth	"Other teeth"
Dentures worn continuously or in day-time	Male	19	47	54	11
	Female	16	37	52	20
	Male + Female	35	84	111	31
Dentures never worn	Male + Female	10	21	52	6

The general programme for the treatment of the patients was described in Study I.

The main principles of design for the mandibular extension dentures worn by the patients were discussed in the previous papers and are illustrated here in the form of photographs of three cases. For the purpose of further analysis the case material was divided into three groups according to the main principles of design: —

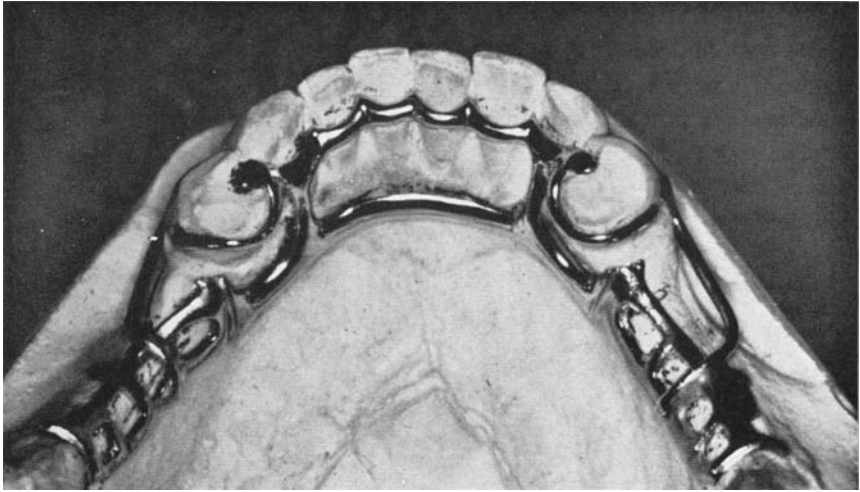


Fig. 1. Rigid connection between retentive and saddle parts of the cobalt-chromium skeleton.

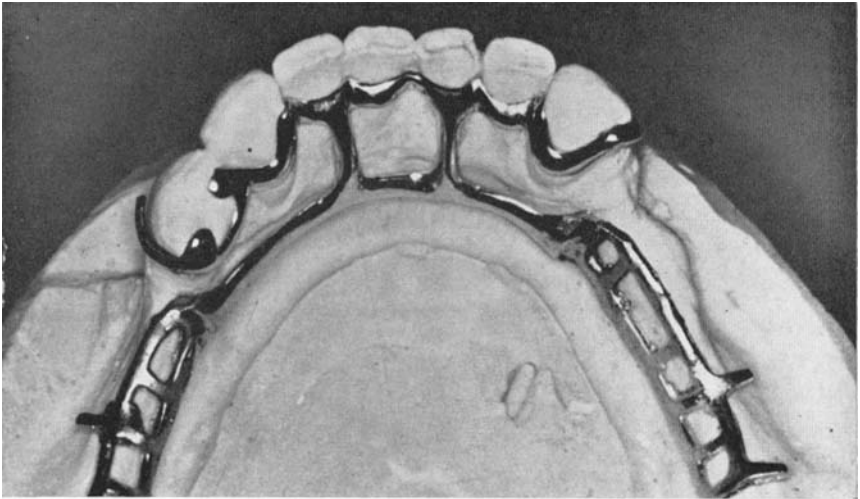


Fig. 2. Stress-breaking skeleton in cobalt-chromium.

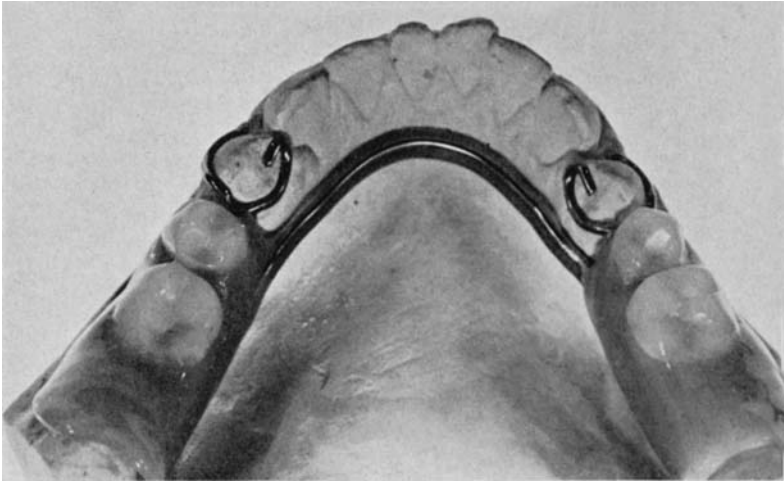


Fig. 3. Wrought stainless clasps and lingual bar.

1. Rigid connection between retentive and saddle parts (Fig. 1), in cobalt-chromium.
2. Stress-breaking connection (Fig. 2) cast in cobalt-chromium (See *Osborne & Lammie*, 1954).
3. Resilient construction through clasp arms in wrought stainless steel or gold (Fig. 3).

