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IDENTITY OF THE SLDA

Sri Lanka Dental Association, the oldest and the premier professional body of the Dental Surgeons of Sri Lanka, has passed through many ups and downs during its over half a century of existence. It is time now that the members of the dental profession in Sri Lanka, young and old, take a serious objective look at the purpose, procedures and the performance of the Sri Lanka Dental Association with a view to successfully steer through the next half the century.

Shedding our differences on the grounds of professional grades or clans or subspecialties, we all the dental surgeons of Sri Lanka, be it a University academic, general dental practitioner, specialist dental surgeon, consultant dental surgeon or even an ordinary dental surgeon should faithfully vow and pledge their unstinted support to the SLDA. It is a customary practice everywhere, to work for the association when one holds a post on the executive committee and simply forget about this professional body

thereafter. It is also time to note the formation of other associations covering the subspecialties in dentistry with a view to expand the wisdom of the dental surgeon. However, we should be extremely careful in organising and executing the functions of such associations so that the smooth functioning of the premier professional body is not hampered. In other words, each one of us should carry the self identity as a member of the SLDA and execute the functions of the other dental associations. Of course, it is the over-enthusiastic and devoted professional who would thus form associations to impart further knowledge to the dental surgeons. However, such enthusiasm should not take the form of achieving selfish motives to win against the premier body so that the integrity of the SLDA would be at stake, but to promote the professional standards of dentistry and preserve the self identity of SLDA at large, which is the oldest and the national professional body for all categories of dental surgeons of Sri Lanka.

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A CLINICOPATHOLOGICAL STUDY OF A SERIES OF 402 EPULIDES ARISING ON THE GUMS

By

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Summary:

Odontogenic cysts account for a very appreciable proportion of all lumps arising in the jaws. This paper deals with three of the commoner varieties of such cysts, viz:- radicular, dentigerous and keratocyst in a total of 183. They have been analysed with regard to their relative frequency, age pattern, sex distribution, Site distribution and relationship to individual teeth.

A comparison is drawn with Similar Studies carried out in the West as well as in the Asian region.

The dental literature on this subject is very extensive and most confusing. Many terms are used such as epulis, tumour, fibrous polyp, fibrous-angiomatic polyp and granuloma pyogenicum to give only a few examples. These have further subdivisions determined by cause as in the case of denture hyperplasia and palatal hyperplasia. A localized enlargement of the gingiva whether it be pedunculated or sessile is commonly referred to as an epulis. This term is now universally applied to describe a localized chronic inflammatory hyperplasia of the gingiva with the exception of the rare congenital epulis.

Depending on their histopathological features, epulides are usually divided into fibrous, granulation tissue containing (vascular) and giant cell types. Clinically the fibrous epulis is of firm consistency and of similar colour to the adjacent mucosa. If the lesion is ulcerated the surface is covered by a yellowish fibrinous exudate. The granulation tissue containing lesions are subdivided into the pyogenic granuloma and the pregnancy epulis. These lesions cannot be distinguished by their clinical and histopathological appearances. The giant cell epulis resembles the granulation tissue

containing type and is purplish-red in colour and often ulcerated.

The purpose of this study was to review the pathological features and relative incidence of the three main types of epulis based on 402 epulides.

Materials and Methods

402 consecutive epulides received for histopathological diagnosis in the Department of Oral Pathology, Faculty of Dental Science between 1978 and 1987 were reviewed.

Their histopathological features were re-evaluated by the author using haematoxylin and eosin stained 5/10 sections of paraffin embedded material. On average two blocks of tissue from each epulis were sectioned. The lesions were classified into (a) fibrous, (b) granulation tissue containing (vascular) and (c) giant cell types based on the following criteria.

- (a) Fibrous tissue containing epulides: lesion comprising of predominantly collagenous fibrous connective tissue and/or richly cellular fibroblastic elements.
- (b) Granulation tissue containing epulides (vascular): lesions composed mainly of highly vascularized granulation tissue with endothelial proliferation and many small and/or large, thin-walled blood vessels lying in a loose delicate and often oedematous fibrous stroma.
- (c) Giant cell epulides: lesion characterised by focal collection of multinucleated giant cells lying in a vascular spindle cell stroma. There may also be foci of recent haemorrhage and deposits of haemosiderin.

For each epulis features of the covering epithelium, the nature of the connective tissue morphology, the number and size of blood vessels and the presence and type of calcification were recorded. The calcification was recorded as bony osseous, amorphous dystrophic calcification and where relevant a combination of the two types.

The nature of the inflammatory cell infiltration was also studied. Each lesion was divided into three arbitrary zones and for each zone a note was made as to whether the infiltrations were focal or diffuse. These zones were defined as follows. Zone 1 — the area immediately adjacent to surface of ulcerated epithelium. Zone 2 — the inter-

mediate area and Zone 3 — the deeper parts of the lesion usually recorded at the base of the lesion.

The presence of giant cells in the first two types of epulides, together with the occurrence of myxomatous change in the connective tissue was also studied. Clinical data regarding age, sex, race, location of the lesions, size of lesion and whether or not this was recurrence were obtained for each case. Where available the duration was also recorded. For purposes of recording location each jaw was divided into anterior, premolar and molar segments. The anterior segment extended from the mesial surface of one canine to the mesial surface of the other canine. The premolar segment was from the distal surface of the canine to the mesial surface of the first permanent molar. The molar segment was from the mesial surface of the first molar to the distal surface of the third molar. The deciduous molars were included in the premolar segment.

Results

Of the 402 epulides studied 66.7% were of the fibrous type, 29.1% were of the granulation tissue type, and 4.2% were giant cell lesions. The distribution of the different lesion types in relation to age and sex of patients is shown in Table 1. 75.2% of lesions occurred in females. Fibrous epulides occurred mainly between 11 and 50 years of age with the higher incidence for males in the second decade and for females in the third decade. The granulation tissue containing epulides were relatively more common in the second and third decades in females. Of a total of 117 granulation tissue containing epulides 100 occurred in females and among them 66 lesions occurred between 11 - 40 years of age.

TABLE I

DISTRIBUTION OF EPULIDES ACCORDING TO AGE AND SEX

Age Years	Fibrous		Granulation Tissue		Giant Cell	
	Male	Female	Male	Female	Male	Female
0 - 10	5 (1.9%)	4 (1.5%)	2 (1.7%)	3 (2.6%)	3 (17.7%)	2 (11.7%)
11 - 20	20 (7.5%)	46 (17.2%)	3 (2.6%)	28 (23.9%)	1 (5.9%)	4 (23.5%)
21 - 30	14 (5.2%)	57 (21.3%)	4 (3.4%)	24 (20.5%)	0	2 (11.7%)
31 - 40	14 (5.2%)	33 (12.3%)	0	14 (11.9%)	1 (5.9%)	1 (5.9%)
41 - 50	8 (3.0%)	23 (8.6%)	3 (2.6%)	12 (10.2%)	0	1 (5.9%)
51 - 60	10 (3.7%)	14 (5.2%)	3 (2.6%)	13 (11.1%)	0	0
61 - 70	3 (1.1%)	5 (1.9%)	2 (1.7%)	2 (1.7%)	0	1 (5.9%)
71 - 80	0	2 (0.7%)	0	1 (0.9%)	0	1 (5.9%)
N.K.	4 (1.5%)	6 (2.2%)	0	3 (2.6%)	0	0
TOTAL	78 (29.1%)	190 (70.9%)	17 (14.6%)	100 (85.6%)	5 (29.5%)	12 (70.5%)
PERCENTAGE OF LESIONS	19.4%	47.3%	4.2%	24.9%	1.2%	3%

TOTAL LESIONS 402

The nature of the covering epithelium in the fibrous epulides group was of normal thickness while the epithelium of the granulation tissue containing lesions is thinned and ulcerated. Parakeratosis is much more frequently seen than orthokeratosis in all groups.

The gross frequency distribution of the inflammatory cell infiltration shows that a majority of fibrous epulides showed moderate inflammatory cells infiltration while the majority of the granulation tissue type showed severe inflammatory cell infiltration. It was seen that the granulation tissue containing lesions had a high score in Zone 1 with respect to diffuse infiltrations. The fibrous lesions showed a high score with respect to focal aggregations in Zone 2 and Zone 3. The mature lesions showed a low score in all zones. It was observed that the polymorphonuclear leucocytes occurred as the predominant inflammatory cell in a diffuse infiltrate in Zone 1, particularly in the granulation tissue lesions, while the plasma cell is the predominant cell in the fibrous tissue lesion and granulation tissue lesion in Zone 2 and 3 with a particular predilection for focal aggregation in the fibrous group of lesions.

Where a history was available 30 of the 402 lesions were recurrent. Giving a percentage of 7.5 for recurrent lesions. The inadequate history that we often receive makes it difficult to measure the interval between the original lesion and the recurrent lesions. The recurrent rate for fibrous epulides was 4.8% and that for the granulation tissue group was 12%.

The distribution of the lesions according to site is shown in Table II. In 20 lesions (5%) the site of presentation was not known. Of the known lesions 52% occurred in the maxilla and 43% occurred in the mandible. When examined in relation to different areas of the jaws, there was a marked predilection for the anterior segment (55%),

followed by the molar segment (20.4%) and the premolar segment (19.4%).

Histopathological examination showed that all of the granulation tissue containing epulides were ulcerated to a greater or lesser extent in comparison to giant cell lesions and fibrous lesions. None of the granulation tissue containing lesions or giant cell lesions showed evidence of calcification. In contrast 30% of the fibrous epulides showed calcification. These calcifications took one or more of the following four forms (1) mature lamellated trabecular bone (20%), (2) highly cellular woven bone (40%), (3) circumscribed amorphous almost acellular, eosinophilic or basophilic bodies (20%) and (4) minute microscopic granular foci of calcification (20%). When the calcification was mixed a score was given to the predominant type of calcification.

