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MULTIPLE POLYPOUS HYPERPLASIAS OF THE ORAL MUCOSA WITH REGRESSION AFTER REMOVAL OF AMALGAM FILLINGS

by

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Histologically papilloma and papillomatous changes are epithelial neoplasms, in which the connective tissue stroma forms finger-like processes and is covered by a keratinized epithelium. The group also includes verrucae, condylomas and epithelial polyps. They may be due to viruses, chronic irritation of various types (*Bernick,* 1949; *Salman & Langel,* 1954), heredity, hormonal disturbances (*Anderson,* 1957) or a combination of these. In some cases their cause may be obscure (*Bradburn,* 1951).

Polyps and polypous hyperplasias of the mucous membranes constitute a clinical entity that covers a sessile or pedunculated projection of the mucous membrane and may consist of hyperplasia of the mucosa or be true neoplasms. *Anderson* (1957) and *Boyd* (1961) state that the term polyp often includes papilloma when this occurs in the oral mucosa.

It seems that the first case of multiple papillomas in the oral cavity was reported by *March* in 1881. Other similar cases have been described by *Vollmer* (1906), *Levy-Bing & Gerbay* (1919), *Stern* (1922), *Colman* (1951), *Thoma* (1952), *Donohue* (1957),

Rock & Fisher (1960). There appears to have been no study of the incidence of papillomas or polyps. They seem, however, to be rare in the mouth (*Colman,* 1951; *Fisher & Rashid,* 1952; *Rock & Fisher,* 1960) if the inflammatory hyperplasia beneath dentures, stomatitis prothetica, is left out of account (*Fisher & Rashid,* 1952; *Nyquist,* 1952). Multiple papillomas and polyps and polypous hyperplasia of the mucous membranes occur in both children and adults of both sexes.

The treatment consists predominantly of excision, with or without subsequent electrocoagulation (*Levy-Bing & Gerbay,* 1919; *Gullifer,* 1938; *Schuermann,* 1958; *Bhaskar,* 1961). Various broad spectrum antibiotics, oestrogenous hormones, and intraoral X-ray therapy have been administered, with varied effects.

This article reports 2 cases in which the polypous hyperplasia of the mucous membrane disappeared after removing all the amalgam fillings.

Case 1

In 1957 a girl aged 8 years was presented with multiple, small polyps on the inside of the lips and the gingiva in the lower jaw (Figs. 1 and 2); they had been discovered 7 months earlier. A papule among the polyps had been painted with 10 per cent silver nitrate without result. The blood status was normal.

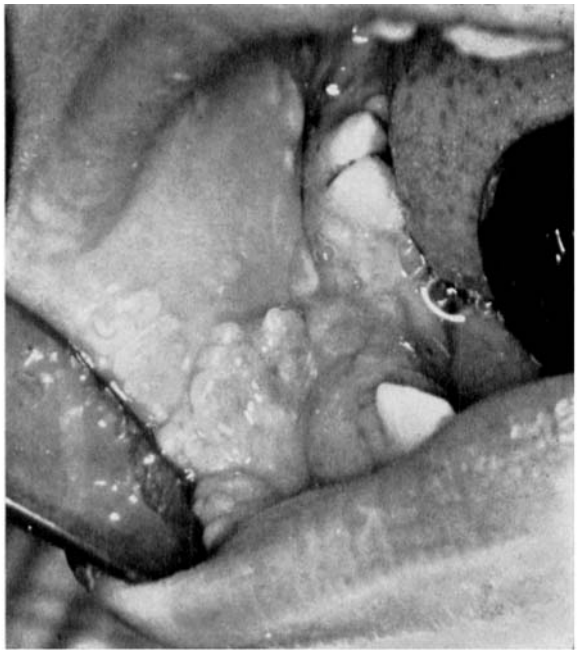
At 2 years of age the patient had uncomplicated scarlatina and at 5 years parotitis epidemica. She had suffered from measles and rubeola at school age; otherwise she had enjoyed good health.

In 1955, on her first visit to a dentist, the following work was carried out: $\overline{6}|$ob*), $\underline{6}|$ ob and $|\underline{6}$ o insulated amalgam fillings (type of alloy not mentioned); in 1956, $\underline{6}|$ o and $|\overline{6}$ b insulated amalgam fillings, and extraction of $\underline{05}|\underline{05}$. There was no mention of mucosal hyperplasia or polyps.

In 1958 gingival changes were noted, particularly marked in the region $\overline{6}|\ldots\ \overline{3}|$ (Fig. 3). Amalgam fillings $|\underline{6}$ o and $\underline{6}|$ b were placed.

The mixed dentition (Fig. 4) consisted of all the first permanent molars and the permanent incisors in both jaws. The buccal

*) o = occlusal, b = buccal, l = lingual, m = mesial, d = distal.



Figs. 1 and 2, Case 1. Small flat polyps with wart-like appearence and a tendency to form large plaques. The tongue has enlarged papillae fungiformes similar to those of "raspberry tongue".

