

Recurrent Parotid Enlargement - A study of clinical, sialographic and treatment aspects of 68 cases

N. A. de S. AMARATUNGA

Division of Oral Surgery, Dental School, University of Peradeniya

AND

PREMINI AMERASINGHE

Department of Radiology, General Hospital, Kandy.

SUMMARY 68 patients with recurrent parotid enlargement were investigated with regard to age, sex, duration of the disease, sialographic appearance and treatment methods. Duration was found to be shorter and the sialographic changes milder in children compared with adults, indicating a possible difference in the disease process. The treatment was based on the age of the patient and sialographic appearance. Salivary stimulation was employed in all children and in adults who had mild sialographic changes, and ligation of the duct was carried out in adults who had advanced sialographic changes. These two methods gave success rates of 88% and 66% respectively, suggesting that conservative methods of treatment could be adapted for all age groups and in all stages of the disease.

INTRODUCTION

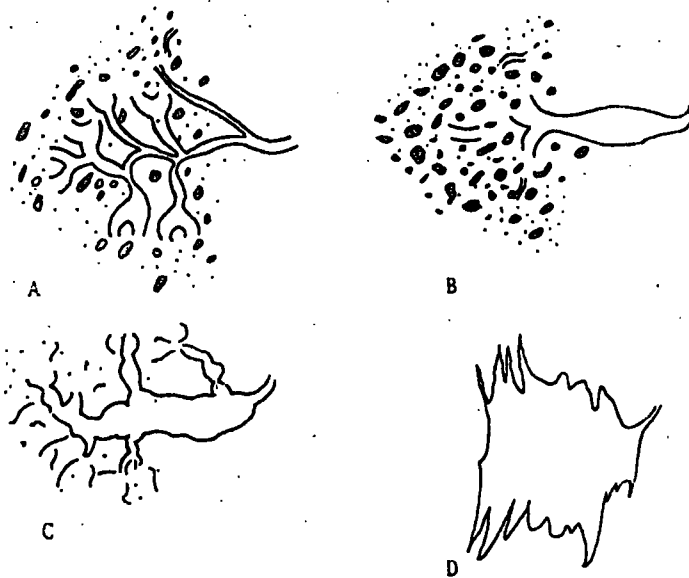
Recurrent parotid enlargement is a chronic disease of inflammatory origin, due mainly to a combination of stagnation and infection. Yet its aetiology is not well understood and its clinical progress has not been adequately followed up. Views on its treatment differ widely.⁸

The theories put forward to explain its aetiology vary from stagnation due to various reasons^{4, 10, 11} to auto-immunity^{7,9}. Maynard⁸ postulated that the primary cause is a reduction in salivary flow which predisposes the gland to stagnation and infection. What causes the reduction in secretion initially is, however, not clear. The natural history of this disease could be different in children from that in adults⁸ and some authors⁶ recognised a primary sialo-angiectasis which occur chiefly in children and a secondary type seen in adults.

Several methods of treatment have been attempted with varying degrees of success. Antibiotics systemically and also locally via the duct have been used.^{4,6} Duct dilatation was advised by Blair and Padgett.¹ Destruction of the gland was attempted with nerve avulsion¹² and by ligation of the duct.^{2,8} Parotidectomy,

though a certain cure, should be considered as radical surgery with the inherent complication of facial palsy, and is therefore to be avoided as far as possible⁸. Thus conservative methods of management based on the functional state of the gland, either by salivary stimulation which prevents stagnation and helps the gland to recover, or by ligation of the duct which causes atrophy of the gland, was advocated by Maynard.⁸

The stage of the disease and the degree of gland damage could be assessed by several means. Sialectasis seen in sialographs is considered to be an indication of early disease. Another sialographic change that is seen in the early stages is branch duct dilatation. Dilatation of the main duct could mean advanced stage of disease and gross dilatation with strictures would indicate further damage to the gland. Total disorganisation with no identifiable structural pattern is seen when the gland is completely destroyed (Fig. 1).



- A Sialectasis and Branch Duct changes
- B Sialectasis and Main Duct changes
- C Gross Main Duct changes
- D Total Disorganisation

Fig. 1 Diagram of sialographic appearances

The other methods of investigation are measuring the secretory rate⁸ and radiosialometry using radionuclides³. These require sophisticated equipment. In Sri Lanka diagnosis and assessment have to depend on clinical methods and sialography.

Recurrent parotid enlargement has not been studied in Sri Lanka. The present study analyses some clinical aspects, sialographic appearances and results of treatment.

