

# THE ORAL CONDITION OF ELDERLY INSTITUTIONALISED MALES

GEORGE E. CAMILLERI  
H.D.D., F.D.S.

*Dental Surgeon, St. Luke's Hospital*  
*Lecturer, Royal University of Malta*

and

CARMEL L. CUSCHIERI \*  
M.D.

*St. Vincent de Paul Hospital*  
*Medical Officer,*

A survey was carried out in the summer of 1966 of the oral condition of all male patients over 60 years old, at Saint Vincent de Paul Hospital, a government geriatric institution. All the patients were examined by one of us (GEC) with an anglepoise lamp as a light source, except in bedridden patients who were seen under natural light. Dental mirrors and probes were used initially but the dental probe was soon abandoned as many patients objected to its use and tooth probing was not yielding any more information than plain visual examination. The number and condition of the teeth, the presence of calculus and periodontal disease, and the degree of dental attrition were recorded. A questionnaire was completed on the drinking and smoking habits, masticatory ability, dry feeling of oral mucosa and subjective evaluation of dentures, when present.

The patients were classified as non-

smokers, moderate smokers or heavy smokers. It was found, however, that usually the degree of heavy smoking was commensurate with the patient's consumption of alcoholic beverages. Accordingly, the terms adopted were: (a) non-smokers or drinkers; (b) moderate smokers and/or drinkers and (c) heavy smokers and/or drinkers. A moderate smoker and/or drinker was taken to be one who smoked up to 20 cigarettes daily and who consumed less than 1 litre of locally manufactured wine (ten to twelve per cent ethyl alcohol). The heavy drinker and/or smoker surpassed the 1 litre limit as regards wine and smoked more than 20 cigarettes daily.

Information about these habits was initially taken from the patient himself, checked with his clinical records and finally corroborated by a clinical examination (CLG). Thus it was found that the number of cases with chronic bronchitis and emphysema rose steadily from the moderate to the severe groups. Similarly, signs and symptoms of liver cirrhosis with

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\* Now Medical Officer, Department of Medicine, St. Luke's Hospital.

ascites, peripheral neuritis and obliterative arterial disease, involving mainly the lower limbs, were prevalent in the heavy drinkers/smokers group.

The majority of the patients examined (over 90 per cent) had been unskilled workers, mostly farm labourers, dock hands and hawkers.

The age distribution of 215 patients examined and a further division into dentulous and edentulous persons are given in Table I.

**TABLE I**  
**Age Distribution**

	<i>Edentulous</i>	<i>Dentulous</i>	<i>Total</i>
60-64 years	12	18	30
65-69 years	13	19	32
70-74 years	25	29	54
75-79 years	24	25	49
80-84 years	19	14	33
85-89 years	6	10	16
90-94 years	—	1	1
Total	99	116	215

### Dentition

Teeth were recorded as Missing; Present; Decayed or Roots. Teeth with an intact crown, including those with early interstitial or fissural caries, severe periodontal disease or gross calculus accretions were classified as PRESENT. Teeth with an obvious large carious cavity were listed as DECAYED; however, since these teeth were usually useful members of the dentition, they have been grouped together

with teeth present in the statistical results. A tooth with complete destruction of the crown and with little or no dental structures above the gingiva was considered as a ROOT.

From the total tooth expectancy of 6880 (215 patients × 32 teeth) there were 1007 (14%) teeth and 284 (4%) roots present. There were 116 (54%) patients with at least one tooth present (Dentulous Group) and the distribution of teeth and roots in this group is given in Table II. The highest number of teeth present was in the 60-64 year group (37%) and the lowest in the 80-84 year group (15%). In the maxilla there were 22% teeth present (ranging from 28% in the 60-64 year group, to 12% in the 80-84 year group) and in the mandible there were 32% teeth present (ranging from 46% in the 60-64 year group to 18% in the 80-84 year group).

The division into a dentulous and an edentulous group tends to give a false picture as several of the patients classified as dentulous had only a few teeth or roots and would in fact have been better off edentulous. Sheldon (1948) adopted the standard of six teeth or more present to consider the natural dentition as adequate. According to this criterion, there were 62 patients with an adequate dentition and 54 with an inadequate natural dentition. Corridan (1965) recently examined a comparable hospitalised group in Cork, Ireland, and his results together with those of a survey carried out in Wolverhampton, England, before the start of the National