Method of investigation

A full account of the methods of investigation and their application was given in the report of Study I, and a brief summary appears in connection with Study II.

Reliability of the observations

An estimate of the reliability of the observations was made at the first re-examination. For this purpose all registrations were made independently by two of the investigators. The percentage of cases in which there was disagreement between the two observers was taken as a measure of the experimental error. For 15 of the 18 factors observed the figure was less than 5 per cent;

while the remaining 3 factors showed a deviation of between 5 and 10 per cent (see Study I).

At the two-year follow-up a further check on the reliability of the observations was made on the basis of double determinations on 25 of the patients selected at random. The results were in close agreement with those of the original check. The percentage deviation for the articulating contacts decreased to below 5 per cent, while for tooth mobility it increased slightly.

On the basis of double determinations at the first and second follow-ups the reliability of the observations was considered to be sufficient for the purpose of the investigation.

Statistical analysis

The statistical methods and formulas were the same as those used in Study I.

RESULTS

The results were entered in tables and diagrams. The tables, which are not presented here can be obtained from the authors. The principle results given in Figs. 4—9 are analysed in the following.

Observations on the teeth and other oral tissues

Mobility of the teeth (Fig. 4)

Abutment teeth. — In denture wearers the percentage of mobile abutment teeth increased significantly from 7 to 20 per cent during the first year and to 24 per cent during the second year, at the end of which period 8 per cent of these mobile teeth showed both horizontal and axial mobility. The tendency to mobility increased significantly from 0 to 13 per cent after one year and to 25 per cent after two years. With respect to tooth mobility there was no evident difference between the female and the male denture wearers.

The non-denture wearers showed no significant changes in mobility.

Indirect abutment teeth. — No significant change in mobility was found for denture wearers. For the controls there was a significant decrease in mobility from 15 to 0 per cent during the first year but no further changes during the second year.

Other teeth. — Changes in mobility were insignificant.

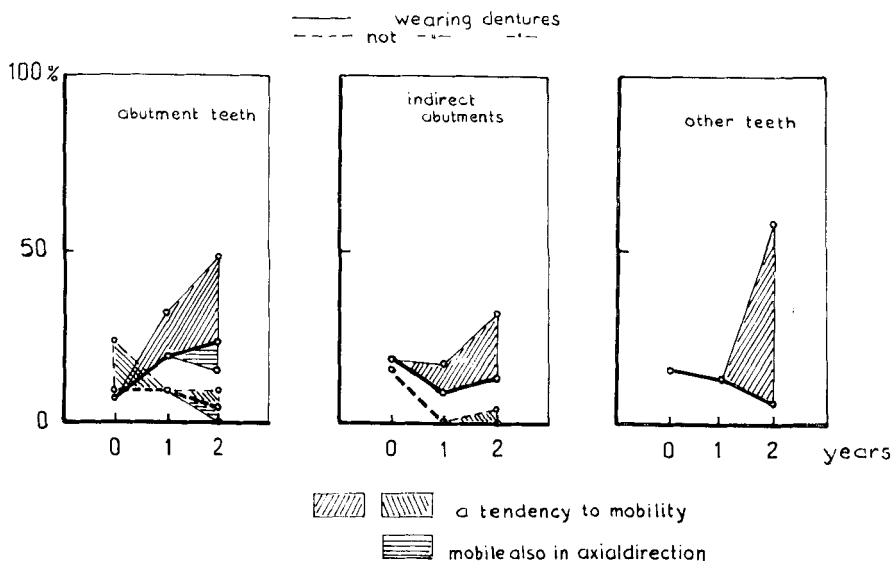


Fig. 4. Frequency of tooth mobility during the observation period of two years.

Gingival margins (Fig. 5)

Abutment teeth. — For denture wearers the incidence of inflammation of the gingival margin at the abutment teeth increased significantly from 13 per cent at the time the dentures were fitted to 77 per cent after one year. At this level it remained to the second follow-up. The incidence of severe inflammation increased from 0 to 17 per cent after one year and to 19 per cent after two years.

The controls showed no significant changes in the incidence of inflamed gingival margins.

Indirect abutment teeth. — For the denture-wearing patients the recorded increases in incidence of inflamed gingival margins during the observation periods proved not to be significant. The increase in respect of severe inflammation from 0 to 15 per cent during the second year was significant.

The controls showed no significant change in the incidence of inflamed gingival margin during the two years of observation. During the second year, however, a significant decrease from 46 to 30 per cent was recorded.