Discussion

Comparison of the results of this study with those from other series (Amies 1951; Cooke 1952 (a) and (b); Brown, Darlington and Kupfer 1956; Bhaskar and Jacoway 1966; Eversole and Rovin 1972; and Buchner, Calderon and Ramon 1977) is complicated by the lack of standardized nomenclature any by inclusion of some epulides or the addition of other hyperplastic lesions in previous reports. To some extent this has been overcome by grouping the epulides under the broad heading of fibrous, granulation tissue containing and giant cell types and re-interpreting the reported data accordingly (Lee 1968, 1973). When considered in this way the prevalence of epulides of the fibrous and granulation tissue containing types in this study is comparable to that in the series recorded by Lee (1968) and Macleod and Soames (1987). Fibrous lesions are the most common accounting for 66.7% of epulides in the present study, 64.5% of those presented by Macleod and Soames (1987) and 78% of those reviewed by Lee (1968).

TABLE II

DISTRIBUTION OF EPULIDES ACCORDING TO SITE

	<i>Maxilla</i>			<i>Mandible</i>			
	<i>Anterior</i>	<i>Premolar</i>	<i>Molar</i>	<i>Anterior</i>	<i>Premolar</i>	<i>Molar</i>	<i>N.K.</i>
FIBROUS	85 (31.7%)	23 (8.6%)	24 (9%)	77 (28.7%)	25 (9.3%)	24 (9%)	10 (3.7%)
GRANULATION TISSUE	41 (35%)	15 (12.8%)	16 (13.7%)	14 (12%)	10 (8.5%)	12 (10.3%)	9 (7.7%)
GIANT CELL	2 (11.8%)	1 (5.9%)	2 (11.8%)	3 (17.6%)	4 (23.5%)	4 (23.5%)	1 (5.9%)
TOTAL PERCENTAGE OF LESION	128 (31.8%)	39 (9.7%)	42 (10.5%)	94 (23.4%)	39 (9.7%)	40 (9.9%)	20 (5%)

TOTAL LESIONS — 402

In contrast to this the relative prevalence in the series reported by Brown *et al* (1956) of 30% fibrous lesions, 18% vascular (granulation tissue containing type) and 42% giant cell type is characterised by a very high proportion of giant cell containing lesions. In the present study however, the series of giant cell epulides accounted for only 4.2% of 402 lesions. This compares to 7% giant cell containing lesions reported by Macleod and Soames (1987). The low percentage of giant cell containing lesions in the more recent studies could be accounted by the better classification of giant cell containing lesions into the definite etiology of giant cell lesions. Lee (1968) in his study of 455 consecutive specimens of localized gingival overgrowths received for histopathological diagnosis did not take giant cell containing lesions into account.

The predominance of granulation tissue containing lesions in the second and third decade has been noted in other reviews (Brown, Darlington and Kupfer 1956; Lee 1968; Eversole and Rovin 1972; and Buchner, Calderon and Ramon 1977). Their association with pregnancy is well established. In the present series however, no positive correlation was established to pregnancy as the case histories were incomplete. Similarly as in the present study these reviews have also drawn mention to the predilection for fibrous types and granulation tissue containing epulides to involve the anterior segment of the dental arch and be slightly more common in the maxilla than in the mandible. Similar pattern of distribution has been reported for the giant cell epulis (Anderson, Fejerskov and Philipsen 1973), although this lesion appears to be slightly more common in the mandible than the maxilla in the present study.

The reason why reactive, chronic inflammatory hyperplasia arise more frequently from the anterior gingival tissue is not understood. However, minor trauma and chronic irritation are considered to be important

aetiological factors. Various authors have suggested subgingival calculus, approximal and cervical cavities rough margins of subgingivally placed restorations, poor oral hygiene, pre-existing periodontal disease and possible mouth breathing or lack of lip seal as predisposing causes. Similar factors may also be involved in phenytoin / associated gingival hyperplasia, which also affects the anterior aspect of the maxillary and mandibular gingiva (Hassell 1981).

Jones (1966) demonstrated that the oval or elongated haematoxyphil bodies commonly seen in the granulation tissue group were intensely PAS positive and diastase-fast, and that it reacted positively to Von Kossa, and also that reticulin fibres play no part in their formation. He concluded that the calcific bodies may represent a degenerative process or result from the deposition of calcium salts in a mucoprotein base in the superficial part of the epulis in the presence of infection and active inflammation. Calcific changes are rarely seen in the granulation tissue group. Accordingly the subtype described by Lee (1968) as calcifying fibroblastic granuloma, with a high recurrence rate of 7 - 10% does not seem to emerge as a separate grouping in this study. The present study supports the view that epulides with or without ossification or calcification represent part of the spectrum of a single lesion rather than distinct entities as shown by Southam and Venkataraman (1973).

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Magnetic Forces in Dentistry

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Magnets have been known to the Chinese and the Greeks as early as the first century B.C. In fact, the term magnet is derived from the Greek term for lodestone, a naturally occurring magnetic rock, found in Magnesian in Asia Minor (Lucretius, C99-55 B.C.). Medieval alchemists claimed that the medicinal effects of magnets could cure gout, dropsy, and headache. It has even been stated that "the magnet reconciles the husbands to their wives" and that "the attractive power was weakened by the presence of garlic or of a diamond." (Chamber's Encyclopedia 1973).

In Dentistry, magnets have been used from about the early fifties. In 1953, Freedman used the mutual repulsion of like poles to aid in the retention of upper and lower complete dentures (Freedman, 1953). Behrman (1960, 1964) used the mutual attraction of Palladium - Cobalt alloy magnets implanted in the mandible and embedded in the overlying denture to retain lower dentures. Magnets have been used to assemble multicomponent maxillofacial prostheses (Nadeau 1956, Javid 1971, Federick 1976).

These early magnets were made of alloys of aluminum, nickel and cobalt (Alnico) cobalt and palladium or cobalt and platinum. Although these systems had their merits (Schmitz 1966, Winkler and Pearson 1967) they had their limitations as well.

The paired magnets embedded in dentures were most effective at tooth contact but lost their efficiency at varying degrees of jaw separation. The size of the magnets necessary to obtain adequate retention limited to their usefulness to only a few cases. Their

cost and the risk of demagnetization also were disadvantages. (Laird, Grant and Smith 1981). The implanted magnets, although well tolerated by osseous and fibrous tissue, caused inflammation, necrosis and atrophy of the overlying mucosa and moved out of its prepared vault in the bone (Toto, Choukas and Samders 1962).

In 1967, scientists at the US Air Force Research laboratories and at the General Electric Research and Development Centre Jointly announced that a new alloy of Cobalt and the rare earth element Samarium had magnetic properties far superior to any permanent magnetic material known (Becker, 1970). The rare earth elements are so called because, until the recent development of economic separation techniques (Murphy, 1981), were difficult to isolate in pure form. The properties of their alloys with cobalt are such that they are a class by themselves.

The alloy with the strongest magnetic properties is the alloy of cobalt and samarium Co_5Sm . This has twice the magnetic

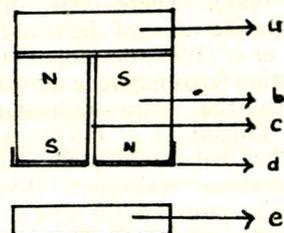
strength of cobalt - platinum and the strongest of the Alnico alloys (Gillings, 1977). Co_5Sm also has an extremely high magnetic permanence or 'intrinsic coercivity.' A high intrinsic coercivity means that the material is difficult to magnetize but once magnetized, it is extremely resistant to demagnetization. The coercivity of cobalt samarium is five times that of cobalt platinum and more than ten times that of the strongest Alnico alloys. This meant that extremely short magnets, 2mm. high or less, could be made without the risk of the North and South poles demagnetising each other. Such magnets were used to retain complete overdentures, where one of a pair was cemented on to a root filled decoronated root and the other attached to the overlying denture. (Gillings 1977, Cerny 1978). Such an arrangement provided an attractive force (breakaway load) of between 170 gms. (Gillings 1977) and 485 gms. (Cernay 1978) depending on the size of the magnet. Gillings later replaced the intra-radicular magnet with a soft iron keeper.

These magnets as well as the previous systems using conventional magnets had a permanent external field surrounding them passing through living tissue. In the past, the effect of these magnetic fields have either been ignored or, those who attempted to investigate it, considered them innocuous to living tissue (Behrman 1960, Toto *et al* 1962). However, there is evidence to indicate that magnetic fields could have biological effects, (Barnothy 1964, 1969). Some of the studies, however, used extremely high magnetic fields of strength varying from 100 to 1000 millitesla (the earth's magnetic field is only 0.05 millitesla). In the Gilling's system, the magnetic field at the root surface was 30 millitesla, which was considered to be too high.

This problem was overcome by having a 'closed-field' arrangement, where the external magnetic field was shunted

through magnetisable stainless steel 'keepers.' This reduced the external field strength by a factor of 75 - 200 (Gillings 1977).

This system consists of paired cylindrical cobalt samarium magnets 3.2 mm. in diameter and 1.5 mm. high with a 0.8 mm. segment cut off from each magnet (Fig. 1). One



magnet was reversed pole for pole and a 1.2 mm. thick ferromagnetic stainless steel keeper was fitted to one end leaving a narrow air gap between the magnets.

Cobalt Samarium corrodes in the oral environment and is brittle. Therefore the opposite pole faces of the magnets were protected with a 0.25 mm. thick magnetisable stainless steel end plate. This entire split pole arrangement had a height of approximately 3 mm. The magnetic 'circuit' was completed when the retention unit was placed against the keeper cemented on the root. The lateral external field when using this arrangement was only 0.1 millitesla, which is about twice the earth's magnetic field. The split pole arrangement also almost doubled the breakaway load as now, two poles contributed to retention, when compared to magnet to keeper arrangement.

Clinical trials using this system has given encouraging results (Gillings and Cerny 1979, Gillings 1979 (a) and (b). However, Sarnat (1983) compared the retention provided by Co_5Sm magnets with that of the Zest, Dalbo and semi - precision stud attachments and concluded that "magnets do not provide additional retention to justify their use as retention units for overdentures."