MATERIALS AND METHODS

68 patients were collected over a period of twelve years, from January 1974 through December 1985 from those who attended clinics at General Hospital, Kandy, Division of Oral Surgery, Dental School, Peradeniya and in private practice. Patients in whom Sjogren's syndrome was either diagnosed or suspected were excluded. The age and sex of the patients and the duration of the disease were determined and all patients were subjected to sialography after controlling the acute infection when present.

Lipiodol was injected using a metal cannula until the patient experienced a slight discomfort in the parotid region. Lateral radiographs were taken. Interpretation of the sialographs was based on the principles described by Maynard.⁸

Patients who were below 20 years of age were treated by salivary stimulation. Subjects who were older than 20 years were treated by salivary stimulation when their sialographs were normal or showed nothing more than branch duct changes. Salivary stimulation was by frequent chewing of sour edibles such as citrus fruits. Patients who had main duct changes or more advanced changes were treated by ligation of the duct, performed in the manner described by Diamant.²

Patients were followed up for a period of one year and, if symptom-free, they were considered as cured.⁸ Recurrence of symptoms or development of complications like salivary fistulae following duct ligation were considered as failure of treatment.

RESULTS

26 of the patients were males and 42 were females, the male female ratio being 1:1.6. 31% of the subjects belonged to the group over 40 years of age and 25% were below 20 years (Table 1). Only one side was affected in 82% of subjects while in the rest both glands were affected.

TABLE 1. Distribution by age and sex of patients with recurrent parotid enlargement

Age yr	Male	Female	Total
≤10	2	4	6
11—20	4	7	11
21—30	2	11	13
31—40	9	8	17
≥41	9	12	21
Total	26	42	68
Age Mean S.D.	27.3 7.34	24.2 8.13	25.4 7.84

Table 2 gives the sialographic appearance in relation to the duration of the disease. Duration was less than 2 years in 31 patients and in 74% of these there was normal filling, sialectasis, or branch duct changes only. Duration was longer than 2 years but less than 4 years in 24 patients and 75% of these had main duct changes. 13 patients had a duration longer than 4 years and 85% of them had advanced changes such as gross main duct dilatation with strictures and total disorganization.

TABLE 2. Sialographic appearance in parotid glands in relation to duration of the disease

Sialographic appearance	Duration of disease in years			Total
	<2	2—4	>4	
Normal	14	0	0	14
Sialectasis with branch duct changes	9	6	2	17
Sialectasis with main duct changes	5	13	6	24
Gross main duct changes	3	5	4	11
Total disorganization	0	0	1	2
Total	31	24	13	68

Table 3 shows the sialographic appearance in relation to age. All subjects under 20 years of age had normal appearance or only sialectasis with branch duct changes. 57% of the group 21 - 40 years of age had more advanced changes such as sialectasis with main duct changes or gross main duct changes, while 95% of those above 41 years of age showed similar changes.

TABLE 3. Sialographic appearance of diseased parotid gland in relation to age of patients

Sialographic appearance	Age in years			Total
	≤20	21—40	≥41	
Normal	12	2	0	14
Sialectasis with branch duct changes	5	11	1	17
Sialectasis with main duct changes	0	9	15	24
Gross main duct changes	0	8	3	11
Total disorganization	0	0	2	2
Total	17	30	21	68

The relationship between age of the patients and the duration of the disease is shown in Table 4. 82% of the patients who were below 20 years of age had a duration of 2 years or less. A smaller proportion (43%) in the group 21-40 years had a similar duration. A larger proportion of those above 41 years had the condition for over 2 years. The correlation is shown in the scatter diagram (Fig. 2) and the coefficient of correlation was found to be 0.82 with a standard error of 0.122.

TABLE 4. Duration of recurrent parotid enlargement in different age groups of patients

Age yr	Duration in years			Total
	<2	2—4	>4	
≤20	14	3	0	17
21—40	13	11	6	30
≥41	4	10	7	21
Total	31	24	13	68

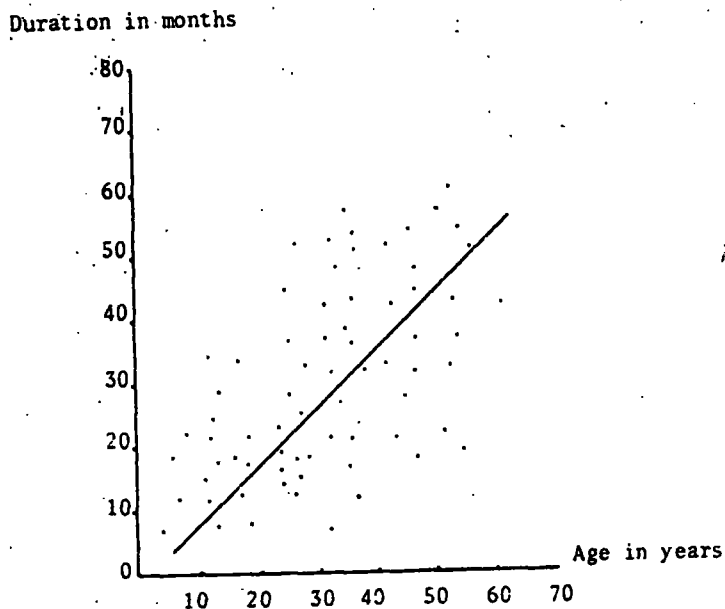


Fig. 2. Relation between duration of disease and age of patient with recurrent parotid enlargement