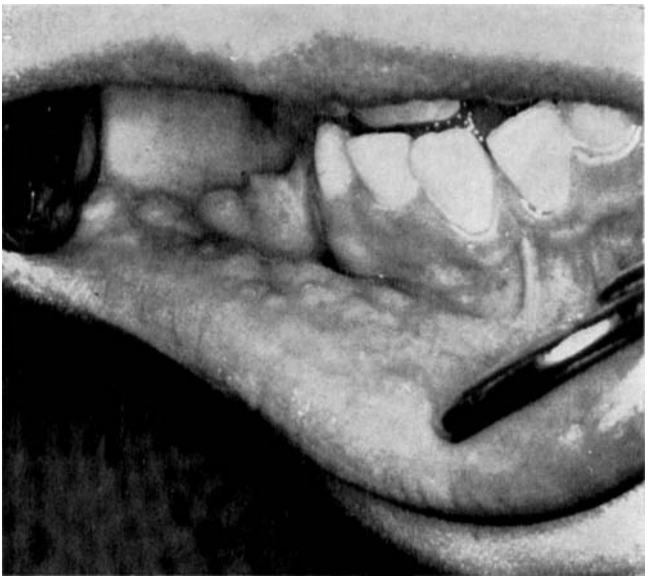


Fig. 3, Case 1. Polyps particularly pronounced in the region of $\overline{1}|\ldots\overline{6}|$.

and labial mucosa and the gingiva exhibited small flat polyps of wart-like appearance, varying from pin-head to rice-grain size. The polyps in the region of $|\overline{6}$ were few and small but in the region $\overline{6}|\ldots\overline{1}|$ they were extremely pronounced. The gingiva and vestibule of the mouth in the region $\underline{2}|\ldots\underline{4}|$ had a few polyps and these were the only ones in the maxilla.

The polyps had merged in places to form large plaques. These polyps were pale red, similar in colour to the surrounding tissue. Their surfaces were smooth but granulated in structure. They did not bleed on palpation and were soft in consistency. The lingual frenulum was extremely short and thick (anchyloglossia). Elsewhere the mucosa was normal. The submandibular lymphatic nodes were bean-sized on both sides. On palpation the deep cervical nodi lymphatici were found to be of rice-grain size and the nodi lymphatici axillares of pea size.

The physical examination and the blood values displayed no pathologic features. The BCG test was negative and vaccination against smallpox had been performed. Tuberculin tests were negative.

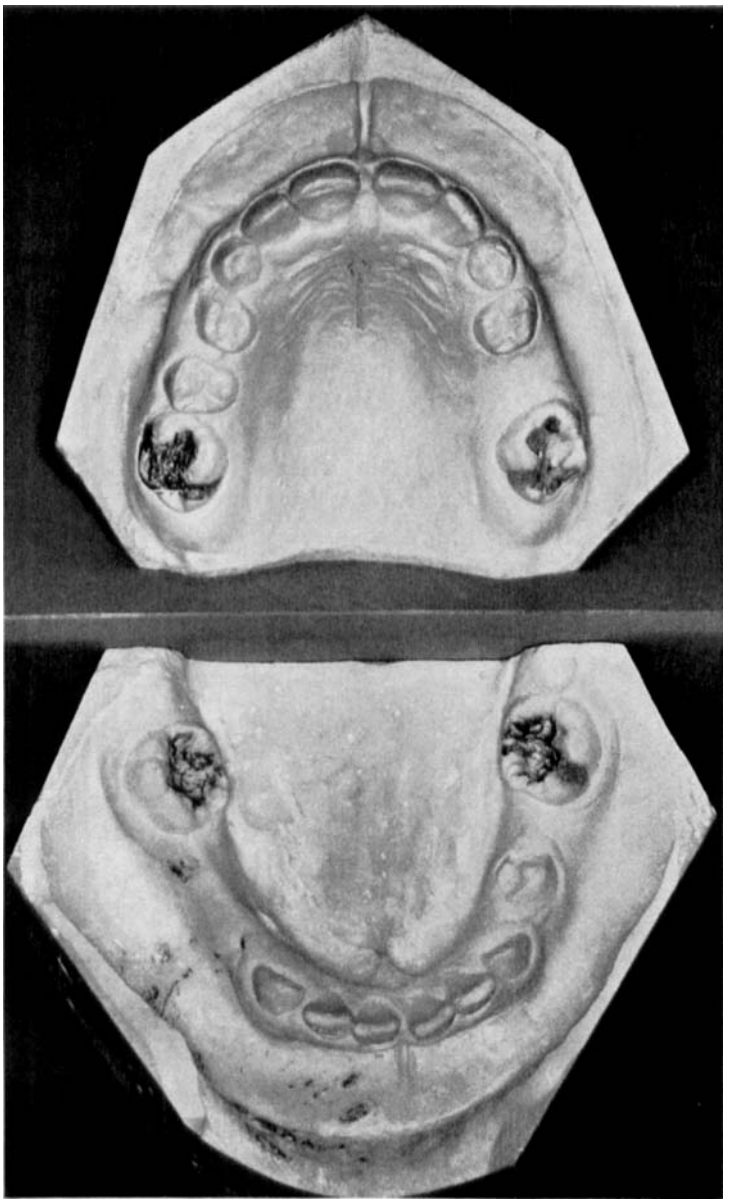


Fig. 4. Case 1. Upper and lower jaws. Amalgam fillings in $\overline{6}|$, $|\overline{6}$, $|\underline{6}$ and $\underline{6}|$ have been marked. The figure shows the position of the polyps in relation to the teeth.

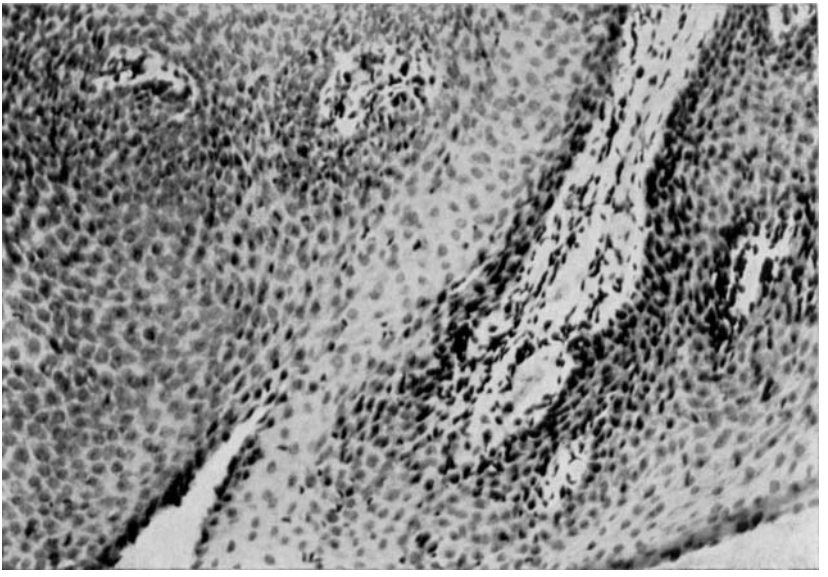


Fig. 5, Case 1. Photomicrograph of a polyp in the region of $\overline{4, 3}|$ (Enlargement × 300).