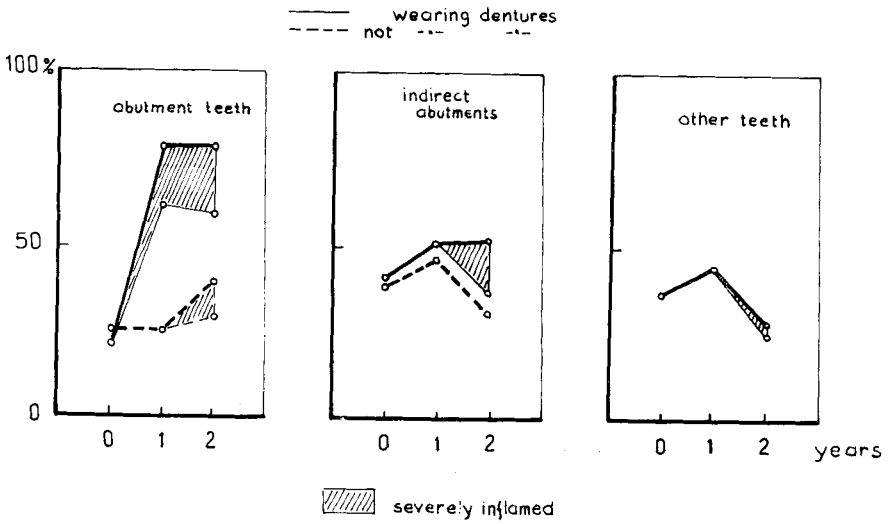


Fig. 5. Frequency of teeth with inflamed gingival margins during the observation period of two years.

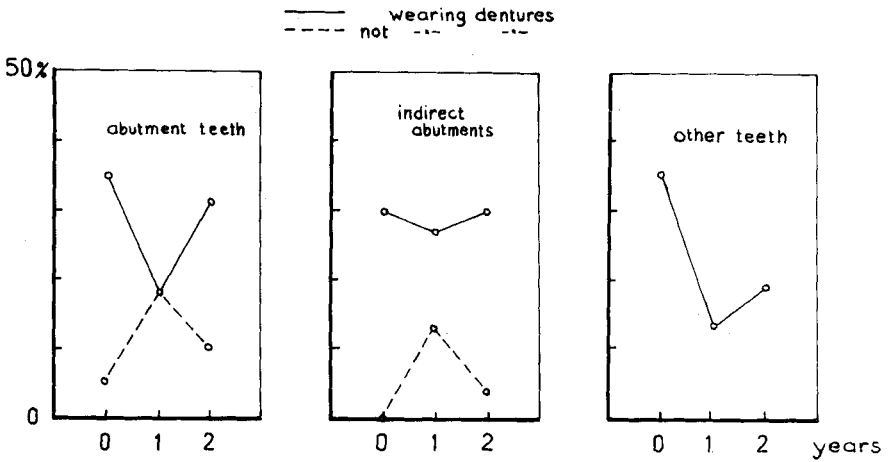


Fig. 6. Frequency of teeth with deepened gingival pockets during the two years' observation period.

Other teeth. — Changes in the condition of the gingival margin proved to be insignificant.

Depth of the gingival pockets (Fig. 6)

The incidence of deepened gingival pockets at the abutment teeth of denture wearers decreased during the first year from 35 to 19 per cent — an almost significant change, but during the second year it increased to 31 per cent. For the other two groups of teeth no significant changes were observed.

Exposure of the cemento-enamel junction (Fig. 7)

In all the groups there was a significant increase in exposure of the cemento-enamel junction (in teeth with artificial crowns, the cervical margin of the crown) over the two-year period of observation. No difference could be found between denture wearers and controls in this respect.

Edentulous areas (Fig. 8)

At the initial examination for the fitting of dentures the mucosae of all the alveolar ridge areas were clinically healthy. At the follow-up the mucosa was inflamed in 16 out of 82 saddle areas, and in one case the whole ridge area was severely affected.

Carious lesions

Forty-six of the 78 natural teeth in contact with the denture (teeth embraced by clasps and/or in direct contact with saddle parts) had carious lesions. In patients with good oral hygiene carious lesions were found in 8 out of 28 teeth in contact with the dentures, while in patients with deficient oral hygiene 38 out of 50 such teeth had been attacked.

Two out of the 17 “abutment teeth” of patients not wearing their lower dentures showed carious defects after the two-year observation period.

In the denture-wearing group, 2 of the 30 crowned teeth in contact with the dentures were found to have carious lesions on the exposed root surfaces.

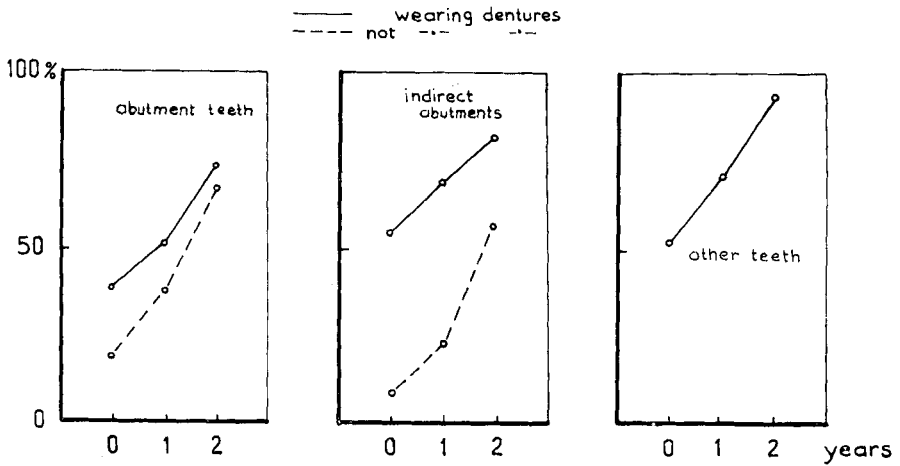


Fig. 7. Frequency of teeth with exposed cemento-enamel junctions during the two years' observation period.