Other workers also have attempted to overcome the problem of corrosion of cobalt samarium alloys in the oral environment. Connor and Svare (1977) coated the magnets with polytetrafluoroethylene (Proplast). In another system the magnet was completely sealed in the denture base acrylic and the intracoronal magnet was protected with a cast gold coping (Maroso, Tischler and Schmitz 1984). There was, however, a reduction in the value of the breakaway load. Kinouchi *et al* (1981) developed a palladium cobalt casting ferromagnetic alloy for copings to replace the intra-radicular magnet. However Tsutsui *et al* (1979) were of the opinion that cobalt Samarium alloys have good corrosion resistance. Even if the magnet disintegrated in the oral environment, the strong magnetic forces hold the individual particles together (Gillings 1981).

On the chemical level, based on tissue culture experiments, (Tsutsui *et al* 1979) and histological studies (Cerny 1981 (a)) cobalt samarium is considered to be an innocuous salt. However, particulate cobalt chromium alloys have been formed to be carcinogenic to rats (Heath, Freeman and Swanson 1971). Samarium salts are considered to be harmless (Jackson and Healey 1987).

Although it appears, from available data that effects of magnetic fields on vital tissue and the biological properties of cobalt samarium need further investigation, rare earth magnets have been used and continue to be used clinically. They have been used in complete and partial overdentures (Gillings 1977, 1979 (a) and (b), 1981, 1983, Cerny 1978, Sasaki *et al* 1984, Maroso *et al* 1984), partial dentures (Cerny 1981 (b), Pezzoli *et al* 1986), sectional dentures (Ling 1981) implant systems (Gillings, Oliver and Tyler 1983, Carlyle *et al* 1986) and in orthodontics (Kawata and Takeda 1977, Kawata *et al* 1978).

At present, there are five types of rare earth magnetic systems commercially available (Jackson and Healey 1987). One is an open field system and the others are closed field. The Dyna magnet (Golden Dental Inc.) is an open field magnet where a cylindrical rare-earth cobalt magnet is surrounded

by a stainless steel covering. This acts on a stainless steel keeper in the root or on a cast coping. Morikawa *et al* (1987) modified this system by housing the magnet in a ferromagnetic yoke.

The first closed field system introduced commercially was the Gillings split pole system (Innovadent) which has been described earlier.

In the Magnadent system (Indenco Inc.) a circular magnet is enclosed in a steel cup. The keeper is similar to that in the other systems. The units are available in three sizes, small, medium and large.

Another closed field system is the Jackson System (Solid State Innovations). This is also based on the Gillings system and so it is yet another variation, the Keystone Gillings magnet. In the Jackson system, the keeper is a 0.375 radial arc hemisphere to allow a 3° to 5° rotation of the prostheses. They are available in two sizes, mini and regular. The retention forces obtained from these systems are lower than those of precision attachments (Jackson and Healey 1987). When similar measurements were made after subjecting the magnetic units and the precision attachments to 25000 breakaway cycles, there was no change in the breakaway load values for the magnets, but the precision attachments had values ranging from 0 - 50% of the original loads. This is due to wear of the attachments. In other words, magnetic retention units will be effective for very long periods.

The clinical procedures involved are also very simple and is within the scope of any practitioner. No special equipment or materials are necessary. In case of failure of a unit, it could easily be replaced. The cost is also a fraction of that of precision attachments. Magnetic retention systems.

are therefore a viable alternative to precision attachments.

Today, an even more powerful magnet is being produced from iron, the rare earth element neodymium and boron. These magnets are about 20% stronger than cobalt samarium magnets. This allows magnet size to be reduced even further which permits them to be used in situations where lack of space contra-indicated the use of magnets.

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- Fig. 1. Split-pole retention unit (diagrammatic)
- a. magnetisable end cap, b. magnet,
 - c. air gap, d. pole piece and e. keeper.

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THE COST OF TRAINING A DENTAL THERAPIST IN THE YEAR NINETEEN HUNDRED AND EIGHTY FOUR

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The School Dental Service was conceived in New Zealand with the main objective of removing the workload placed on the Dentist. The prevalence of dental caries in the school child at that time in New Zealand was very high. Therefore the idea of training a dental auxilliary to provide preventive care and simple dental procedures on children, was hailed by the New Zealand Dental Association as a progressive step in overcoming the vast backlog of dental care in New Zealand.

The Dental Auxilliaries are different from the undergraduates in that —

- (1) Their entry requirements are lower.
- (2) Training is limited to two years.
- (3) The type of equipment used is cheaper.
- (4) The cost of training is lower.
- (5) Greater emphasis is placed on prevention.

The School Dental Service which proved to be a great success in New Zealand was moved out into neighbouring countries. Sri Lanka was the first country to start training Dental Auxilliaries on a similar pattern in 1955.

With different types of health workers being produced in the country now, it seemed a worthy exercise to determine the cost of training a Dental Therapist. The School for Dental Therapists, Maharagama is the premier training institution for Dental Therapists in Sri Lanka. The trainees are recruited by the Ministry of Health. Although the number trained at this Institution remained more or less static at 25 students per year, the past ten years have not witnessed a regular and constant intake. The cost of training a Dental Therapist of the 23rd. intake was worked out in detail. This

encompassed a two year period from 1982 to 1984.

The 23rd, intake was peculiar in that 12 students were sent for training in September, 1982 and a further group of 12 in November, 1982. At the start of their training the previous batch (22nd intake) was in the 22nd month of training and the following batch (24th intake) commenced training in July 1984. Therefore some of the items that came under recurrent costs were calculated in the following manner.

2 months	20 months	4 months
Half	Full	Half

The first year is confined to lectures and training in Operative Dentistry. The training on phantom heads entails cutting, lining and filling 65 cavities for a period of 8 months.

The second year is devoted to clinical work and Dental Health Education.

The students are provided with hostel facilities and the necessary staff and equipment for the cooking of meals and the cleaning of the dormitories. The dieting is done by the students at their own expense.

In determining the cost of training the Capital costs as well as the Recurrent costs were considered

CAPITAL COST

This was determined using the following formula —

The cost of fixed assets

The number of students that could be trained in 30 years

1. **Cost of Fixed Assets:** This included the cost of the building together with the value of the furniture and equipment used from year to year.

- 1.1. **Cost of Building:** The square area was obtained from the plan and where this was not available by actual measurement. The single storey buildings included the Old Surgery and lecture hall complex, Junior and Senior dormitories, kitchen and the male labourers rooms, which was estimated at Rs. 275.00 per square foot. The new block constructed in 1981 was a two storey building and was estimated at Rs. 350.00 per square foot. The estimates were provided by the Director, Buildings of the Ministry of Health.

$$\begin{aligned}\text{Cost of Building} &= (29,045 \times 275) + (9,840 \times 350) \\ &= \text{Rs. } 11,431,375.00\end{aligned}$$

- 1.2. **Cost of Equipment:** The value of the instruments and other surgical equipment used in the preliminary training laboratory and the surgery was worked out. The lists were obtained from the two sub-section inventories as at September, 1983 and July, 1984. Thus all the new items issued during the course of the year were also included. The prices were calculated from the Institutional Price list 1984.

1.2.1. Instruments used in the first year:

				<i>Rs.</i>
653	Hand Instruments	..	..	16,910.00
51	Handpieces	..	..	86,710.00
26	Standards and Phantom jaws	..	..	109,250.00
	Bowls, trays, lamps, etc.	..	..	17,600.00
25	Foot Engines and Cable arms	..	..	72,732.00
	Total	..	Rs.	<u>308,202.00</u>

1.2.2. Instruments used in the second year:

1,434	Hand Instruments	..	..	74,159.00
59	Handpieces	..	..	103,928.00
190	Dental Chairs, cabinets etc.	..	..	140,232.00
	Bowls, trays, lamps etc.	..	..	49,030.00
83	Dental Engines & Sterilisers	..	..	431,400.00
	Total		Rs.	<u>798,749.00</u>

1.3. Cost of Furniture: This included five items namely furniture, office equipment, hardware, linen and cutlery and crockery. The lists were extracted from the issues made from the General Stores inventory under the above sub-headings. The prices were calculated from the catalogue and price list 1984 of the Department of Government Supplies. The prices of the items not listed in the catalogue were obtained from the Director, Ordnance Services, Army Headquarters.

1.3.1. Furniture: Items of wooden and iron furniture were grouped into this category. Furniture used in the administrative block, surgeries, laboratory and dormitories were accounted for and costed. The cost of furniture amounted to Rs 934,680.00

1.3.2. Office Equipment:

Filing cabinets, iron safe etc.	..	..	16,750.00
Typewriters	..	..	9,235.00
Others	..	..	2,074.00
Total	..	Rs.	<u>28,059.00</u>

1.3.3. Hardware: This included 152 items ranging from brushes to cycles and volleyballs to Kenwood Mixers. As it was not possible to group these items, the total cost worked out to Rs. 388,294.00.

1.3.4. Linen: There were 41 items of linen which included aprons, door and window curtains, pillows and pillow cases, bed sheets, towels, mattresses etc. The cost of these items amounted to Rs. 29,000.00

1.3.5. Cutlery and Crockery: This encompassed 33 items of cutlery, crockery and water filters adding up to a cost of Rs. 13,906.00.

The total cost of fixed assets added up to —

Buildings	..	..	11,431,375.00
Instruments 1st. year	..	..	303,202.00
Instruments 2nd. year	..	..	798,749.00
Furniture	..	..	934,680.00
Office Equipment	..	..	28,059.00
Hardware	..	..	388,294.00
Linen	..	..	29,000.00
Cutlery & Crockery	..	..	13,906.00
Total	..	Rs.	<u>13,927,265.00</u>

Number of students that could be trained in 30 years = $25 \times 30 = 750$

Capital cost per student = Rs. 18,570.00.