Histologic findings

December, 1957. — Biopsy specimens from the region $\overline{4, 3}|$ revealed a polyp covered with a thick hyperplastic stratified squamous epithelium of the mucosal type. The epithelium projected as thick, well defined rete pegs into the connective tissue stroma, which contained vessels and gland ducts and displayed very mild infiltration of round cells. There were no signs of malignancy.

April, 1958. — Five months after the first visit the polyps were unchanged. Biopsy specimens showed the same histologic picture (Fig. 5).

Treatment

April, 1958. — All the amalgam fillings were replaced with phosphate cement. The cavities of the upper incisors were prepared and filled with phosphate cement.

Course

June, 1958 (6 weeks later) healing was complete. Silicate fillings were placed in the upper incisors. *September, 1958:* examination; amalgam (Royal Dental Alloy) fillings were placed in $\overline{6}|$ ob and $|\overline{6}$ ob under a rubber dam. *November, 1958:* amalgam fillings were placed in the $\underline{|6}$ b, $\underline{|6}$ ol and $\underline{6|}$ molb.

January, 1964 (5 years later) no recurrence.

Case 2

A girl of 8 years presented in 1959 with wart-like formations in the mouth. They had been noticed 3 months earlier, but then only on the dorsum linguae.

Tablets, ointments and topical applications had been tried without effect. The formations multiplied and spread over the buccae and lips; at first they were recurring but later they persisted (Figs. 6 and 8).

On vaccination for diphteria 10 months previously the patient had fallen ill, with high fever, vomiting and severe attacks of

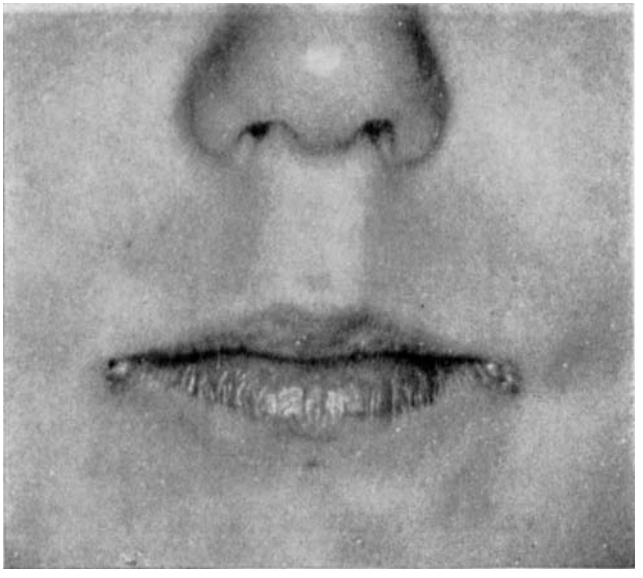


Fig. 6, Case 2. Angulus oris with rhagades and grain-sized papules of the same red colour as that of the lips.