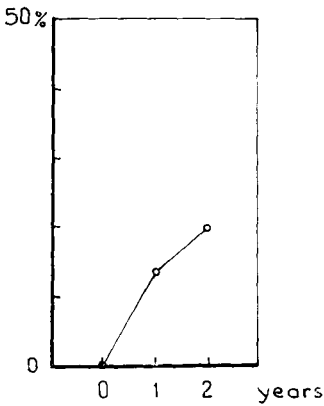


Fig. 8.

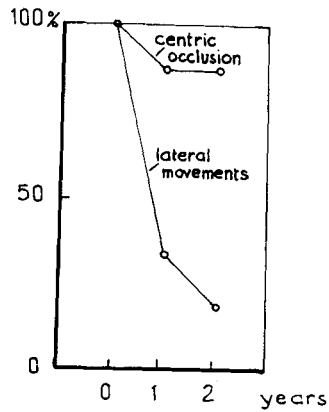


Fig. 9.

Fig. 8. Frequency of inflammatory reaction of denture supporting ridge areas during the two years' observation period.

Fig. 9. Frequency of cases with lost occlusal and articulating contacts during the observation period of two years.

Observations on the dentures

Occlusion and articulation (Fig. 9)

At the fitting of the dentures the habitual central occlusion and articulation were recorded as good in all cases. During the first year the occlusal bilateral contacts deteriorated in 5 out of 35 denture-wearing cases but during the second year there was no further change.

Articulating contacts were lost much more often. After one year only 11, and after two years 6 of the 35 dentures still had bilateral articulating contacts.

GENERAL DISCUSSION

Most clinical studies simply consist of a re-examination, frequently on only part of the original case material. While such studies can provide interesting information on the oral status at the time of the examination and may occasionally bring to light relationships between observed factors in the material, the inherent lack of original observations rules out the possibility of an evaluation of the changes occurring in the individual case between treatment and follow-up. A primary examination, conducted according to a set procedure and classification system for the relevant factors, is essential if the full benefit is to be obtained from follow-ups. It is also important that the original patients should be traced without excessive loss.

In the present study attendance at the re-examination after two years was high (94 per cent) and all patients but one had been examined either at the one-year or at the two-year control. There was evidently no selection bias of any importance to the analysis.

The influence of such factors as age, sex, health, tissue tolerance and endurance has been discussed at some length in Studies I and II. The increased risk of periodontal injury and caries in partial denture cases are the two factors to which most attention will be given in the following discussion.

In Study II it was found that the incidence of definite mobility of abutment teeth increased by 15 per cent and a further 9 per cent showed a tendency to mobility. On the basis of the results of experimental studies on animals (*Bhaskar & Orban 1955*,

Glickman & Weiss 1955, Waerhaug 1955, Wentz, Jarabak & Orban 1958) there was reason to ascribe the increased mobility found after the first year to a process of periodontal adjustment to the altered external forces. An increase in observation time should, then, provide the answer to the important question whether the periodontal status at the abutment teeth tends to be stabilized or whether a continuous increase in mobility is to be expected.

The findings at the two-year follow-up strongly indicate that the mobility of abutment teeth increases continually. Evidence for this is found in the fact that after two years several of the abutment teeth displayed axial as well as lateral mobility. Our clinical experience shows that such teeth will require extraction within a fairly short time, especially if they are continuously used as abutments for a partial extension denture. The incidence of grade 2 mobility (8 per cent) would, of course, have been higher if the two patients whose lower teeth had been extracted had been included. Recorded data and radiographs at the time of extraction showed that at least one abutment tooth in each case was so mobile and tender that extraction was deemed unavoidable.

Indirect abutment teeth of denture wearers did not show any increase in mobility during the first year, but at the second follow-up a tendency to mobility was more common than formerly. Since the corresponding teeth of the controls showed a decrease in mobility (Fig. 4) there is reason to suspect that partial dentures can also affect the periodontal status of the indirect abutment teeth. The results of the present study do not support the view that a lingual "continuous clasp" has a favourable splinting effect.

At "other teeth" not in contact with the denture, there was no apparent difference between denture wearers and controls in respect of the mobility factor. The small number of teeth in these groups makes any evaluation of the observations uncertain, but the changes may be ascribed to the fact that all these teeth are incisors; according to *Schei et al.* (1959) lower incisors are the first to show loss of supporting bone.

