

From:
The Department of Oral Surgery,
General Hospital,
Karlstad, Sweden

HYPERPLASIA OF THE ORAL TISSUES IN DENTURE CASES

by

ÅKE NORDENRAM

HORST LANDT

INTRODUCTION

Various names have been given to hyperplastic lesions occurring beneath artificial dentures. Hyperplastic tissue involving the *crista* has been called in English literature »flabby ridges», in German literature »Schlotterkamm», in Danish literature »hanekam» and in Swedish literature »sladdrig krista». *Thoma*, (1958) suggested the name »gingival hyperplasia», *Östlund* (1960) proposed to call the lesion »crista flaccida» and *Jölst* (1963) recommended the name »alveolar fibrosis».

For hyperplastic tissue arising in association with the periphery of the dentures in the vestibular, lingual or palatal regions the following names have been suggested: »epulis fissuratum» (*Thoma*, 1958), »Lappenfibrosen» (*Schneider*, 1961), »Sulcushyperplasi» (*Jölst*, 1963), »denture hyperplasia» (*Cooper*, 1964) and »denture irritation hyperplasia» (*Pindborg*, 1968).

The authors do not consider it necessary to discriminate between these types and use the term »Hyperplasia mucosae oris». For a more precise identification of the site of the lesion it may be useful to state the region involved (the vestibular, lingual, palatal or alveolar region).

Various factors are involved in hyperplasia of oral tissues. According to *Thompson* (1946), *Lawther* (1956), *Atwood* (1957, 1962), *Hedegård* (1962, 1968), *Johnson* (1963, 1964), *Victorin* (1964), *Anderson and Storer* (1966),

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Carlsson and Persson (1967), *Carlsson et al.* (1967) the causative factors probably are as follows:

- (1) Changes following the healing of the wound caused by tooth extraction.
- (2) Functional disturbances due to the reaction of the base of the skull and the upper jaw to the trauma caused by tooth extraction, and the wearing of dentures respectively.
- (3) Changes which the shape of the lower jaw gradually undergoes.
- (4) Functional changes of the temporo-mandibular joint.
- (5) Changes in the proportion between the upper and lower jaw.
- (6) Changes in the profile of soft tissue.

In addition to these changes the effect of the trauma caused by wearing artificial dentures is an important aetiological factor. It is often involved in the destruction of the osseous parts of the crista and in the acceleration of this process and also causes inflammatory reactions such as inflammatory hyperplasia *Gasser*, (1949); *Nyquist*, (1952); *Spreng*, (1956); *Östlund*, (1958); *Thoma*, (1958).

It has been reported that the incidence of hyperplasia arising in association with the periphery of dentures is especially high in women (Table I), the highest incidence being found in the age group between 50 and 60 years. The anterior part of the jaws is said to be the commonest site of the lesion. Several workers have stressed the importance of regularly following up denture wearers with special emphasis on correcting any existent denture fault.

The present study was carried out in order to analyze the various factors involved in a substantial number of patients with hyperplasia of the oral tissues.

Table I.

The incidence of hyperplasia mucosae oris as reported in earlier studies

Author	Year	No. of cases	Sex	
			Women	Men
Schneider	1961	56	73.3 %	26.7 %
Bethmann	1962	107	79.4%	20.6 %
Jölst	1963	111	81.2 %	18.8 %
Cooper	1964	43	90.7 %	9.3 %

MATERIAL AND METHODS

During the years from 1960 to 1968, 430 cases of hyperplasia mucosa oris were referred to the Department of Oral Surgery, Karlstad General Hospital, for surgical treatment. Tables II and III show the sex and age of these patients. The total number of separate lesions was 920.

Table II.
Sex of patients

Sex	No. of cases	Per cent
Women	306	71.2
Men	124	28.8
Total	430	100

Table III.
Age of patients

Age groups in years	20—29	30—39	40—49	50—59	60—69	70—79	80—89
No. of cases in per cent	0.2	5.6	23.3	37.7	24.4	8.1	0.7

The following clinical features were recorded in the individual cases:

- (1) The length of the time for which the patient had been wearing dentures.
- (2) The age of the dentures worn on the occasion of the examination of the patient.
- (3) Absence or presence of discomfort caused by hyperplasia.
- (4) The incidence in the upper and lower jaw respectively.
- (5) The antero-posterior position of the lesions in the upper and lower jaw respectively.
- (6) The bucco (labio)-lingual position of the lesions in the upper and lower jaw respectively.
- (7) The type of surgical treatment given.

RESULTS

Tables IV and V show the age of the dentures. The age of the dentures worn on the occasion of the examination of the patient was thus 15 years in 44.5 per cent and more than 5 years in 85.4 per cent of the cases.