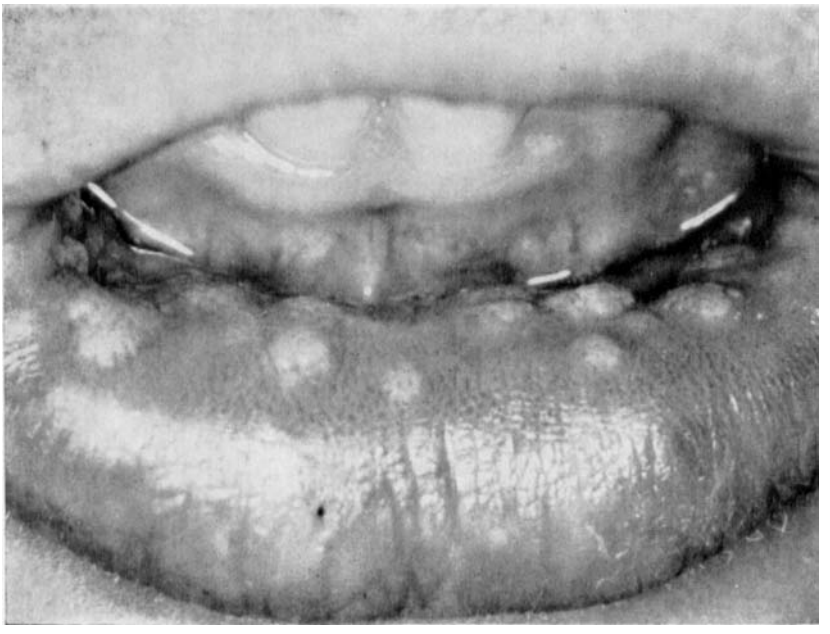


Fig. 7

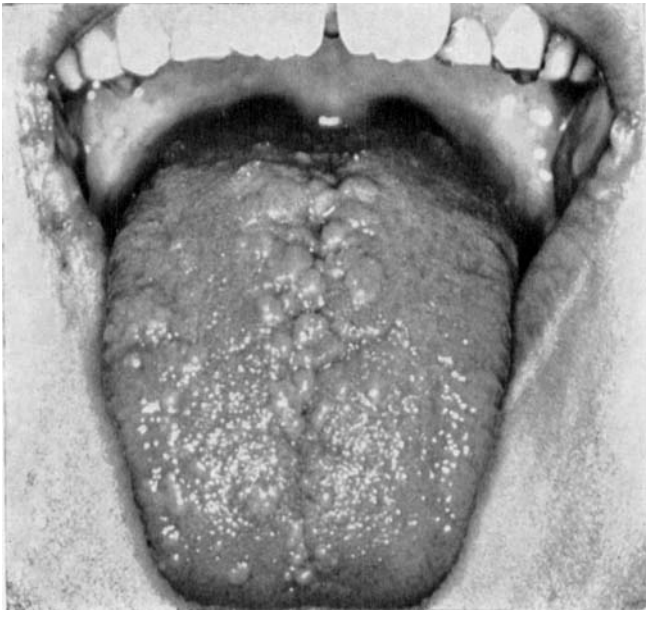


Fig. 8

Figs. 7, 8 and 9, Case 2. Polyps on the tongue (Figs. 8 and 9) at both anguli oris (Fig. 8), and on the inside of the lower lip (Fig. 7). The polyps vary in size; some are grain-sized, others have merged to form large plaques. The surface is smooth with red spotted granulations under the surface (Figs. 7 and 9).

coughing, ascribed to whooping cough. The coughing had persisted ever since. The girl was otherwise healthy. At an early age tomatoes gave rise to small areas of erythema which disappeared after a few days.

In the autumn and spring a brief vesicular eruption would appear, with reddening at the angulus oris. The girl was a nail-biter and a thumb-sucker.

In 1954, the patient had a deciduous molar extracted because of toothache. In November 1957, an examination was performed

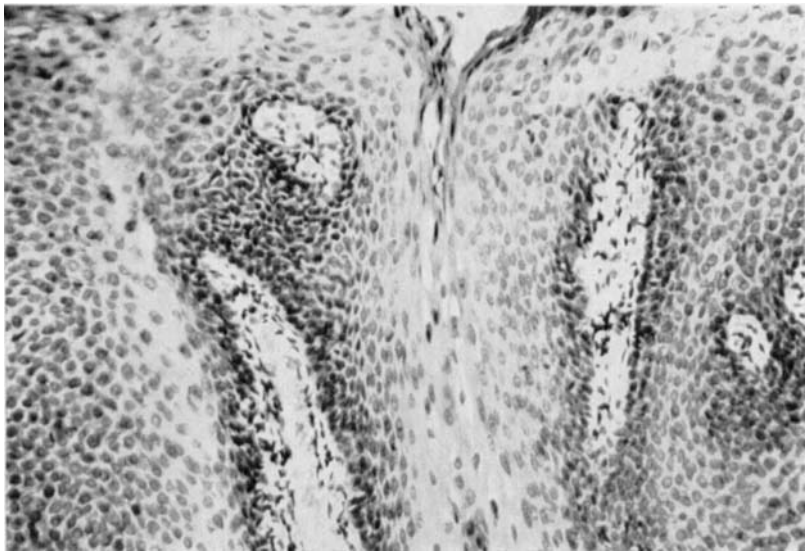


Fig. 10 a.

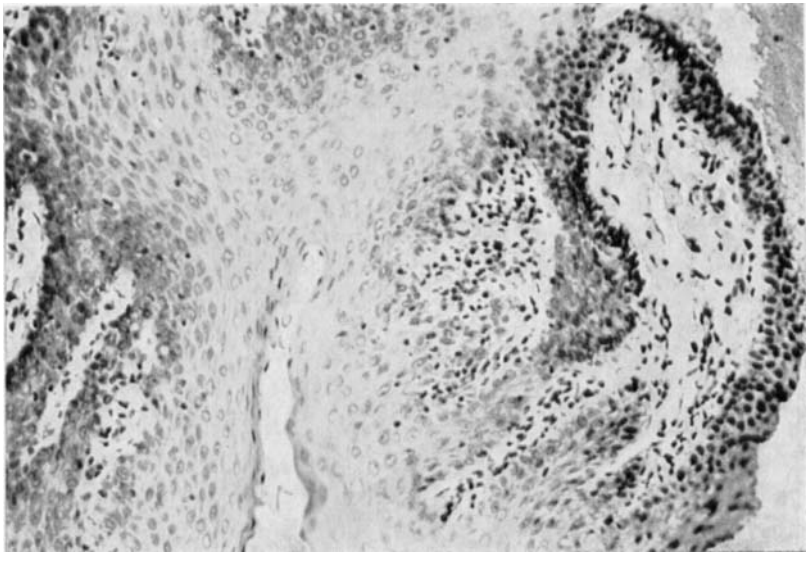


Fig. 10 b.

Fig. 10, Case 2. Photomicrographs (a) of a polyp from the region of the dorsum linguae and (b) from the lip in the region of $\overline{1|1}$. (Enlargement × 300).