One of the most interesting problems for the prosthodontist is the way in which different types of partial dentures affect the

periodontal status of the abutments. The fullest, and probably also the most correct, answer to this problem would be yielded by a comprehensive comparative clinical investigation, but in the absence of such a study a cautious analysis of the present findings might provide some clues of value.

In grouping the case series according to denture design (Figs. 1—3) and the number of remaining teeth (2—5 and 6 teeth or more) fairly large differences between the groups were apparent. However, probably owing to the smallness of the groups the analysis gave no significant values, except in one respect. With resilient denture constructions the increase in mobility of the abutment teeth proved significantly higher in cases with few remaining teeth than in those with 6 teeth or more. With rigid partial dentures no appreciable difference between similar patient groups was noted. The findings are in accordance with *Kaires'* (1956, 1958) observations in laboratory experiments on the effect of partial denture design on bilateral force distribution. He finds that dentures with resilient connections more easily transfer horizontal forces to the abutment teeth than do rigid constructions. Sinking of the resilient dentures due to ineffective support by wrought clasps on canines may also have contributed to the high frequency of damage in this group.

The changes in the frequency of mobility of abutment teeth in relation to the inflammatory reactions of the gingival margins and to oral hygiene have also been studied, but no significant correlation has been found.

It is evident that the observed increase in mobility of the abutment teeth was usually due to the partial denture. The causal relationships are, however, more complicated in respect of the inflammatory reaction of the gingival margins, changes in the depth of the gingival pockets, exposure of the cemento-enamel junction and the presence of carious lesions.

No correlation was traced between the wearing of partial dentures, the depth of the gingival pockets and the exposure of the cemento-enamel junction. The exposure of the junction was, however, closely dependent on the time factor, as can be seen from Fig. 7. The strikingly large changes each year may be attributed to the age distribution of the case series. The pro-

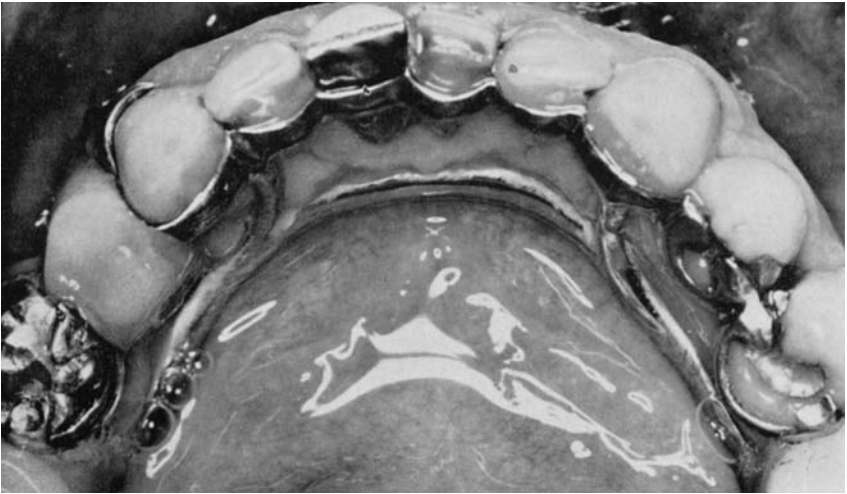


Fig. 10.



Fig. 11.

Figs. 10 and 11. A case (Kennedy I¹) with cast cobalt-chromium skeleton with stress-breaking effect on the right. Note the deep impressions under connection bars and lingual bar, showing severe inflammation of mucosa.

blems involved have already been discussed at length in Studies I and II.

Gingival inflammation had, even in the first year, increased greatly at the abutment teeth of denture wearers, and remained at the same high level throughout the subsequent year. When the material was divided into the same three patient groups according to type of denture as for the aforementioned mobility analyses, no significant differences between the groups were found in respect of gingival inflammation around the abutment teeth in case of denture wearers. Nor were there any significant differences in the condition of the gingival margin with different types of clasps. When the material was divided according to the number of remaining teeth a definite difference was disclosed between the two groups. At all abutment teeth of patients with 2—5 remaining teeth, the condition of the gingival margin had deteriorated; in the cases with 6 or more remaining teeth 58 per cent of the abutment margins showed deterioration. For a satisfactory explanation of this difference account must be taken not only of the direct effect of the denture and the number of remaining teeth but also of the habits of denture-wearing and the standard of oral hygiene. As has been shown in Study I, changes in mobility and mucosa status were more marked for patients who wore their dentures day and night than for those who wore them only in the daytime. Most of the patients with few remaining teeth (2—5) wore their dentures day and night — a significant observation in this connection. This group of patients was also considered to be less diligent in oral hygiene than the denture wearers in the series as a whole.