RECURRENT COST

These were considered under the categories of salaries, essential amenities, consumable drugs and general stores items. All figures were obtained from pay records, cash registers, consumable drug and general stores registers.

- 2.1. Salaries to Employees:** Worked out on the basis of half payment at the beginning and end and full payment in between.

<i>Category</i>	<i>Number</i>	<i>Salaries paid</i>
Dental Surgeons	4	265,946.00
Tutors Sisters	5	121,900.00
Clerical & House Wardens	5	137,262.00
Watchers & Cooks	3	53,869.00
Labourers: male & female	22	265,696.00
Student Therapists	24	521,712.00
Total ..		Rs. 1,366,385.00

- 2.2. Essential Amenities:** Calculated on the above basis.

Electricity (3 metres)	59,944.00
Water	8,873.00
Laundry	6,205.00
Telephone	5,568.00
Total ..	Rs. 80,590.00

- 2.3. Drugs and Dental Materials:** These were extracted from the consumable stores register (drugs), categorised and priced according to the Institutional Price List of 1984.

<i>Type</i>	<i>1st Year</i>	<i>2nd. Year</i>
Filling material	3,760.00	12,974.00
Dressings	127.00	2,811.00
Cutting & Polishing	493.00	2,775.00
Anaesthetic		5,174.00
Antibiotics & Vitamins	—	1,695.00
Others	158.00	3,554.00
Total ..	Rs. 4,538.00	Rs. 28,983.00

2.4. Others:

Stationery	1,401.00
Cleaning material (soaps, brooms, polish etc.)	4,401.00
Uniform material issued	15,528.00
Petty cash & Postal expenses	670.00
Assessment rates for 1983 & 1984	2,413.00
Total	<u>Rs. 24,413.00</u>

Total Recurrent cost	Rs. 1,504,909.00
Cost per student	Rs. 62,705.00

Total cost of training a Dental Therapist Rs. 81,275.00

Having worked out the expenditure incurred by the Government in training a Dental Therapist for the year 1984, the services provided the by these students to the public should also be considered. The type of operative procedure and the minimal charges levied by the General Dental Practitioners Maharagama, for such procedures were found out and the cost of treatment calculated.

<i>Procedure</i>	<i>Number</i>	<i>Rate</i>	<i>Cost</i>
Simple & Compound Cu fillings	12,734	40.00	509,360.00
Simple & Compound Ag fillings	3,844	50.00	192,200.00
Anterior fillings	268	50.00	13,400.00
Extractions	2,898	25.00	72,450.00
Full Dental Check up	1,670	50.00	83,500.00
	Total		<u>Rs. 870,910.00</u>
Per student			Rs. 36,288.00

The operative procedures performed on the children in monetary value amounted to Rs. 36,288.00 per student therapist. The Dental Health Education and preventive measures which cannot be measured in Rupees and Cents is presumed to be of much greater value.

Acknowledgements

My grateful thanks to Dr. (Mrs.) Mihi-rini de Alwis for the long hours spent extracting the data. I also appreciate the quick

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A COMPARATIVE STUDY OF PIERRE ROBIN SYNDROME & ISOLATED CLEFT PALATE

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Summary

37 patients with Pierre Robin Syndrome, 41 with Isolated Cleft Palate and Skeletal II jaw relationship and 43 with Isolated Cleft Palate and Skeletal I were compared with regard to sex distribution, family history, other associated congenital anomalies and subsequent mandibular growth. Similarities were found between Pierre Robin Syndrome and Isolated Cleft Palate with Skeletal II, suggesting that these two conditions may have a common genesis which is probably non-hereditary and which is different from that of Isolated Cleft Palate with Skeletal I.

Pierre Robin Syndrome (PRS) is characterised by retrognathia, glossoptosis with respiratory obstruction and very often an isolated cleft palate (Woolf et al, 1960). The retrognathia in these infants improve rapidly and the majority will have a normal jaw relationship within a few years (Randall, et al, 1964).

On the other hand there is evidence that a Skeletal II jaw relationship may be a common finding in isolated cleft palate patients. Dixon (1966) reported a frequency of 44% and Fraser and Calnan (1961) 68% in their series. Furthermore these authors had identified these cases as Pierre Robin Syndrome and had reported that retrognathia improved with time. However Dennison (1965) while recognising the fact that cleft palate patients had an increased frequency of retrognathia mentioned that only a small proportion of them had glossoptosis and could be diagnosed as Pierre Robin Syndrome.

Regarding the aetiology of PRS, Fraser and Calnan (1961) thought a dominant gene

was responsible while Chapple (1950) had observed that a single gene cannot affect all the unrelated structures involved in PRS. Walker (1961) was of the opinion that abnormal flexion of the foetal head on the thorax may produce micrognathia and there appears to be some evidence that abnormal flexion may occur during intrauterine development. (Chapple & Davidson, 1941, Parmelee, 1931).

Isolated Cleft Palate may be produced in a number of ways (Fraser, 1967). Failure of the tongue to move from between the palatal shelves at the critical period of palate development could be a major cause of cleft palate. Compression of the developing mandible could impede this tongue movement (Fraser, 1967).

It was thought that a comparison of PRS and Isolated Cleft Palate in regard to some of the epidemiological and clinical features may help to find out more about the apparent association between these two conditions.

Materials and Method

For purposes of this study Pierre Robin Syndrome was diagnosed when respiratory obstruction due to glossoptosis which was caused by a retruded mandible was present in new born infants. Cleft palate in these subjects when present was identified according to Kernahan and Stark classification (1958). Thirty seven such cases were treated at the Oral Surgery Unit, Dental School, Peradeniya and General Hospital, Kandy, Sri Lanka, during the period from January, 1973 through December, 1984. 669 cases of Isolated Cleft Palate were also seen during this period. Two samples age matched with the PRS group; one with Skeletal II jaw relationship (ICP Sk II, $n=41$) and the other with Skeletal I jaw relationship (ICP SkI, $n=43$) were drawn from this pool of cleft palate patients. Jaw relationship was determined by palpating Point A and Point B in the maxilla and mandible respectively. All subjects were screened for hypertelorism, strabismus, syndactyly and spina bifida. Hypertelorism was determined by calculating the canthal index as described by Gorlin and Pindborg (1964).

Parents of the patients were interviewed to find out the presence of cleft palate in the family. The relatives considered in the family history were grand parents, parents, uncles and aunts, siblings and first cousins of the subjects. Jaw relationship of the parents and also the siblings were ascertained in the manner described by Beresford (1965).

The subjects who survived (one in PRS group and another in ICP SkII had died)

were followed up for two years to monitor mandibular growth. Jaw relationship of an age and sex matched group of normal infants were also determined and they were examined for the presence of the same congenital anomalies mentioned above.

The method employed to assess the jaw relationship was considered to be sufficiently accurate for purposes of comparison as errors if any would apply equally to all groups.

The significance test used was the Test for Proportions.

Results

The age of patients in the PRS group ranged from neonate to 11 days, in the ICP SkII group from neonate to 36 days and in the ICP SkI group from neonate to 29 days. A female preponderance was seen in both PRS and ICP SkII groups while an equal distribution of males and females was observed in the ICP SkI group (Table 1). Regarding the family history a significantly higher frequency of isolated cleft palate was recorded in siblings and parents of subjects in the ICP SkI group compared to figures recorded in the PRS and ICP SkII groups (Table 2). Table 3 gives the frequency of subjects with positive family history (FH + ve) for isolated cleft palate. 20.9% of subjects in the ICP SkI group were FH + ve, which was significantly greater ($P < 0.01$) when compared to the FH + ve frequencies in the other two groups. Moreover there was no significant difference between FH + ve frequencies in the PRS and ICP SkII groups ($P > 0.05$).

Distribution by jaw relationship of siblings and parents of all three groups of subjects was similar with no significant difference between the proportions (Table 4) ($P > 0.05$).

Prevalence of other congenital anomalies in these patients is shown in Table 5. Both

PRS and ICP SkII groups showed significantly higher prevalence of hypertelorism and also strabismus compared to ICP SkI group ($P < 0.01$).

Table 6 gives the jaw relationship of subjects at one year and two years of age. A large proportion of PRS and ICP SkII subjects who at infancy had Skeletal II jaw relationship, had shown a marked improvement. Only 16% of PRS and 12% of ICP SkII had retained a Skeletal II. Even in these children a substantial improvement towards Skeletal I was noticeable.

Discussion

Several authors (Fraser & Calnan, 1961, Drillien *et al* 1966) had reported an excess of females among patients with isolated cleft palate. Results of the present analysis reveals that when these patients are divided into Skeletal I and Skeletal II groups the female majority is accentuated in the Skeletal II group but is reduced in the Skeletal I group. Though the numbers analysed may not be large enough to draw definite conclusions the results seem to indicate a similarity in the sex distribution between PRS and ICP SkII patients. Further research in this area may be necessary to draw firm conclusions.

The frequencies of cleft palate in relatives of subjects in both PRS and ICP SkII groups were low compared to the figure in the ICP SkI group. Similarly the proportions of FH + ve patients for cleft palate in the PRS and ICP SkII groups were less than that in the ICP SkI group. These observations suggest that the inheritance of PRS and ICP SkII conditions could be similar to each other but different from that of ICP SkI.

Jaw relationship frequencies of siblings and parents of subjects in the three groups did not show a significant difference and more than 95% of them had Skeletal I.

Drillen *et al* (1966) reported that parents of subjects with isolated cleft palate and Skeletal II did not show a Skeletal II tendency. Furthermore children in both PRS and ICP SkII groups showed a return to Skeletal I within one to two years. Therefore the Skeletal II seen in these patients is probably not hereditarily determined.

The high prevalence rates of strabismus and ocular hypertelorism in the PRS and ICP SkII groups compared to that in the ICP SkI group is another noteworthy finding. Smith *et al* (1960) had reported the occurrence of ocular defects in PRS patients. Hypertelorism is commonly seen in cleft palate patients too (Dixon, 1966).