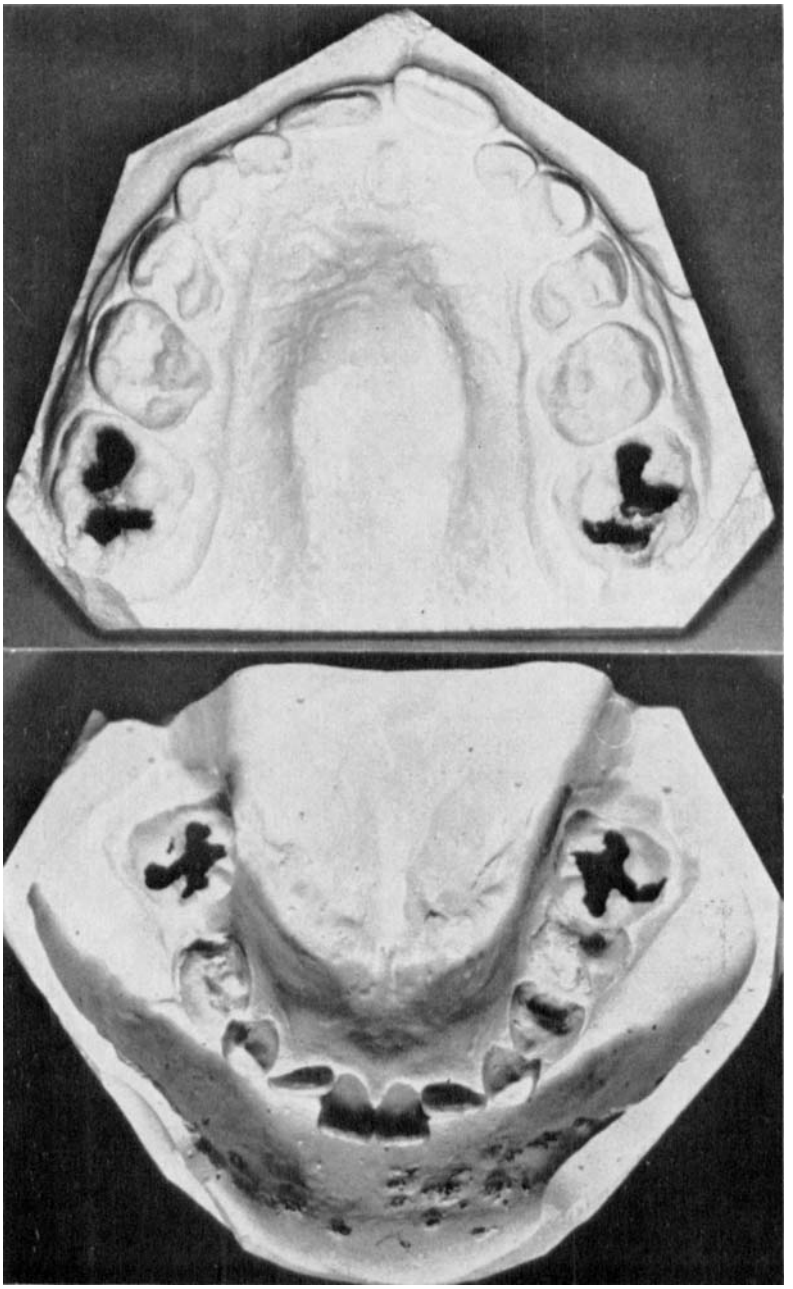


Fig. 11. Case 2. Upper and lower jaws. Amalgam fillings have been marked in the regions of $\underline{6|}\ 6, \overline{6|}6$. The figure shows the position of the polyps in relation to the teeth.

by the school dental officer, and one year later an amalgam filling 6|o was placed. Five months later |01 was extracted owing to aching, and amalgam fillings were placed in 6|o, |6 mo and |6 o. There was no record of papules in the mouth.

At the clinical examination in 1959 the physical constitution was normal and the general status good. At both anguli oris there were rhagades and grain sized papules of the same red colour as the lips. On the inside of the lips and cheeks, in the midline of the dorsum and on the right border of the tongue there were grain or pin-head sized polyps, and on the dorsum of the tongue several grain sized, partly confluent formations of the same type (Figs. 8 and 9). They were paler than the surrounding tissue and firm, those on the tongue being almost fibrous, while those on the buccal surfaces of the lips and cheeks were soft. Their surface was smooth, and there were red spotted granulations below the surface (Fig. 7). The number of polyps was greatest on the tongue and the right bucca, and diminished towards the left. The submandibular lymph nodes on both sides were bean sized and not tender.

Histologic findings

Microscopic examination of biopsy specimens from the tongue and the lower lip disclosed squamous cell epithelial papilloma in the region 1|1 (Fig. 10).

Two months after the first visit the oral status was as illustrated in Fig. 11, in addition to the papules described above.

Treatment

All the amalgam fillings were removed under a rubber dam and replaced with phosphate cement. |04 and |05 were extracted; the cavities in 05|, 04|, |03 and |04 were prepared and filled with phosphate cement. Three polyp formations were excised for further examination. At a check one month later the polyps had decreased in number to two on the tongue and two on the lower lip. These were excised and subjected to histologic examination for diagnosis. It was found that the polyps had very much the same appearance as on the earlier examination, viz. that of a squamous epithelial papilloma. After a further 5 months the mouth was free from polyps. On this occasion new amalgam fillings were placed in 6| ob and |6 mob (Royal Dental Alloy) un-

der the rubber dam and the mucosa was excised in the region 1|, |1 for further examination. Four months later the phosphate cement in the |6 mop and 6| o was replaced by amalgam (Royal Dental Alloy).

Course

January, 1964. After 4 years there was no evidence of recurrence.

It is evident from the histologic picture that there was mild chronic inflammatory irritation in both these cases. It is remarkable that all the polyps disappeared after removing the amalgam fillings and that they did not reappear when new amalgam fillings were placed! The possibility of a causal connection between the fillings and the polyps was therefore examined in a subsequent study.

Method

On the occasion of the first visit of the two patients the potentials between the fillings in their mouths were measured. A galvanometer with an internal resistance of 2700 ohms was used, and the electrodes were of platinum, soldered to silver leads. Before taking the measurements the contact points were dried. The values obtained are shown in Table 1 a. After these measurements of the current the teeth were protected by rubber dam and the fillings removed. They were then subjected to *in vitro* experiments.

In these experiments all the fillings from each patient were placed on a filter paper moistened with Ringer's solution. The potential between the fillings was measured with a valve voltmeter having an internal resistance of 100,000 ohms. Platinum electrodes were used (Fig. 12 and Table 1 b).

For analysis of the metal in the tissue polyps were excised; the specimens of mucous membrane were weighed, frozen at — 35° C and subjected to spectrum analysis (The Swedish Geologic Institution). After the polyposis had disappeared the same procedure was carried out on the mucosa where previous polyp excisions had been performed, to establish whether there was any variation in the amount of metal present after healing.