**TABLE II**  
**Distribution of Teeth and Roots in Dentulous Group**

<i>Age Group</i> <i>Years</i>	<i>Tooth Expectancy</i>	<i>Maxilla and Mandible</i>		<i>Maxilla</i>		<i>Mandible</i>	
		<i>Teeth</i>	<i>Roots</i>	<i>Teeth</i>	<i>Roots</i>	<i>Teeth</i>	<i>Roots</i>
60-64	576	212 (37%)	28 (5%)	79 (28%)	17 (6%)	133 (46%)	11 (4%)
65-69	608	182 (28%)	48 (7%)	80 (26%)	15 (4%)	102 (30%)	33 (10%)
70-74	928	267 (28%)	80 (9%)	104 (22%)	37 (8%)	163 (34%)	43 (10%)
75-79	800	210 (25%)	55 (7%)	84 (20%)	25 (6%)	126 (30%)	30 (8%)
80-84	448	67 (15%)	45 (10%)	27 (12%)	22 (10%)	40 (18%)	23 (10%)
85-90	320	68 (20%)	27 (8%)	34 (20%)	13 (8%)	34 (20%)	14 (8%)
90-95	32	I	I			I	I
TOTAL	3712	1007 (27%)	284 (7%)	408 (22%)	129 (6%)	599 (32%)	155 (8%)

Health Service (Sheldon, 1948) on old patients living at home are compared in Table III. The smaller number of edentulous patients in the Maltese group and the larger number of English elderly persons supplied with dentures are the main differences.

### Periodontal disease and attrition

An attempt to use a Periodontal Disease Index (Russel 1956) was soon given up. The severe periodontal disease and gross calculus generally present together with the few instances of a good dental arch made indexing superfluous. James's (1960) objective classification of the periodontal status into Good, Moderate and Poor was followed. Such a small number had a moderate gingival condition (none had a good condition) that the periodontal condition of the group is best considered as poor.

The evaluation of the degree of attrition also proved fruitless. Although one did meet the rare individual with even attrition in an adequate dental arch, the majority of dentulous persons had only a few teeth present which occluded irregularly and an evaluation of the degree of attrition was meaningless.

Periodontal disease is the major cause of tooth loss in Malta, in persons over 30 years, (Camilleri, 1966) and it increases in importance in old age. Attention to oral hygiene and treatment of periodontal disease is undoubtedly the chief requirement of the dentulous group.

### Mastication

The estimation of masticatory ability was based on the reply given by the patient on whether he was able to eat the crust of Maltese bread or discarded it to

eat the softer central portions only. They were then graded as eating a Hard or Soft diet. In the dentulous patients the Hard/Soft ratio was 57/59 whilst in the edentulous group it was 49/50. There is not much discrepancy between the two groups and probably the presence or otherwise of teeth (as found in our study) does not make much difference to the ability to eat a hard type of diet. It is interesting, however, to note that in the edentulous group who succeeded in wearing their dentures the Hard/Soft ratio was 19/6, suggesting that the persons who persisted in wearing dentures had a better masticatory ability.

Of the triad of complaints of poor aesthetics, local discomfort and limited masticatory function, the latter is the most common and pressing. The possession of a few roots, a mutilated dentition with advanced periodontal disease or a completely edentulous mouth make a major contribution to malnutrition in the elderly (Kemp, 1965).

### Prosthetics

There were 99 (46%) totally edentulous patients, of whom 42 had never been fitted with dentures and 57 had been given one or more sets of full upper and full lower dentures. There were also 5 patients who had been supplied with partial dentures and one with a full upper denture. An analysis of the 57 patients who had been supplied with full upper and full lower dentures showed that 25 still wore the dentures whilst 32 had discarded them completely. Of the patients who had been given but did not wear the dentures, 6 appliances had been supplied privately and 26 from the Government Dental Clinic. The successful dentures had been supplied by private practitioners in

TABLE III

	Malta	Cork	Wolverhampton
Own teeth adequate	28.9%	5.1%	8.5%
Own teeth inadequate	25.1%	19.0%	18.1%
Edentulous	46.0%	70.0%	69.0%
(Full upper and lower dentures)	26.6%	24.5%	59.8%
(No natural teeth or dentures)	20.4%	45.5%	9.6%

16 cases and by the Government Dental Clinic in 9 instances. Examination of some of the discarded dentures showed that in many instances the articulation and fit appeared satisfactory. The discrepancy between dentures supplied privately and those supplied by the Government Dental Clinic is best explained by the fact that the former group had been supplied with dentures before they were admitted to the hospital when they were younger and therefore physiologically and psychologically more adaptable to dentures. The dentures fitted in the Government Clinic were often supplied to inmates poorly receptive to dentures. The inability of the aged person to adapt to wearing dentures lies mainly in the neuromuscular mechanism to learn new habits. This has been stressed by dental surgeons (Storer, 1965) and geriatric physicians (Kemp, 1965) alike. In the elderly, a complete dental clearance can seldom be recommended except in cases of gross sepsis (Agate, 1963).