Findings of the present study strongly suggest that the condition known as Pierre Robin syndrome and isolated cleft palate with Skeletal II probably have a common genesis, which is different from that of isolated cleft palate with Skeletal I. It is also probable that the aetiology of the two conditions is largely non-hereditary.

Edwards and Newall (1985) in a re-assessment of Pierre Robin syndrome had rejected the theory of foetal compression as the cause and had postulated that a metabolic cause could produce both cleft palate and retrognathia. They have stated that there could be wide variability in the intra-uterine morphogenesis of both the palate and the mandible and also in the clinical features. Therefore they suggested that all children with cleft palate and retrognathia should be regarded as cases of Pierre Robin syndrome irrespective of the degree of retrognathia. Findings of the present study support this point of view and seem to say that the difference between PRS and ICP SkII is only in the degree of retrognathia and that glossoptosis and respiratory obstruction are manifestations of extreme retrognathia. This would mean that a substantial proportion of isolated cleft palate would have to be

categorised as Pierre Robin syndrome and because of the confusion this would cause, the terminology may have to be reviewed.

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TABLE I

DISTRIBUTION BY SEX OF SUBJECTS WITH PRS, ICP SkII AND ICP SkI

	N	PRS	%	N	ICP SkII	%	N	ICP SkI	%
Male	15		40.5	15		36.6	20		46.5
Female	22		59.5	26		63.4	23		53.5
Total	37		100	41		100	43		100

TABLE II FREQUENCY OF CLEFT PALATE IN RELATIVES OF SUBJECTS WITH PRS, ICP SkII AND ICP SkI

Relative	Proband has			P
	PRS	ICP Sk II	ICP Sk I	
		%	%	
Grand Parents	0.6	0.6	0.7	> 0.05
Parents	1.3	1.2	2.9	< 0.05
Uncles & Aunts	0.0	0.0	0.5	
Siblings	0.6	0.9	4.1	< 0.05
First Cousins	0.0	0.5	0.2	> 0.05

TABLE III — FREQUENCY OF POSITIVE FAMILY HISTORY FOR ISOLATED CLEFT PALATE
IN SUBJECTS WITH PRS, ICP SkII AND ICP SkI

	PRS		ICP SkII		ICP SkI	
	N	%	N	%	N	%
FHT ve	2	5.4	3	7.3	9	20.9
P		> 0.05		> 0.01		

TABLE IV — JAW RELATIONSHIP OF PARENTS AND SIBLINGS OF SUBJECTS WITH PRS, ICP SkII AND ICP SkI AND OF CONTROL INFANTS

	Proband has						control infants
	PRS		ICP SkII		ICPSKI		
	Sib.	Par.	Sib.	Par.	Sib.	Par.	
Skeletal I	97.0%	96.0%	95.0%	99.0%	98.0%	91.0%	96.0%
Skeletal II	2.8%	3.4%	4.8%	0.8%	2.0%	3.0%	4.0%
Skeletal III	0.2%	0.6%	0.2%	0.2%	0%	0%	0%

∞

TABLE V — FREQUENCY OF OTHER CONGENITAL ANOMALIES IN SUBJECTS WITH PRS, ICP SkII AND ICP SkI AND IN CONTROL INFANTS

Anomaly	PRS		ICP SkII		ICP SkI		Control	
	N	%	N	%	N	%	N	%
Strabismus	4	10.8	5	12.2	3	6.9	1	2.2
Hypertelorism	11	29.7	13	31.7	6	14.1	1	2.2
Syndactyly	0	0	0	0	1	2.3	0	0
Spina Bifida	0	0	0	0	0	0	0	0

TABLE VI — JAW RELATIONSHIP OF SUBJECTS IN PRS, ICP SkII AND ICP SkI GROUPS AT ONE AND TWO YEARS OF AGE

Jaw Relationship	% at one year of age			% at 2 years of age		
	PRS	ICP SkII	ICP SkI	PRS	ICP SkII	ICP SkI
Skeletal I	73	81	97	84	88	97
Skeletal II	27	19	3	16	12	3
Skeletal III	0	0	0	0	0	0

A CLINICAL STUDY OF ODONTOGENIC CYSTS

By

Dr. SUNIL N. FERNANDO, B.D.S., F.D.S., R. C. S.,
Consultant Dental Surgeon, Colombo South G.H.

Summary

A Series of 183 consecutive jaw cysts of the radicular, dentigerous and keratocyst types has been studied. The results have been analysed in respect of Frequency, age, sex, site and the mode of presentation. A comparison has also been drawn with similar studies conducted in other countries in the West as well as in the Asian region.

Cysts are of common occurrence in the jaws even though epithelial cysts are extremely rare in other bones. The epidermoid cyst of the phalange, which has a traumatic aetiology is one such, seen occasionally. The maxilla and mandible, on the other hand, are involved ever so often by epithelial cysts, both in terms of relative frequency as well as multiplicity of cyst-types. Main (1970) attributes this observation to certain features peculiar to the jaws. These are:- Firstly, the presence of potentially proliferative epithelial rests originating from ectodermal epithelium covering developmental facial processes and epithelial remnants following odontogenesis. Secondly, the presence of latent routes for the central passage of epithelium stimulating inflammation via the gingival crevice, periodontal membrane etc. and lastly, the exceptionally rich central as well as peripheral blood supply enabling increased bone reactivity.

The wide spectrum of cysts arising in the jaws ranges from those arising from odontogenic epithelium to those arising from non-odontogenic epithelium to bone cysts. The present study embraced the first category and attention was focussed on three of the more common entities, Viz:— the radicular cyst, the dentigerous cyst and the odontogenic keratocyst.

Materials and Method

This study was undertaken in the Oral Surgery Units of Ratnapura General Hospital from 1975 - 1977 and Kandy General Hospital (Teaching) Sri Lanka from 1978 - 1980. The total number of the above cysts seen during this period was 183.

Each patient went through a systematic examination with detailed history, physical examination and relevant investigations. The features of particular interest for the purpose of this analysis were age, sex, site and mode of presentation.

Surgical intervention was necessary in every patient and this was followed by histopathological examination of all material removed at the Department of Oral Patho-

logy, University of Peradeniya. This gave final confirmation of the diagnosis.

The findings in this series are as given below.

Frequency Distribution

The commonest by far is the radicular type which accounted for 78.7% of the total (Table 1). It would be of interest to note that they have outnumbered the other varieties in all similar studies conducted elsewhere, being consistently over 50%.

Age Distribution

Surprisingly, no cyst was encountered in the first decade (Table 2). In the second decade there was an overall incidence of 31.2%. The peak was attained in the third decade at 44.2%. From then on a sharp drop down to 19.7% was evident in the fourth and this tailed off to 4.9% in the fifth decade.

In studies in the developed countries however, the maximum incidence registered is over a more protracted period from 30 -60 years. Though no cyst had been recorded in this series after the age of 50, cystic involve-

ment as late as in the eighth decade has been reported in other studies.

The graph in respect of radicular cysts alone shows the same general pattern — peak in the third decade.

Sex Distribution

There was a higher incidence all round in males, 57% (Table 3). The experience of research workers elsewhere — both East and West — is also the same. Probably, females on the whole are more conscious of dental care than males and, as a result, harbour fewer non-vital teeth which are the potential foci for the formation of the predominant radicular cysts.

Site Distribution

The maxilla is more prone to get involved in cystic pathology — 67% here (Table 4). Observations in most other studies have been the same.

Taken individually, among radicular cysts 71% were in the maxilla, 67% of dentigerous cysts and 50% of keratocysts. With regard to the latter however, a consistently higher figure in the mandible has emerged in other studies.

To define the site more precisely, each jaw was in turn divided into 4 regions, namely the incisor, canine, premolar, molar — retro-molar regions.

An interesting observation with radicular cysts was that while the maxillary incisor region was involved in 60% and molar region in only 23%, there was a reversal of this situation in the mandible, with molar region involvement in 79% and incisor region only in 7%. (Table 5).

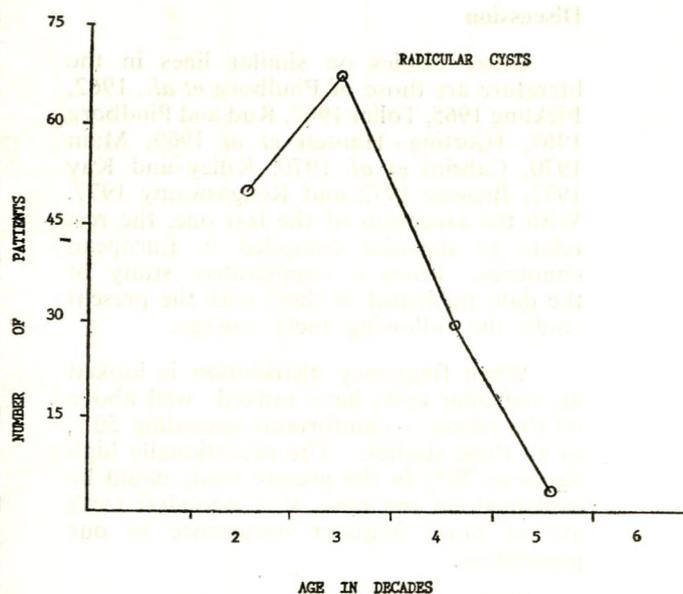
The explanation is that in the maxilla, incisors — on account of their position — are more susceptible to trauma; then again, lateral incisor crowns frequently display congenital anomalies that predispose to pulp infections. In the mandible the molars — particularly the first — become carious early in life.

Dentigerous cysts were in relation to maxillary canine, maxillary and mandibular 3rd molars — all of which erupt late in life. If no space is available in the jaw by that

time, they remain buried and a tooth buried in the jaw is a potential site for dentigerous cyst — formation. Paul Toller has reported dentigerous cyst — involvement in one out of every 100 - 150 buried teeth.