The importance of oral hygiene as a factor on which the condition of the gingiva is dependent has been demonstrated in a number of investigations including those by *Lövdal et al.* (1959), *Schei et al.* (1959). It is also brought out by the results of Studies I and II. At the two-year follow-up the close relationship between these two factors was evident even on clinical inspection, and the statistical analysis revealed a significant difference between patients with good and with deficient oral hygiene in respect of marginal tissue status. The routine hygienic procedure by which the health of the gingival margin is normally maintained would seem to be inadequate after a partial denture has been fitted.



Fig. 12.



Fig. 13.

Figs. 12 and 13. A cast cobalt-chromium denture (Kennedy I) in a case with a small number of remaining teeth. The impressions made by the skeleton bars are distinctly visible. Calculus deposits along the impressions at lateral incisors. Possibility of a disturbance in the superficial blood supply of the gingival margin by the lingual bar well demonstrated.

The presence of the denture interferes with both deliberate and natural cleaning, and with massage of teeth and gums, and this is particularly true of the abutment teeth owing to the clasps and saddle borders. The few denture wearers with a good periodontal status showed good oral hygiene and they all claimed that they cleaned their teeth and dentures carefully after every meal.

For the gingival status at the indirect abutment teeth the incidence figures after two years differed considerably for denture wearers and controls — 51 and 30 per cent respectively. One explanation of this difference may be rotation about the occlusal rests following resorption of the saddle areas. In several cases this rotation had caused the lingual bar to press the mucous membrane on the lingual aspect of the alveolar ridge, with consequent oedema and inflammation of the mucosa and the gingival margin. Beneath connectors of the lingual continuous clasp and the lingual bar there were frequently depressions with inflamed gingiva (Figs. 11 and 13). In the few cases where the connection between the saddles consisted of a broad continuous clasp (lingual bar omitted), the gingival border was hardly ever inflamed (Fig. 17).

The presence of carious lesions in teeth in direct contact with the dentures also proved to be closely related to the standard of oral hygiene. The lesions seen in denture wearers with poor oral hygiene habits extended over most of the coronal surfaces of the crowns that were in contact with the dentures (Figs. 18 and 19). Exposed root surfaces in contact with saddles were also often attacked. Such changes were common when the supporting tissues had been depressed by the dentures owing to the absence of effective occlusal rests (fractures of wrought clasps!). The caries status of patients with crowned abutment teeth provided a much brighter picture, although two of the thirty crowned teeth displayed cementum caries in their exposed root surfaces. There is no doubt that with partial dentures the risk of caries is as severe a problem as is the risk of gingival inflammation. A fairly effective way of reducing this risk is to provide the abutment teeth with full-crown coverage, and if these teeth are joined to one or more adjacent teeth any tendency to an increase in mobility will also be diminished.

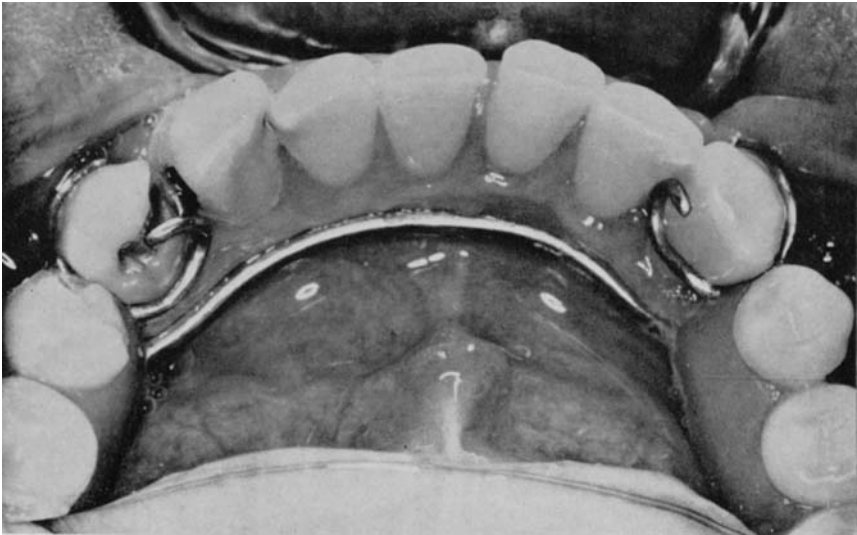


Fig. 14.



Fig. 15.

Figs. 14 and 15. A resilient denture with wrought stainless clasps and lingual bar. Marginal inflammation adjacent to the right lamina and impression made by the lingual bar are visible.