In 270 cases (62.8 per cent) the lesion had caused discomfort such as soreness, ulceration, bleeding and infection; in 160 cases (57.2 per cent) the patient had not experienced any discomfort.

The different positions of the lesion in the upper and lower jaw respectively is given in Tables VI and VII.

Table VI shows that the incidence in the upper and lower jaw respectively was virtually the same. Lesions were most frequently found in the anterior parts of either jaw. The incidence in the lateral parts of the jaws was virtually the same.

Table IV.
Age of dentures

Age of denture in years	<3	3—5	6—10	11—15	16—20	21—25	26—30	>30
No. of cases in per cent	3.7	4.4	12.8	15.3	21.6	17.0	13.3	11.9

Table V.
Length of time for which the same dentures had been worn

Age of denture in years	<3	3—5	6—10	11—15	16—20	21—25	26—30	>30
No. of cases in per cent	8.1	6.5	23.5	17.4	18.1	11.9	9.6	5.0

Table VI.
The incidence and site of hyperplasia in the upper and lower jaw respectively

Region	No. of cases (%)		
	Upper jaw	Lower jaw	Total
Anterior part	218 (23.7 %)	220 (23.9 %)	438 (47.6 %)
Right side	112 (12.2 %)	126 (13.7 %)	238 (25.9 %)
Left side	111 (12.0 %)	133 (14.5 %)	244 (26.5 %)
Total	441 (47.9 %)	479 (52.1 %)	920 (100 %)

Table VII.
The buccal-lingual position of hyperplasia

Region	No. of cases in per cent
On the crista	58.6
In the buccal (labial) region	36.6
In the lingual region	4.8
Total	100.0

In the majority of the cases in this series the crista was the site of hyperplastic tissue. In the cases in which the regions of the sulci were involved the incidence was greater in the buccal (labial) region as compared with the lingual region.

Surgical treatment consisted either in excision of hyperplastic tissue alone or combined with pre-prosthetic reconstructive surgery, the former being carried out in 328 (76.3 per cent) and the combined procedures in 102 (23.7 per cent) cases.

DISCUSSION

The results of the present investigation are mostly in good agreement with those published by earlier workers. In about half of the cases (44.5 per cent) the patients had been wearing the *same* dentures for more than 15 years. Obviously, denture wearers fail to understand the importance of regular follow-up examinations and therefore neglect to go and see their dentist or the latter does not sufficiently stress this point when inserting new dentures or correcting a denture fault.

According to an investigation by the Public Dental Health Service in 1963 half of the denture wearers in Sweden had not consulted a dentist during the previous decade.

Hyperplasia did not cause any discomfort in 37.2 per cent of the cases in this series. This may have been an additional factor in increasing the unwillingness of these patients to attend for follow-up examination. Clearly, it is imperative that every effort should be made to put an end to these unsatisfactory state of affairs. One of the measures to be taken is to inform denture wearers about the risks they incur if they fail to have their dentures regularly checked on the occasion when they have their new dentures inserted.

In the majority of the cases (47.6 per cent) in this series the site of the lesion was the anterior part of either jaw. On the other hand, the findings in this investigation did not support the view expressed by *Cooper* (1964) that the incidence was greater in the anterior part of the lower jaw as compared with the upper jaw (2:1). In the cases in this series there was no difference between the upper and lower jaw in this respect, the former being involved in 23.7 per cent and the latter in 23.9 per cent of the cases.

Jölst (1963) reported that the crista was involved in 22.3 per cent of the cases he had studied. In the present investigation the crista was the site of the lesion in the majority of the cases, i.e. 58.6 per cent.



Fig. 1. a. Hyperplasia mucosae oris in the vestibular sulcus.



b. The same patient with the lower denture in situ.



Fig. 2. a. Hyperplasia mucosae oris in the vestibular sulcus.



b. The excised hyperplasia.



c. The post-operative condition of the patient.

SUMMARY

Four hundred and thirty cases (920 lesions) of hyperplasia of the oral tissues were analyzed. The findings were as follows:

- (1) The highest incidence was found in the age group between 50 and 60 years, being found in 37.7 per cent of the cases.
 - (2) The incidence in women was greater (81.2 per cent) as compared with men.
 - (3) In about half of the cases (44.5 per cent) the patient had worn the same dentures for more than 15 years.
 - (4) In about one third of the cases (37.2 per cent) the lesion did not cause any discomfort.
 - (5) There was no noteworthy difference between the upper and lower jaw with respect to the number of lesions present (441 and 479, respectively).
 - (6) The incidence in the anterior region, the right and left side respectively of either jaw was virtually the same (2:1:1).
 - (7) In the majority of the cases (58.6 per cent) the crista was the site of the lesion; next in order of frequency came involvement of the buccal (labial) sulcus region, being found in 36.6 per cent of the cases; the lowest incidence was observed in the lingual sulcus region, i.e. in 4.8 per cent of the cases.
 - (8) Surgical treatment consisted either in excision of hyperplastic tissue alone, being performed in 76.3 per cent of the cases. In 23.7 per cent this procedure was combined with pre-prosthetic reconstructive surgery.
- From the observations made it is concluded that regular follow-up studies of the oral conditions of denture wearers are imperative.