The established, classical site for keratocyst of course is the mandibular molar region and ascending ramus.

The varied clinical presentations together with the numbers in the respective categories are as shown in the graph.



Management

All the patients were treated surgically. Enucleation of the cyst-lining was the method of choice. Even those who had cysts extending high into the maxillary sinus (numbering 21) were treated by enucleation and primary closure, and the post-operative course was uneventful. In five patients there was disruption of the blood clot and packing of the cavity with flavine gauze had to be resorted to. Healing took much longer in these patients but eventually the cavities were filled up satisfactorily.

Marsupialization was resorted to in only 8 instances. Five were dentigerous cysts where prognosis for the involved tooth to erupt into a favourable position was reasonably good. The other three were extensive radicular cysts in patients with cardio—vascular disease which rendered them “poor risk” cases for general anaesthetic.

These patients were followed up quarterly at first and later bi-annually for two years. No signs of recurrence were apparent even with the keratocysts.

Discussion

Other studies on similar lines in the literature are those of Pindborg *et al.* 1962, Fickling 1965, Toller 1967, Rud and Pindborg 1969, Hjorting - Hansen *et al* 1969, Main 1970, Cabrini *et al.* 1970, Killey and Kay 1972, Browne 1972 and Rengaswamy 1977. With the exception of the last one, the rest relate to statistics compiled in European countries. From a comparative study of the data published in them with the present study the following facts emerge.

When frequency distribution is looked at, radicular cysts have ranked well above all the others — comfortably exceeding 50% in all these studies. The exceptionally high figure of 78% in the present study could be explained on the basis that non-vital teeth are of more frequent occurrence in our population.

With regard to the age - pattern, our findings conform more to the Malaysian study and differ strikingly from all the others. The peak in the local and Malaysian study is in the third decade and the trend thereafter is for a sharp decline. In the West, on the other hand, the maximum incidence is over a more protracted and later period from 30 - 60 years. This observation is due to caries, attrition, abrasion and trauma seen continually during this period. The early peak in the third decade in Sri Lanka and Malaysia could be related to the high incidence of caries in our children without a comparative degree of restorative care as in the developed countries — resulting in early loss of these teeth through extraction. As sophisticated facilities for conserving are

readily available in the West, these teeth remain in the mouth much longer and may become the focus of pathology at a later age.

Where sex-distribution and site-distribution are concerned however, there is greater unanimity among the results obtained in the West, those in the Asian region and the present study — males were affected more and there was greater predilection for the maxilla when odontogenic cysts were considered as a whole.

Acknowledgement

The author expresses his gratitude to Dr. B. R. R. N. Mendis and Dr. (Miss) J. Ramanathan, Department of Oral Pathology, University of Peradeniya for their histopathology reports.

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**FREQUENCY DISTRIBUTION OF INDIVIDUAL TYPES OF
ODONTOGENIC CYSTS**

T O T A L	RADICULAR		DENTIGEROUS		KERATOCYSTS		OTHERS	
	NO.	%	NO.	%	NO.	%	NO.	%
183	144	78.7	9	4.9	12	6.6	18	9.8

TABLE I

AGE DISTRIBUTION FOR EACH TYPE OF CYST

TYPE OF CYST	T O T A L	0 — 10		11 — 20		21 — 30		31 — 40		41 — 50		OVER 50	
		No.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%
RADICULAR	144	—		48	33.3	21	43.8	27	18.8	6	4.1		
DENTIGEROUS	9			6	66.7	1	33.3						
KERATOCYST	12			3	25	3	75						
OTHERS	18												
TOTAL FOR EACH DECADE					31.2%		44.2%		19.7%		4.9%		

TABLE 2

5

SEX DISTRIBUTION

TYPE OF CYST	NUMBER IN SERIES	MALE		FEMALE	
		NO.	%	NO.	%
RADICULAR	144	75	52	69	48
DENTIGEROUS	9	6	67	3	33
KERATOCYST	12	12	100		
OTHERS	18	12	67	6	33
TOTAL	183	105	57	78	43

TABLE 3

9

SITE DISTRIBUTION — MAXILLA OR MANDIBLE

TYPE OF CYST	NUMBER IN SERIES	MAXILLA		MANDIBLE	
		NO.	%	NO.	%
RADICULAR	144	102	71	42	29
DENTIGEROUS	9	6	67	3	33
KERATOCYST	12	6	50	6	50
OTHERS	18	9	50	9	50
TOTAL	183	123	67	60	33

TABLE 4

DISTRIBUTION OF CYSTS IN RELATION TO TEETH

(A) RADICULAR (TOTAL 144)

JAW	INCISORS		CANINE		PREMOLARS		MOLARS	
	NO.	%	NO.	%	NO.	%	NO.	%
MAXILLA (TOTAL 102)	57	55.9	6	5.9	15	14.7	24	23.5
MANDIBLE (TOTAL 42)	3	7.1	—	—	6	14.3	33	78.6

TABLE 5

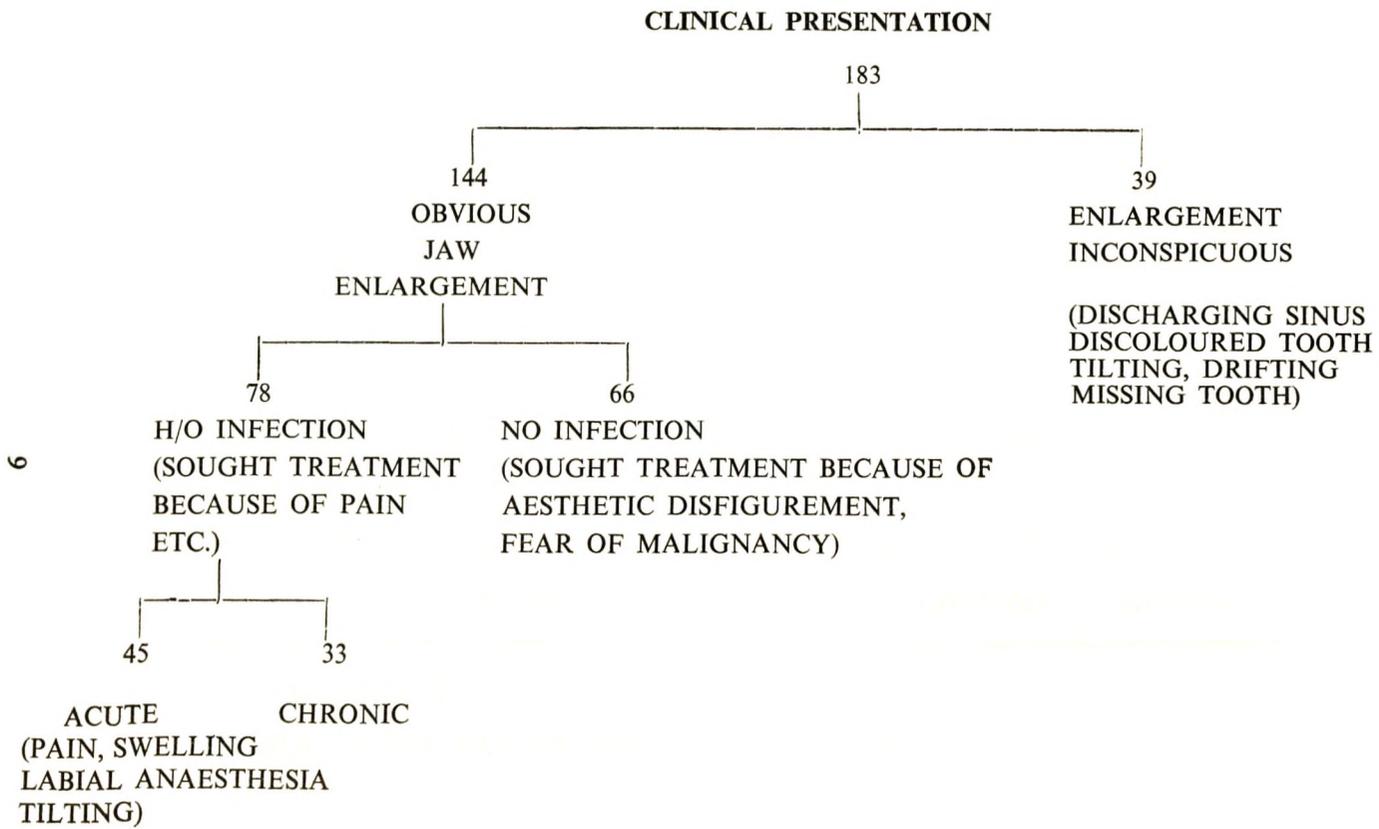


FIG.

Book - Review

FUNDAMENTALS OF CLINICAL ORAL PHYSIOLOGY

By Dr. M. T. M. JIFFRY,

Sri Lanka University Press, Moratuwa.

117 pages.

This primer of clinically oriented oral physiology fulfils a need which most students of dentistry must have felt in their undergraduate and early postgraduate days: that is the need for a readable, simple and reasonably priced book on this topic. Dr. Jiffry's book helps also to bridge the gap between textbooks on general human physiology, which hardly touch on this topic, and more advanced texts on oral-physiology, which cater chiefly to the needs of researchers and specialists who have completed their post-graduate examinations.

This book will also be useful to medical students, specialist dental nurses and any others who might wish to acquire a fairly detailed knowledge of oral physiology.

The book comprises fourteen chapters based on topics selected, I believe, with a shrewd assessment of their importance to the clinician and to candidates for examinations. There are, however, some minor variations between chapters in regard to depth of detail dealt with in them. In general, each topic is treated adequately, although I would have wished for more comprehensive accounts

of the sensation of taste, oro-facial pain, speech production and the immunology of saliva.

As often happens in a first edition, there are some ambiguous, unclear or inaccurate statements which can be smoothed out in subsequent editions. Some of these imperfections are hard to avoid when one is concerned with brevity and simplification.