Prior to the spectrum analysis the tissue samples were dried

Table 1 a

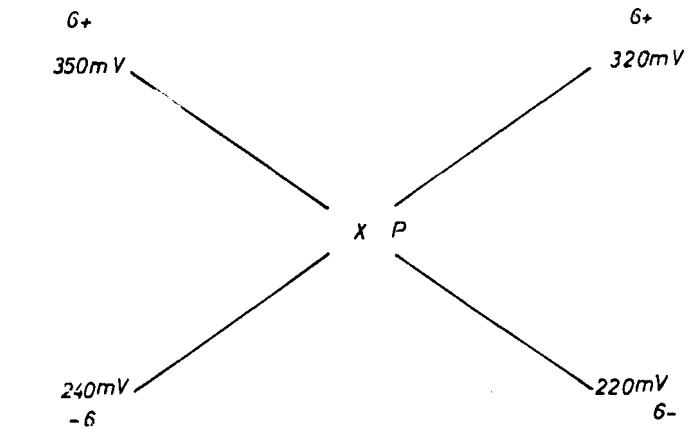
Electrical current in the oral cavity

Case 1				
	⌈6	6⌋	2½ μA	
	⌈6	6⌋	1 „	
	⌈6	⌊6	3 „	
	⌊6b	6⌋	4 „	Filling placed after formations had been discovered.
	⌊6	6⌋o	1½ „	
	6⌋	6⌋	2½ „	
	6⌋	⌊6	2½ „	
Case 2				
	⌊6	6⌋	4 „	
	⌊6	6⌋	2 „	
	⌊6	⌈6	4 „	
	⌈6	6⌋	2 „	
	⌈6	6⌋	2 „	
	6⌋	6⌋	1 „	

Table 1 b

In vitro experiments;
Ringer's solution as the electrolyte

Case 1			
	⌈6	6⌋	80 mV
	⌈6	6⌋	10—30 mV
	⌈6	⌊6	150—250 mV
	⌊6	6⌋o	130—140 mV
	6⌋	6⌋	40—60 mV
	6⌋	⌊6	10—20 mV
Case 2			
	⌊6	6⌋	70 mV
	⌊6	6⌋	100—120 mV
	⌊6	⌈6	80 mV
	⌈6	6⌋	190 mV
	⌈6	6⌋	80—90 mV
	6⌋	6⌋	100—140 mV



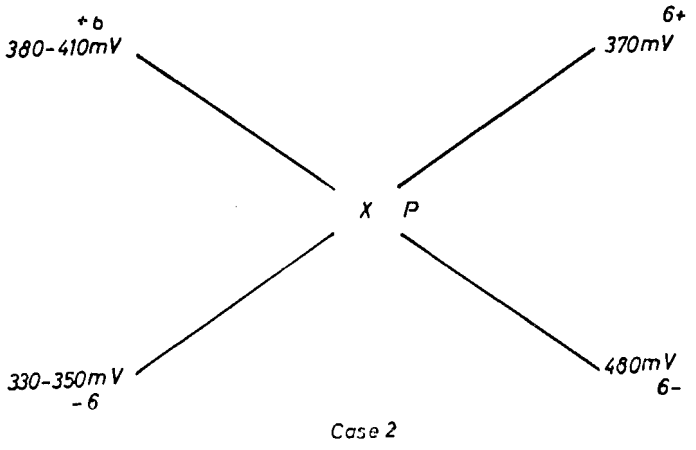


Fig. 12. *In vitro* experiment. The figure shows the potential difference between each removed filling and P. (P means one and the same platinum electrode in the electrolyte, Ringer's solution).
The instrument used is a valve voltmeter with an internal resistance of 100,000 ohms.

in an oven. They were then treated with a mixture of sulphuric and nitric acids. The two acids were examined as blind tests on the metals sought. All the substance was dissolved in one millilitre and absorbed on spectrally pure carbon, which was then subjected to spectrum analysis.

In case 2 cultures were performed on excised polyp with respect to verruca virus.*)

To find out whether there might have been hypersensitivity to substances present in the amalgam, epicutaneous tests (pressure tests) were performed by a routine method. The following allergenes were used;

Amide ointment, 5 per cent (mercury)
Zinc ointment, 10 per cent (zinc)
Colloidal silver (silver)
Copper sulphate, 5 per cent (copper)
Copper sulphate, one per cent (copper).

The fillings belonging to both patients were analysed for mercury, silver, copper, zinc, lead, and tin.

For the mercury assay the Eschka method was applied. A sample in a porcelain crucible was mixed with iron powder and covered with a layer of a mixture of zinc and calcium oxides. The crucible was heated to about 1000° C and the volatilized mercury collected on water-cooled gold foil above the crucible. After this the increase in weight of the foil was determined and the mercury estimated.

The silver was determined by placing the specimen, wrapped in lead foil, in a fireclay crucible. The lead was then driven off in an oven at about 900° C and in an oxidizing atmosphere. The residual silver bullion was weighed on a microbalance.

The copper, zinc, lead, and tin were determined by the following method**) : The sample was dissolved in nitric acid. After adding cadmium solution as an internal standard and paper powder, the solution was buffered to pH 2.5. The metals were then precipitated as sulphides with hydrogen sulphide. The precipitates were filtered, washed and dried with acetone and a suction

*) Performed at the National Bacteriologic Laboratories in Stockholm.

**) Performed at the Research Laboratory, Boliden Mining Company, Skellefteåmn, Sweden.

of air through them. The precipitate was ground in a mill and the elements were determined spectrographically with a direct recording spectrograph; the tape technique was used in which the sample on a strip of tape is inserted between the electrodes of the spectrograph (*Danielsson, Lundgren & Sundqvist,* 1959; *Sundqvist & Olofsson,* 1960).