RÉSUMÉ

HYPERPLASIE DES TISSUS BUCCAUX DANS LES CAS DE PROTHÈSES

L'analyse de 430 cas (920 lésions) d'hyperplasie des tissus buccaux a été effectuée. Les résultats suivants ont été acquis:

- (1) L'incidence la plus élevée a été trouvée dans le groupe d'âge de 50 à 60 ans, où on la trouvait dans 37,7 % des cas.
- (2) L'incidence était plus élevée chez les femmes (81,2 %) que chez les hommes.
- (3) Dans environ la moitié des cas (44,5 %), les patients portaient la même prothèse depuis plus de 15 ans.
- (4) Dans environ un tiers des cas (37,2 %), les lésions ne causaient aucune gêne.

- (5) Il n'y avait pas de différence notable entre la mâchoire supérieure et la mâchoire inférieure en ce qui concerne le nombre des lésions présentes (respectivement 441 et 479).
- (6) L'incidence respective dans la région antérieure, du côté droit et du côté gauche de l'une et l'autre mâchoire était pour ainsi dire la même (2:1:1).
- (7) Dans la majorité des cas (58,6 %), c'est à la crête qu'était localisée la lésion; par ordre de fréquence venaient ensuite les localisations au niveau du sillon gingivo-buccal (alvéolo-labial), dans 36,6 % des cas; et enfin le sillon alvéolo-lingual, dans 4,8 % des cas.
- (8) Le traitement chirurgical a consisté dans l'excision des tissus hyperplastiques, soit seule, ce qui a été fait dans 76,3 % des cas, soit combinée avec une reconstruction chirurgicale préprothétique.

Ces observations amènent à conclure que le contrôle régulier et suivi de l'état buccal des porteurs de prothèses est une nécessité qui s'impose.

ZUSAMMENFASSUNG

HYPERPLASIE DER GEWEBE DER MUNDHÖHLE BEI PROTHESENTRÄGERN

430 Fälle (920 Läsionen) mit prothesenbedingten Hyperplasien der oralen Gewebe werden analysiert. Die vorliegende Untersuchung resultiert in folgenden Beobachtungen:

- (1) Die im Verhältnis zu anderen Altersgruppen überwiegende Anzahl der Fälle (37.7 %) befanden sich in der Altersgruppe 50—60 Jahre.
- (2) Das Vorkommen entsprechender Hyperplasien war bei Frauen häufiger (81.2 %) als bei Männern.
- (3) Etwa die Hälfte der untersuchten Patienten (44.5 %) hatten ihre Prothesen länger als 15 Jahre getragen.
- (4) In etwa einem Drittel der Fälle (37.2 %) verursachten die Hyperplasien den Prothesenträgern keinerlei Unbehagen.
- (5) Ein nennenswerter Unterschied im Vorkommen von prothesenbedingten Hyperplasien im Ober- bzw. Unterkiefer wurde nicht beobachtet (441 resp. 479).
- (6) Das Vorkommen der Hyperplasien in der anterioren Region, der rechten sowie der linken Seite des Ober- bzw. Unterkiefers war in Etwa gleich. (2:1:1).
- (7) In der überwiegenden Anzahl der Fälle (58.6 %) hatten die prothesenbedingten Hyperplasien ihre Lokalisation auf der Crista, an zweiter Stelle in der Lokalisationsfrequenz kam die buccale (labiale) Sulcusregion

(36.6 %). In nur 4.8 % konnten prothesenbedingte Hyperplasien in der linguale Sulcusregion konstatiert werden.

- (8) Die chirurgische Behandlung bestand im Allgemeinen in der Exzision des hyperplastischen Gewebes, die in 76.3 % der Fälle vorgenommen wurde. In 23.7 % wurde diese Behandlung mit praeprothetischer restaurativer Chirurgie kombiniert.

Die Schlussfolgerung der Beobachtungen dieser Untersuchung besteht in der Unterstreichung der Wichtigkeit regelmässiger Nachuntersuchungen des Zustandes der oralen Gewebe nach einer Eingliederung zahnärztlicher Prothesen.

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Address:

*The Department of Oral Surgery,
General Hospital,
Karlstad, Sweden*