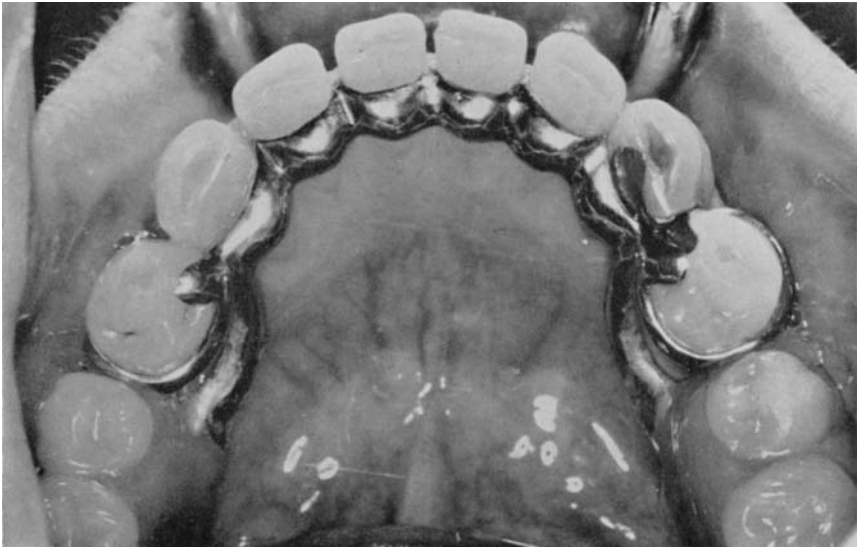


Fig. 16.



Fig. 17.

Figs. 16 and 17. A cast cobalt-chromium skeleton without lingual bar. Only slight inflammation under connection bars. (Compare Figs. 8 and 9 in Study I, 1960!)



Fig. 18.



Fig. 19.

Figs. 18 and 19. Detail of a case with cast cobalt-chromium skeleton. Note the large amalgam fillings made in the canine under the clasp, with a residual area of incipient caries.

From this study it would seem that the presence of caries in and of gingival inflammation at the abutment teeth in partial denture cases is due to a large extent to poor oral hygiene. It follows that the dentist has a major responsibility for the mental preparation of the patient if denture treatment is to be successful. It is therefore essential not only to provide the optimal treatment for the remaining teeth through partial dentures but also to instruct the patient in prophylactic measures, routine hygiene and regular dental attention. Not until then — and if possible not before the patient's cooperation is guaranteed — should the partial denture be constructed and fitted. The detailed design of the denture must be based on an individual assessment of various important factors; of these, special emphasis should be placed on general and oral health, the patient's attitude to treatment, care of his remaining teeth, and his standard of oral hygiene.

SUMMARY AND CONCLUSIONS

In order to evaluate the effect on the oral tissues of dentogingivally supported partial extension dentures in the lower jaw (Kennedy Class I cases), a longitudinal clinical investigation was undertaken on 54 subjects. In addition to a partial lower denture, each patient was provided with a full upper denture. Clinical examinations were performed at the time the dentures were fitted, and one and two years thereafter. Attention was devoted to caries incidence, condition of the periodontal tissues, standard of oral hygiene and occlusal and articulation contacts. An attempt was made to evaluate differences in the effect of various designs of denture on the oral tissues.

The results of the first re-examination performed after one year and attended by 49 (91 per cent) of the patients were described in Study II. The two-year control was attended by 51 (94 per cent) of the patients. Two of these had had their remaining teeth extracted, and 10 were not wearing their partial lower dentures. The results of the second follow-up can be summarized as follows: —

The periodontal changes observed one year after partial extension dentures had been fitted in the lower jaw seemed to have progressed throughout the second year of observation.

In some cases axial mobility of the abutment teeth had developed and in two cases this was a contributory reason for loss of all the remaining teeth by extraction during this period.

The high incidence of inflammation of the gingival margin observed at the abutment teeth after one year was found to have persisted during the second year. The denture-covered part of the mucosa showed no improvement during the second year.

The incidence of carious lesions increased considerably in denture wearers during the second year, and was particularly high in the case of patients displaying poor oral hygiene.

Articulating contacts deteriorated further during the second year.

The gingival status was dependent to some degree on the number of remaining teeth; the greater the number of teeth (6 or more) the less the risk of gingival damage.

The success of partial denture treatment depends to a considerable extent on the patient's cooperation and practice of oral hygiene. It is therefore essential that the dentist should convince his patient of the important part that these factors play.

The findings yielded by the present study bear out the conclusions drawn from the previous studies that partial denture treatment should be undertaken only when absolutely necessary, and should be planned so as to minimize the risk of damage of the oral tissues.

RÉSUMÉ

ÉTUDES SUR LA PROTHÈSE PARTIELLE III

Pour juger de l'action sur les tissus buccaux des prothèses partielles du maxillaire inférieur à appui gingivo-dentaire, une étude clinique longitudinale a été faite sur 54 patients qui ont été appareillés d'une prothèse complète du haut et d'une prothèse du bas à selles en extension (édentation conforme à la classe I de Kennedy). Cette étude se base sur des examens cliniques faits d'une part au moment de l'exécution du traitement prothétique, d'autre part au bout d'un an et au bout de deux ans. L'hygiène buccale, l'activité de la carie dentaire, l'état des tissus parodontaux et des muqueuses supportant l'appareil sont, avec les contacts occlusaux et articulés des prothèses, les facteurs auxquels

les auteurs ont attribué la plus grande importance. Ils ont aussi tenté une évaluation des différences éventuelles entre les diverses constructions.