Results

The results of the measurements of the current and potentials are given in Fig. 12 and in Tables 1 a and 1 b. Table 1 b and Fig. 12 relate to the experiments *in vitro*. The fillings from the $\overline{6}|$ of case 1 and $|\overline{6}$ of case 2 showed the greatest potential difference in relation to the zero P (platinum rod used as the reference). (P means one and the same electrode in the solution).

From the results of the spectrum studies before treatment and after healing given in Table 2 it is seen that in case 1 there was a decrease in copper from 0.001 to 0.0002 per cent — that is, 80 per cent — and of zinc from 0.001 to 0.0003 per cent — that is 70 per cent. In case 2 there was a reduction in copper from 0.0003 to about 0.0001 per cent, or about 67 per cent, in case 1 an increase from 0.0001 to 0.001 per cent, or about 90 per cent. The other metals showed no change.

The results of the analyses of the fillings are given in Table 3. The filling from $\overline{6}|$ (case 1), which in respect of the location of the polyps was valuable, was lost during the analysis. Table 3 shows that the variation for a particular metal in the different fillings was fairly small; in respect of lead it was practically zero, while for copper the percentage difference between the highest and lowest values was 3.7 in case 1 and 9.1 in case 2. Zinc in case 1 was the same for the four fillings recorded while in case 2 the percentage difference was remarkably high, viz. 77.8 with the lowest value 0.4 per cent and the highest 1.8.

The variation for tin was 7.14 per cent for case 1 and 13.9 for case 2. The variation for silver was 5.7 and 9.1 per cent and for mercury 7.5 and 8.2 per cent. Duplicate determinations were not performed owing to the high cost involved.

The virus cultures from polyps in case 2 gave negative results. The skin tests were likewise negative.

Table 2

Content of Cu, Zn, Ag, Pb and Sn in specimen from the oral mucosa before and after healing

Case 1

Before treatment

Weight of specimen on excision: 0.0353 g (10 April, 1958).
„ „ „ after drying in oven at 200°C: 0.007 g.

Cu:	0.001 per cent of dry weight	10 ppm
Zn:	0.001 per cent of dry weight	10 ppm
Ag:	0.0001 per cent of dry weight	1 ppm
Pb:	0.0001 per cent of dry weight	1 ppm
Sn:	0.0001 per cent of dry weight	1 ppm

After healing

Weight of specimen on excision: 0.0222 g (20 Feb., 1959).
„ „ „ after drying in oven at 200°C: 0.0045 g.

Cu:	0.0002 per cent of dry weight	2 ppm
Zn:	0.0003 per cent of dry weight	3 ppm
Ag:	0.0001 per cent of dry weight	1 ppm
Pb:	0.001 per cent of dry weight	10 ppm
Sn:	0.0001 per cent of dry weight	1 ppm

pH of stimulated saliva 7.65 (mean)
pH of unstimulated saliva 7.15 (mean)

Case 2

Before treatment

Weight of specimen on excision: 0.01139 g (13 Oct., 1959).
„ „ „ after drying in oven at 105°C: 0.00051 g.

Cu:	0.0003 per cent of dry weight	3 ppm
Zn:	0.0003 per cent of dry weight	3 ppm
Ag:	0.0001 per cent of dry weight	1 ppm
Pb:	0.0003 per cent of dry weight	3 ppm
Sn:	0.0001 per cent of dry weight	1 ppm

After healing

Weight of specimen on excision: 0.0043 g (13 June, 1960).
„ „ „ after drying in oven at 105°C: 0.00205 g.

Cu:	(<0.0001 ca) trace	1 ppm
Zn:	0.0003 per cent of dry weight	3 ppm
Ag:	0.0001 per cent of dry weight	1 ppm
Pb:	0.0003 per cent of dry weight	3 ppm
Sn:	0.0001 per cent of dry weight	1 ppm

pH of stimulated saliva 7.6 (mean)
pH of unstimulated saliva 7.1 (mean)

Table 3

Content of Cu, Zn, Pb, Sn, Ag, and Hg in the fillings

		Cu%	Zn%	Pb%	Sn%	Ag%	Hg%
Case 1							
$\underline{6\vert}$		2.7	0.4	0.1	14.0	34	40
$\underline{6\vert}$	(b)	2.6	0.4	0.1	13.9	35	40
$\vert\overline{6}$		2.7	0.4	0.1	13.0	33	38
$\overline{6\vert}$				Sample lost			
$\vert\underline{6}$		2.6	0.4	0.1	13.5	33	37
Case 2							
$\underline{6\vert}$o		1.9	0.7	0.1	10.6	28	46
$\vert\overline{6}$o		2.0	0.6	0.1	10.5	30	49
$\overline{6\vert}$o		2.0	0.4	0.1	11.4	29	48
$\vert\underline{6}$o	(d)	1.9	0.5	0.1	10.8	31	46
$\vert\underline{6}$o	(m)	2.2	1.8	0.1	12.2	31	45

DISCUSSION

A characteristic feature of true neoplasms is their continued growth, even after the stimulus responsible for their occurrence has ceased. The growth of the neoplasm is thus independent or autonomus, in relation to the parent organism. In the case of inflammation, tumour-like formations can appear. The inflammatory proliferations differ from true neoplasms in that the original inflammatory foci may increase in size by involvement of adjacent tissue, whereas true neoplasms grow exclusively by division of their own cells.

Whether papillomas are to be counted among true neoplasms or inflammatory formations has been in question since 1887 (*Chiarri; Tiecke, Stuteville & Calandra,* 1959).

Since the polyps in the two cases ceased to grow and gradually disappeared, they were not true neoplasms but examples of hyperplasia, which would be referred to as polypous hyperplasia

of the mucosa due to chronic irritation. It is remarkable that the polyps disappeared in the course of 2 months after the amalgam fillings had been removed. According to the mothers in both cases the improvement began after one month.