A serious deficiency is the lack of an index at the end. Two or three references at the end of each chapter, perhaps to a review article on each of the topics, would enable the interested student to pursue matters more deeply, and help enhance the value of this book.

On the whole, I have no hesitation in recommending this book to dental and medical students, dental nurses and all others who wish to have an introduction to this interesting aspect of human physiology.

Professor Colvin Goonaratna,
Faculty of Medicine,
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Sri Lanka.

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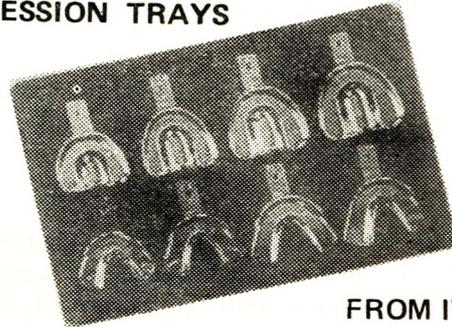
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REPORT-

13th Asian Pacific Dental Congress Delhi

The Sri Lanka Dental Association, for the first time in its History, sent a delegation to the 13th A. P. D. C. held in New Delhi. The Chief Delegate was Dr. Raja Jasinghe, the President and the alternate delegates were Sqd. Ldr. Dr. Asoka Amunugama, the Secretary, Dr. Mrs. Siromani Abeyratne and Dr. Miss Priya Samaranayake.

The delegation left Sri Lanka on the 26th January for Bombay. Dr. Holasut, the Lady President of Thailand, and President of the A.P.D.C. took the Chair when the Congress opened on the morning of 28th January. On her side was Dr. Oliver Henneidge of Singapore, the Secretary General of the A.P.D.C. He is of Sri Lankan origin. Delegations of the following countries were present:— Australia, Burma, Hong Kong, India, Indonesia, Japan, Korea, Malaysia, New Zealand, Pakistan, Phillipines, Singapore and Thailand. Bangladesh and Guam were absent. The meeting was called to order and the roll call taken. At this stage the President called for a vote for the admission of Sri Lanka as a member of the Asia Pacific Dental Federation. The vote was unanimous. The President expressed her happiness in declaring Sri Lanka, a full member of the A.P.D.F. The Chief Delegate for Sri Lanka thanked the President and the chief delegates for electing Sri Lanka into this august body of National Associations, and pledged to support the good work it has done so far. It was a historic day for Sri Lanka as this was the first time the

S.L.D.A. has been admitted to an International Dental Forum. Three presentations were made to the President for future use of the A.P.D.F. The first was the A.P.D.F. Flag, the words A.P.D.F. artistically drawn against a red background. A Scroll Book was then presented — an enormous book, beautifully bound in black leather, to be autographed by the delegates taking part. The Manuel of the A.P.D.F. is the result of exhaustive work, which serves as the source of all information, kept up to date, regarding the A.P.D.F. Every National Association was presented with this manual and remains the property of the A.P.D.F.

The Grand Opening of the A.P.D.C. took place the same evening at Siri Fort Auditorium, specially constructed for the Delhi Asian Games. This was an imposing structure that could seat over 3500. On either side of the dias on the stage were the National Flags of the member countries and the striking Lion Flag of Sri Lanka fluttered for the first time at the A.P.D.C. Dr. Pradip Jayna, the President of the Indian Dental Association welcomed the Delegates and Guests. He made special mention of Sri Lanka. Dr. Holasut addressing the gathering emphasised that 3/4ths of the worlds, population inhabited the Asia Pacific Region, and with better organisation of the Professional Associations, a great contribution could be made to the Dental Health of the World.

The Chief Guest at the opening was Shri N. D. Tiwari, the Hon'ble Minister of Finance, and the Guest of Honour was Shri Arjun Singh, the Minister of Commerce. The Secretary-General, Dr. Oliver Hennedige conducted a roll call of Nations and eight members from Sri Lanka (including accompanying persons), responded waving the National Flag to a tremendous ovation from the large gathering. A special commemorative stamp was released by Shri Arjun Singh, who is also the Minister of Telecommunications. The stamp depicts a smiling rural youth conforming to the 13th A.P.D.C. slogan "HEALTHY TEETH MEANS A HEALTHY BODY." It is interesting to note, that one of the first stamps issued, relating to teeth was a Ceylon Stamp issued in 1935, depicting the Holy Temple of the Tooth. The Chief Guest, the Hon'ble Shri Tiwari delivered the Inaugural Address. He emphasised the importance of the Dental Profession, especially in the Asian Pacific countries. A message from the Prime Minister Rajiv Gandhi was read by Dr. Nishad Parikh. A colourful dance and music programme by the renowned Ananda and Tanusree Shankar, brought the curtain down on the inaugural function. Dr. Ratan Doctor hosted a Dinner at the Hotel Mayura Sheraton following the Opening Ceremony. Dr. Ratan Doctor has been a leading figure on the Dental scene of India. He was subsequently elected the new President of the Asia Pacific Dental Federation. Dr. Ratan has been in Sri Lanka on many occasions and has close relatives in this country. I also had the privilege of being introduced to Dr. Jalili who was inducted as the President of the Indian Dental Association, soon after the A.P.D.C. Dr. Jalili is an Orthodontist from Bombay and a close friend of Dr. Dikshit, who was in Sri Lanka last year for our Sessions. I had several meetings with Dr. Jalili and we exchanged tokens of friendship. He is most willing to help the S.L.D.A.

in any joint ventures we suggest. It is rather interesting to note that while the President of the Indian Dental Association is chosen annually, the Secretary holds office for a period of five years.

The first resolution to be presented, was put forward by the Singapore Dental Association 'Any candidate seeking to hold office in the Executive Council of the A.P. D.F./A.P.R.O. should be nominated or supported by his/her National Dental Association. All members were almost unanimous regarding the principle involved, but the House decided to postpone the issue for the next Congress. The various reports were then tabled and adopted. These reports are available at the S.L.D.A. Office for perusal. Dr. Yoon Heung Reyel, the President of the Seoul Dental Association and Prof. Jhee Heung Taik a former President, formally invited Sri Lanka to participate in the 14th A.P.D.C. to be held in April, 1989.

On the evening of the 29th was Carnival time at the Congress venue. It was an elaborate review of Indian Culture and Life. The production was estimated at a million rupees. The same night Dr. Kazura Yamazaki, on behalf of the Japan Dental Association hosted a reception at the Hotel Ashok. Dr. Katsuo Tsurumaki an old friend of Sri Lanka was also present. The Japanese reception was one of the best parties given during the Congress. We were able to get in very close contact with the Japanese Association, who had already granted a Scholarship to Sri Lanka. We were made to understand that the Japanese are willing to provide new and modern equipment to the University. Representatives from Japan Dental Company have been in contact with me.

The next day 30th was set apart for the Chief Delegates to visit the Taj Mahal in Agra. We set off from Hotel Ashok before dawn, through the Haryana State, reached Agra after five hours. The sight of Taj Mahal was almost ethereal — a dream. We were then taken to the Red Fort, where Shah Jehan was confined. This proved a good occasion for the Chief Delegates to get better acquainted. The delegation from Singapore included Dr. Teresa Lon, the alternate delegate, the Director, School Dental Service. She is expecting two Schools Dental Surgeons from Sri Lanka in May for a two week visit. Dr. Wong Yew Cheong is also the Chairman, Asian Section of the Academy of Dentistry International. We have made plans to inaugurate a Sri Lankan Section.

On arrival in Delhi that night, we were hosted by the Ambassador for Korea at his residence. His Excellency and wife warmly received the Sri Lanka Delegate. The Koreans are setting the stage for the 14th

A.P.D.C. They are expecting Sri Lanka to participate fully at this Congress. The Korean reception was followed by Cocktails and Dinner hosted by the Morita Corporation of Japan. Their representatives were in Sri Lanka during the first week of February to do an evaluation.

The final business meeting was devoted to elections. Madam President Dr. Holasut bade farewell to a standing ovation. The Chief Delegate for Sri Lanka presented her with a copy of the First Oral Health Survey. Dr. Ratan Doctor of India was unanimously elected the new President. Sri Lanka co-nominated Dr. Oliver Hennidige as the Secretary General and was re-elected. The A.P.D.F. Banquet was held at the Taj Palace. The menu and the Cocktails were indigenous. This event brought down the curtain on the 13th A.P.D.C.

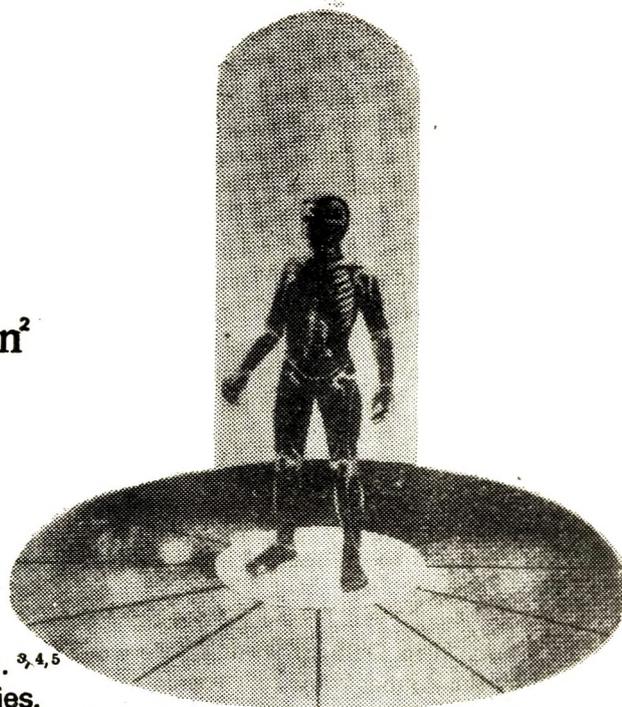
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ORGANISATION OF PROFESSIONAL ASSOCIATIONS

ACHIEVEMENTS AFTER A DECADE AND ITS CONTRIBUTIONS TO THE DENTAL PROFESSION

By

Dr. H. W. M. COORAY*

A meeting of the representatives of Professional Associations convened by the Association of Scientific & Technical Workers of Sri Lanka was held on 5th December, 1974 at the Public Service Engineers Union Hall where it was resolved to form an Organisation of Professional Associations.