49 des patients (91 %) se sont présentés au premier des examens complémentaires. Les résultats de ce contrôle fait au bout d'un an ont été rapportés dans l'Etude II.

51 des patients (94 %) se sont présentés au contrôle fait au bout de deux ans. 2 d'entre eux avaient fait extraire les dents qui leur restaient. 10 d'entre eux n'utilisaient pas leurs appareils partiels.

Les résultats de ces examens et les conclusions que les auteurs en ont tirées peuvent se résumer de la façon suivante:

Les troubles du parodonte qu'il était déjà possible d'observer un an après le début du port des appareils ont continué leur évolution pendant la deuxième année d'observation. La mobilité des dents-piliers a même dans certains cas atteint le stade de mobilité axiale, ce qui chez deux patients a conduit à extraire les dents restantes. La grande fréquence des inflammations du bord gingival qui a été notée au bout d'un an a aussi persisté pendant la deuxième année d'observation, avec la même intensité.

L'équilibre articulé des prothèses s'est altéré ultérieurement pendant la deuxième année.

Les risques de développement de caries dentaires semblent augmenter fortement lors de l'utilisation de prothèses partielles amovibles, en particulier dans les cas où l'hygiène buccale est défectueuse.

Après une discussion et une analyse approfondies de certaines parties des résultats, les auteurs suggèrent quelques recommandations d'ordre prophylactique concernant la carie et le parodonte, et susceptibles de limiter l'action nocive des prothèses partielles et d'améliorer le pronostic pour les dents restantes. Enfin, ils soulignent de nouveau que les indications des prothèses partielles amovibles doivent être posées d'une manière plus critique, en raison des méfaits locaux que cette étude a permis de mettre en évidence. Les prothèses partielles amovibles ne doivent être utilisées que dans les cas où elles sont vraiment nécessaires.

ZUSAMMENFASSUNG

UNTERSUCHUNGEN ÜBER PARTIELLE PROTHESEN III

Um die Einwirkung dentogingival unterstützter partieller Unterkieferprothesen auf die Gewebe der Mundhöhle beurteilen zu können, wurde eine longitudinale klinische Untersuchung bei 54 Patienten durchgeführt, die mit totalen Oberkiefer- sowie doppelseitigen Unterkieferfreiendprothesen versehen waren (Restgebiss gemäss Kennedy Klasse I). Die Studie stützt sich auf klinische Untersuchungen, die sowohl im Zusammenhang mit der Durchführung der Therapie als auch ein und zwei Jahre danach vorgenommen wurden. Mundhygiene, Kariesaktivität, Zustand der parodontalen Gewebe und der prothesentragenden Schleimhaut sowie Okklusionskontakte und Artikulation sind die Faktoren, denen das grösste Interesse gewidmet wurde. Ausserdem wurde versucht, eventuelle Unterschiede zwischen verschiedenen Konstruktionen zu beurteilen.

Zur 1. Nachuntersuchung fanden sich 49 (91 %) der Patienten ein. Die Resultate der Einjahrskontrolle sind in Studie II niedergelegt.

Bei der Zweijahrskontrolle fanden sich 51 (94 %) der Patienten ein. Zwei von diesen hatten sich ihre sämtlichen Zähne entfernen lassen. 10 von ihnen benutzten ihre Partialprothesen nicht.

Die Resultate der Untersuchungen und die Folgerungen, die die Verfasser daraus gezogen haben, können folgendermassen zusammengefasst werden:

Die parodontalen Veränderungen, die schon nach einjähriger Anwendung der Unterkieferfreiendprothese wahrgenommen werden konnten, sind im zweiten Beobachtungsjahr weiter fortgeschritten. Die Beweglichkeit der Stützzähne hat in gewissen Fällen ein Stadium von axialer Beweglichkeit erreicht, was bei zwei Patienten zur Extraktion der Restzähne geführt hatte. Die nach einem Jahr notierte hohe Frequenz marginaler Zahnfleischentzündungen besteht auch nach 2 Jahren im selben Umfange.

Das Artikulationsgleichgewicht verschlechterte sich weiterhin im zweiten Jahr.

Das Kariesrisiko scheint mit der Anwendung abnehmbarer

Partialprothesen wesentlich zu steigen. Dies trifft besonders bei Fällen mit mangelhafter Mundhygiene zu.

Nach einer eingehenden Diskussion und Analyse gewisser Teile der Resultate versuchen die Verfasser einige Empfehlungen karies- und parodontoprophylaktischer Art zu geben, die die ungünstige Einwirkung der Partialprothesen abschwächen und die Prognose des Restgebisses verbessern sollen. Zum Abschluss wird erneut darauf hingewiesen, dass die Indikationen für abnehmbare partielle Prothesen verschärft werden müssen mit Hinsicht auf die lokalen schädlichen Wirkungen, die in dieser Untersuchung nachgewiesen werden konnten. Abnehmbare Partialprothesen dürfen nur zur Anwendung kommen, wenn sie wirklich notwendig sind.

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