In case 2 there were still two polyps on the tongue after 7 weeks, however. The polyps may have been due solely to hypersensitivity to amalgam or one of its constituents. Although the skin test performed was negative it cannot be ruled out that there was an allergy too weak to give a positive reaction to the epicutaneous test. Since, however, the old fillings were replaced with new ones that did not give rise to polyps it would seem that the presence of allergy is unlikely. However, an oral mucosal allergy is conceivable.

Another possibility is local irritation from the metal which might have penetrated the mucous membrane through, for instance, a galvanic current. Ionic migration might then explain the presence of metal ions in the tissue in the same way as ionic migration in cataphoresis. The saliva is an extremely good electrolyte, as has been pointed out by, among others, *Lain* (1934, 1936, 1940); *Hollander* (1932); *Lippmann* (1930); and *Strenger* (1950). The supposition that the metal fillings are a causal factor is supported by the fact that the polyps appeared after the second visit to the dentist, in the first case after 3 months and in the second case after 2 months. Moreover, a potential difference, though a small one, was recorded between the fillings in the mouth. The possibility that papillomas and polyps may occur through irritation by a galvanic current set up by the fillings in the mouth has been pointed out by *Gettinger* (1939).

An analysis of the fillings from the two patients was performed to find an explanation of the potential difference. The percentage variation between the different metals in the fillings is small and does not seem to explain the potential differences. The potential differences just show that there may be an electrical current.

Further support for the presence of metal ions was provided by the spectrum analysis, which showed that in the pathologic and healthy stages there were differences in the amount of metals present (see Table 2). Both copper and zinc are extremely

important to the body and occur normally in the tissues; 96 per cent of the copper is bound to an α-2-globulin and the rest loosely to albumin. Zinc is present in the enzymes carbonanhydrase, carboxypeptidase, alcohol dehydrogenase, glutamin dehydrogenase and lactodehydrogenase. When the amounts of copper and zinc in the tissues are abnormally high they exert an irritative action.

There is no information relating to the presence of copper and zinc in the mucous membrane, but by the way of comparison it may be mentioned that *Spector* (1956) gave the copper content of skin as 0.003—0.019 ppm (3—19 μg %), muscle 0.00064—0.0013 ppm (0.64—1.3 μg %) (dry weight), saliva 0.0256 ppm (25,6 μg/100 ml) (not dry weight) with a range of variation of 0.010—0.047, and blood about 0.098 ppm (98 μg/100 ml). The figures for zinc are 0.0012—0.0055 ppm (1.2—5.5 μg %), muscle 0.0003 ppm (0.3 μg %) (dry weight), and blood 0.880 ppm (880 μg/100 ml) (wet weight). It is evident from this that special studies should be performed to find the normal metal content of the mucosa and establish the amount of metal required to cause tissue irritation; such studies are planned by the author.

Viruses provide a third possible cause of the polyps. The association between papillomas and polyps of the larynx on the one hand, and warts on the fingers or hands on the other, has been noted by many workers (*Andersson,* 1904; *Ullmann,* 1923). The same applies to the oral mucosa, as was first pointed out by *Rasch* in 1894 and later confirmed by other authors (*Joseph,* 1898; *Andersson,* 1904; *Stern,* 1922).

That papillomas of the larynx usually disappear at puberty would indicate that the hormonal adjustment produces a change in the environment for the virus considered to cause the polyps and papillomas. It has been demonstrated experimentally that viruses may well be the cause (*Shope,* 1933; *Rous et al.,* 1935; *Kingery,* 1921; *Wile et al.,* 1919).

The fact that virus cultures performed in this study were negative does not rule out the possibility that virus was responsible for the growths. However, this is made less likely by the fact that no inclusion bodies were observed in any of the histologic sections.

SUMMARY

Two cases of multiple polypous hyperplasia of the mucous membranes of the mouth are reported in which the polyps disappeared after the amalgam fillings had been removed.

The content of copper and zinc in the tissue is reduced by eliminating the fillings. This indicates that the probable cause is chronic irritation due to metals present in the amalgam fillings as copper and zinc can readily enter the tissues through electrogalvanic currents.

RÉSUMÉ

MULTIPLES HYPERPLASIES POLYPEUSES DE LA MUQUEUSE BUCCALE PRÉSENTANT UNE RÉGRESSION APRÈS LA SUPPRESSION D'OBTURATIONS À L'AMALGAME

L'auteur rend compte de deux cas des multiples hyperplasies polypeuses de la muqueuse buccale, dans lesquels les polypes ont disparu après que les obturations à l'amalgame aient été supprimées.

La teneur en cuivre et en zinc des tissus se trouve réduite par l'élimination des obturations. Ceci indique que la cause probable est une irritation chronique due à des métaux présents dans les obturations à l'amalgame, tels que le cuivre et le zinc, et susceptibles de pénétrer facilement dans les tissus grâce à des courants électrogalvaniques.

ZUSAMMENFASSUNG

MULTIPLE POLYPENHYPERPLASIEN DER MUNDSCHLEIMHAUT MIT REGRESSION NACH ENTZIEHUNG DER AMALGAMFÜLLUNGEN

Zwei Fälle von multiplen Polypenhyperplasien der Mundschleimhaut werden gemeldet, in denen die Polypen verschwanden, nachdem die Amalgamfüllungen entfernt worden waren. Der Inhalt von Kupfer und Zink im Gewebe wurde durch die Entziehung der Füllungen reduziert. Dies deutet darauf hin, dass die wahrscheinliche Ursache der Hyperplasie eine chronische Irritation war, infolge der anwesenden Metalle in den Amalgamfüllungen wie Kupfer und Zink, welche durch elektrogalvanische Ströme in die Gewebe leicht hineindringen können.

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