Table 5 gives the results of treatment. Stimulation of salivary flow has been successful in 88% of subjects and ligature of the parotid duct in 66%. The overall success rate was 76%. The difference between the number successfully treated and those showing failure was statistically significant, in both methods. Of the 12 patients in whom ligature failed, 4 subsequently developed salivary fistulae, a further 5 patients did not attend follow-up clinics and the other three responded to salivary stimulation, were free of symptoms for about six months but later developed swellings. The 4 patients in whom stimulation failed initially were also not available for further treatment.

TABLE 5. Results of treatment of recurrent parotid enlargement

Result	Treatment method					
	Stimulation		Ligature		Total	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Successful	29	88	23	66	52	76
Unsuccessful	4	12	12	34	16	24
<i>p</i>	<0.001		<0.05		<0.01	
Total	33	100	35	100	68	100

DISCUSSION

The fact that recurrent parotid enlargement is more common in females have been observed by previous workers.⁹ The reason is obscure. The incidence seems to be higher in the groups over 20 years of age. It is possible that in younger patients there is spontaneous recovery. Some authors believe that in children recovery could occur around puberty⁵.

Sialographic evidence of advanced disease were more frequently observed in the older patients. Furthermore sialographic appearances of advanced disease seem to be associated with a longer duration of the disease and milder types (in younger subjects) with a shorter duration. Another noteworthy correlation was that in the older patients the disease had a longer duration while the younger had a shorter history. Thus it seems possible that the younger people have an ability to control the disease process and even get rid of it after a period of time whereas in the older patients the disease continues for a longer time with resultant gland destruction. It is also possible that the predisposing and causative factors in the younger people may be different from those in the adults. There could be two types of this disease, a primary type seen chiefly in children and a secondary type seen mainly in adults.⁷

Results of treatment supports the view that the majority of recurrent parotid enlargements could be managed conservatively⁸. Parotidectomy could be completely avoided. Criteria for deciding on the method of treatment could be the age of the patient and sialographic appearance. Thus the methods of diagnosis and treatment adapted in the present study seem to be appropriate to Sri Lanka.

REFERENCES

1. BLAIR, V. P. and PADGETT, E. C. (1923). Pyogenic Infection of the Parotid Glands and Ducts. *Archives of Surgery* 7, 1-9.
2. DIAMANT, H. (1958). Ligation of the Parotid Duct in Chronic Recurrent Parotitis. *Acta Otolaryngologica* 49, 375-380.
3. EUEROTH, C. M. and LIND, M. G. (1976). Radiosialometry. I. A method of Evaluation of Salivary Gland Disorders. *Acta Otolaryngologica* 81, 130-134.
4. JONES, H. E. (1953). Recurrent Parotitis in children. *Archives of Diseases in Children*, 28, 182-187.
5. KATZEN, M. and DU PLESSIS, D. J. (1964). Recurrent Parotitis in children. *South African Medical Journal* 38, 122-126.
6. KIDD, H. A. (1953). The Parotid Gland. *Medical Proceedings* 230, 52-61.
7. KILLEY, H. C. SEWARD, G. R. and KAY, L. W. (1975). *An outline of oral Surgery Part II*, p. 216-231. Bristol: John Wright.
8. MAYNARD, J. D. (1965). Recurrent parotid enlargement. *British Journal of Surgery* 52(10), 784-789.
9. MOSBECH J., and KRISTENSON, H. P. O. (1960) Chronic Sialoadenitis caused by Autoimmunization. *Acta Medica Scandinavica* 168, 147-151.
10. PAYNE, R. T. (1933). Recurrent Pyogenic Parotitis: Its Pathology, Diagnosis and Treatment. *Lancet* I, 348-353.
11. ROSE, S. S. (1954). A Clinical and Radiological Survey of 192 cases of Recurrent Swellings of the salivary glands. *Annals of the Royal College of Surgeons of England* 15, 374-377.
12. WAKELEY, SIR CECIL (1948). The Surgery of the Salivary Gland. *Annals of the Royal College of Surgeons of England* 3, 289-294.