On 29th April, 1975 the representatives of the Professional Associations adopted the Constitution and took steps to elect the first office bearers, and the first executive council of the association. The association thus formed had representatives from twelve professions, namely, Accountancy, Architecture, Dentistry, Engineering, Gemmology, Law, Librarianship, Medicine, Pedagogy, Science, Surveying and Veterinary Science. Dr. A. Ranjan Abeysinghe representing the Ceylon Dental Association and Dr. Srilal A. Silva representing the General Dental Practitioners Association were representatives of the Dental profession, are founder members of the organisation.

The Constitution of the Organisation of Professional Association defines:—

- (1) A PROFESSIONAL as one who has undergone learning and training in a particular vocational discipline leading to a University degree or an equivalent qualification or recognition which entitles him to practice that discipline.
- (2) A PROFESSION means a vocation, in which a professional knowledge of some department of learning and training in a particular occupational

discipline leading to a University degree or equivalent qualification or recognition, which is an entitlement to the practice of that discipline, is used in its application to the affairs of others or in the practice of an art or science founded upon it.

The object of the Organisation, as laid down in its constitution are:—

- (a) The providing of a forum for discussion of matters of professional interest and the consideration of all matters requiring multi-disciplinary study.
- (b) The promotion of the interest of the professions and safeguarding of the common interest of the professions.
- (c) The fostering of the participation by the professions in all matters of national and regional interest and promoting such interest by co-operation with both Governmental and Non-Governmental Organisations.
- (d) The promotion of the establishment of an Academy of Professions.

* Forum member of S.L.D.A., Asst. Secretary O.P.A.

- (e) Furthering the development of existing and new professions in the country.
- (f) The provision of such facilities and services as are conducive to the functioning and development of the various constituent bodies.
- (g) The setting up of a Professional Centre for the promotion of the aims and objects of the organisation and the conduct of its business and activities.

The proper functioning of the organisation rests with the Executive Council, which consists of:

- (1) ASSOCIATION MEMBERS — They are nominated by member associations having membership of 200 or over.
- (2) REPRESENTATIVE MEMBERS — They are members representing the different professions on the basis of one member for each profession.
- (3) EX - OFFICIO MEMBERS — President, Vice - Presidents, Past Presidents, General Secretary, Treasurer, Editor, Assistant Secretaries, Assistant Treasurer.

The Professions specified for membership and represented in the Executive Council are as follows:

- (a) Accountancy
- (b) Architecture
- (c) Dentistry
- (d) Engineering
- (e) Gemology
- (f) Law
- (g) Librarianship
- (h) Medicine (Registered under Sec. 49 of the Medical Ordinance)
- (i) Pedagogy
- (j) Science

- (k) Surveying
- (l) Veterinary Science
- (m) Management
- (n) Banking
- (o) Economics
- (p) Health (Registered under Sec. 41 of Medical Ordinance).
- (q) Town Planning.

In order to facilitate the working of the organisation the Executive Council has appointed various standing committees to carry out the objects of the Association. They are:—

- (1) Professional Centre Committee
- (2) Academy of Professions Committee
- (3) Professional Affairs Committee
- (4) Constitution and By-Laws Committee
- (5) Membership Committee
- (6) Library Committee
- (7) Cultural & Social Activities Committee
- (8) Restaurant & Bar Committee
- (9) Sports & Recreation Committee
- (10) Public Relations Committee
- (11) Journal Committee
- (12) Outstation Professional Clubs
- (13) NGO Co-ordinating Committee

The setting up of the Professional Centre was due to the untiring efforts of the early Committees of the Association. Dr. Nath Amerakone, our First President who was as the then Secretary to the Ministry of Housing & Construction negotiated with the Government and obtained a Grant of Land in the Race Course complex. The cost of construction of the present building was met by a Grant of £ 55,000/- from the Commonwealth Foundation and with the financial support of the Associations, who occupy space. Mr. C. Kumarasuriar then Minister of Housing & Construction, Posts & Telecommunications laid the foundation stone for this Centre on 31st March, 1977. The Professional Centre was ceremonially

declared open on the 16th of September, 1982 by His Excellency, The President J. R. Jayewardene.

The Centre now houses a Public Library, Reception Area, Administrative Block, Library, Conference Hall, Offices of member associations, Restaurant and Bar.

The Ceylon Dental Association which was a founder member association and the Government Dental Association which joined subsequently purchased 200 square feet of office space each in this Centre. These offices have contributed immensely in helping to establish an administrative secretariat for these associations and thereby facilitate the achievement of the objectives of these two associations. The auditorium is being used by the profession for its lectures in continuing education programs and the meetings of the association. The social gatherings are held in the restaurant and bar. The secretarial services offered by the Centre makes it easy for the office-bearers to have their typing, photocopying, cyclostyling and other services done. When Mr. Paul Scoon, Deputy Director of the Commonwealth Foundation visited the Professional Centre in 1977, the President of the S.L.D.A. at that time convinced him of the Dental Professions need for a Library and was able to obtain a Grant of £ 500 to start the Dental Association Library.

The next stage of development envisaged is the building of more offices, a large auditorium and the sports complex consisting of indoor stadium, tennis court and a swimming pool.

All this progress in the course of such a short period of time was possible due to

the untiring efforts of the successive executive committees headed by Dr. Nath Amerakone, Dr. S. A. Cabraal, Mr. H. W. Jayewardena, Mr. M. Manoharan, Dr. Sirilal A. Silva, Mr. W. P. Gunatillake and Mr. Surath Wickremesinghe assisted by their able general secretaries Mr. W. P. Gunatillake, Dr. D. R. Karunaratne, Mr. W. B. A. Jayasekera, Mr. U. L. M. Farook and Mr. Parakrama Karunaratne and all other members of the executive councils. Contributions made by Dental Surgeons, Dr. L. S. W. Dassanayake Vice - President, Dr. Reggie Gunatillake Vice - President and Dr. Rajitha Senaratne, representative of the Dental Profession are laudable and noteworthy in this short period of the existence of the O.P.A. At a time when the O.P.A. created a category of life membership of the Centre in order to raise funds for certain capital expenditure for development as many as 15 dental surgeons joined as life members. It was during the presidency of Dr. Sirilal A. Silva, who was a past president of the Sri Lanka Dental Association, that the library, public lobby, reception area, conference hall and the new administration block was constructed.

At a workshop held recently on "O.P.A. and the Future," numerous ideas and suggestions were discussed. Among them were the improvement of facilities to member associations, support to member associations, O.P.A.'s role on national issues and community relations. The executive council of the O.P.A. hopes to incorporate these ideas into the working of the Centre in the near future. An enhancement of the contribution from the O.P.A. to the profession and vice versa could be expected in the future.

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ORBITURY

LATE Dr. E. PARAKRAMA FERNANDO

(Vote of condolence — Faculty Board Meeting — 6/1/88)

Many of you perhaps knew E.P. as a teacher when you were yet undergraduate students in the University. I have known E.P. since the forties. We were in the core group that started the Kandy Buddhist Students Association which I believe flourishes even today. E.P. joined the Dental School in 1972. After serving as a Demonstrator, Lecturer and Senior Lecturer, he moved to the Department of Prosthetics, where he stayed till he retired in 1983.

There are facets of E.P.'s life which several of us perhaps know little about. He was an active member of the Ceylon Dental Association and was in fact, the first to propose, in 1961, that a Dental Surgeon should head the Dental Services in the Department of Health. E.P. was an athlete of no mean repute, and he was also a stylish tennis player.

During his long career in the University, E.P. has contributed to curriculum development. He manned the Division of Community Dentistry before departmentalization of the Dental School. He was an active member of the Medical Education Unit, and more importantly, in the field of Philosophy. Sometime between 1978 and 1979 he edited a pamphlet called the 'Ideas Forum' and indeed, many thought provoking ideas appeared in it. E.P. also edited a video film of which he was proud. He participated in Panel discussions — some of which have appeared on the National Television, and at various times he has contributed his expertise to Workshops on Medical Education. He introduced a new subject — "Human Ethics" through which he tried to inculcate a new dimension to the University undergraduate thinking.

E.P. was an idealist. He had a firm conviction that a University should first and

foremost, concern itself with intellectual enquiry. It's a pity that few of us, steeped in the mundane day to day affairs, understood him completely.

He based his thoughts and actions on the age old questions what am I? Who am I? In this quest he did not attach disproportionate weight to any creed or view. He has attended Church services: Retreats: He has visited Sai Baba in India, and has written a very interesting article on his perception of this visit. E.P. was well read in Comparative Religion and he could hold his own at any discussion on the subject.

Striking a personal note again, E.P. has agreed with me, and disagreed with me on many issues. At times I have had to make unpleasant decisions. But the beauty of E.P. was that he harboured no rancour towards anyone. He shrugged his shoulders and took everything as a matter of course.

After E.P. retired, he visited me many times in my Office, and at home where we had pleasant chats sometimes late into the evening. I came to value his constructive criticism and judgement. I sought his advice and trusted him.

E.P. was happy at Nilambe — a place after his own heart for Buddhist meditation.

When he came down to Peradeniya once a week, he led a small group of students to the Gatambe Temple for discussion on Buddhist Scriptures.

His death on the 14th November, and particularly the manner of E.P.'s death, shocked all those who knew him. It is indeed incomprehensible that the gentlest of men should have met such a violent death. This is perhaps an indication of the times we live in!

If E.P. could comment on his death, I can picture him with his characteristic smile, saying that he has stubbed his toe on a rocky section of that long road, he calls 'Samsara.' May our friend E.P. find the rest of the way smooth and easy.

Professor K. Bamberadeniya,

Dean/Faculty of Dental Sciences.

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