### Oral mucosa

The characteristic features of senescent and atrophic oral mucosa such as a glazed red sheen, a diminished elasticity of the cheeks and an indistinct mucocutaneous junction in the lips were commonly seen in our patients. These changes are so subtle and gradual that one can only apply non-specific criteria and record gross alterations only. In our patients, the condition of the oral mucosa was generally good and surprisingly pliant with no overt signs of nutritional deficiencies.

The data on the smoking and drinking habits show that 59 did not smoke or drink alcoholic beverages, 57 were moderate smokers and/or drinkers and 98 heavy smokers and/or drinkers. No data were available on 7 patients.

#### 1. Leukoplakia

A clinical diagnosis of leukoplakia was made when there was a distinct white patch clearly distinguishable from the adjoining normal or atrophic mucosa. Many of the patches, but not all, were slightly raised and involved the cheeks or lips.

There were 16 patients with definite white patches of which 2 suggested the possibility of a premalignant condition. One had a distinct erythematous border and centre (erythroplakia) and the other was a large verrucous lesion lining the whole of both cheeks. Of the 16 patients with leukoplakic patches, 2 were non-smokers/drinkers, one was moderate smoker-drinker, and 13 heavy smokers/drinkers. The accepted relationship between the irritational effect of heavy smoking or drinking and leukoplakia is amply borne out.

#### 2. Pigmentation

Together with the change in the oral mucosa from a bright pink to a more violaceous dull colour seen in nearly all the patients and probably associated with vascular changes, there was in 21 (9.7%) of the patients a distinct dusky brown pigmentation, localised to the cheeks or even affecting the whole of the oral cavity. This was indistinguishable from the pigmentation associated with Addison's disease. Oral pigmentation is often considered a sign of systematic disease, but in fact, it is frequently found in healthy persons and is a common characteristic of the darker races including Caucasian brunettes. Becker (1927) had demonstrated the presence of melanocytes in oral mucosa that showed no clinical evidence of pigmentation. There is a reduction in the number of melanocytes in the skin during senescence (Fitzpatrick *et al.*, 1965) yet Walsh (1964) found that pigmentation increased with age in the skin exposed to the sun. Garn and French (1963) noted that there was no increase in colour depth in the skin which is normally unexposed. The relationship of oral mucosal pigmentation and aging does not seem to have been studied but it is possibly related to local irritation. In the 21 patients with oral pigmentation, 5 were moderate and 16 heavy smokers/drinkers.

#### 3. Other lesions

Other unusual oral lesions encountered were a nodular hyperplasia of the

hard palate and a large haemangioma of the cheek. Four patients had large nodular varicose enlargements of the superficial collecting veins located in the lips and prominent veins in the ventral surface of the tongue were very common.

### Comment

The geriatric patient tends to respond to noxious stimuli in an atrophic rather than in a productive manner (Massler, 1956) so that dental and oral symptoms of disease are not prominent. This was so in our survey and very few of the patients had any specific oral complaints. Subjective responses and complaints are generally unreliable so that periodic and systematic examination is essential to recognise early oral disease (Allen, 1963). Recent research in geriatric dentistry has revealed that timely initiation of hormonal, nutritional and vitamin therapy is effective in mitigating or even reversing some of the deteriorative changes occurring in the oral cavity (Muller, 1959). The dental surgeon has an important role in the health team looking after geriatric patients and should keep his patients under constant surveillance rather than wait for specific complaints.

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### References

- AGATE, J. (1963), *The Practice of Geriatrics*, p. 113. Heinemann, London.
- ALLEN, E.F. in E.V. COWDRY (1963), *The Care of the Geriatric Patient*. 2nd. ed. Chap. 13. C.V. Mosby.
- BECKER, S.W. (1927), *Arch. Dermatol. Syphilol.*, 16, 259.
- CAMILLERI, G.E. (1966), *St. Luke's Hosp. Gaz.* 7, 12.
- CORRIDAN, J.P. (1965) *J. Irish dent. Ass.* 11, 132.
- FITZPATRICK, T.B., SZABO, G. and MITCHELL, R.E. in MONTAGNA, W. (1965), *Aging*. Chap. VII., Pergamon.
- GARN, S.M. and FRENCH, N.Y. (1963), *Am. J. obst. Gynec.* 85, 873.
- JAMES, P.M.C., JACKSON, D., SLACK, G.L. and LAWTON, F.E. (1965), *Arch. oral. Biol.*, 3, 57.
- GEMP, R. (1965), *A new look at Geriatrics*, p. 87, Pitman.
- MASSLER, M. (1956), *N.Y. J. Dent.* 26, 54.
- MULLER, W. (1959) *Zahnaerztl Welt.* 60, 72.
- RUSSEL, A.L. (1965) *J. dent. Res.* 35, 350.
- SHELDON, J.H. (1948), *The social medicine of old age*. Oxford Univ. Press
- WALSH, R.J. (1964), *J. Invest Dermatol.*, 42, 261.