Rectal Paraldehyde in Oil

Case No.	Type of Case [P = Primipara] [M = Multipara]	Delivery	Length of Labour			No. of Hours Between Rectal Injection and Delivery	Condition of Baby	Haemorrhage	Amnesia and Analgesia
			1st Stage	2nd Stage	3rd Stage				
1	P.	Forceps (for foetal distress)	20 hrs. 35 mins.	1 hr. 25 mins.	20 mins.	5 hrs.	Drowsy	Normal	Fair
2	P.	Spontaneous	28 hrs.	1 hr. 40 mins.	10 mins.	5 hrs.	Satisfactory	+++	Good
3	P.	Forceps (for persistent posterior and foetal distress)	13 hrs. 30 mins.	1 hr. 45 mins.	30 mins.	18 hrs.	Limp and blue	Normal	Poor
4	P.	Spontaneous	10 hrs.	2 hrs.	30 mins.	4 hrs.	Blue asphyxia	++	Good, but restless
5	P.	"	62 hrs.	1 hr. 20 mins.	40 mins.	18 hrs.	Satisfactory	+	Fair
6	P.	Forceps (for delay in 2nd stage)	27 hrs.	3 hrs.	15 mins.	8 hrs.	White asphyxia	Normal	Very fair
7	M.	Spontaneous	39 hrs.	20 mins.	5 mins.	12 hrs.	" "	+	Good
8	P.	Forceps (for foetal distress)	18 hrs.	35 mins.	15 mins.	12 hrs.	" "	Normal	Very fair, but restless
9	P.	Spontaneous	25 hrs.	1 hr. 15 mins.	15 mins.	3½ hrs.	Blue asphyxia	"	Very good
10	P.	"	8 hrs. 20 mins.	30 mins.	10 mins.	1½ hrs.	Satisfactory	"	"
11	P.	Forceps (for persistent posterior)	13 hrs.	2 hrs. 10 mins.	10 mins.	3½ hrs.	"	"	Very fair
12	P.	Spontaneous	46 hrs.	1 hr. 30 mins.	10 mins.	4 hrs.	"	"	"
13	P.	Forceps	34 hrs. 15 mins.	1 hr. 22 mins.	13 mins.	8 hrs.	Blue asphyxia	"	Very fair, but restless
14	P.	Spontaneous	24 hrs.	1 hr. 40 mins.	10 mins.	5 hrs.	Shocked	"	Good, but very restless
15	P.	"	32 hrs.	2 hrs. 15 mins.	40 mins.	7 hrs.	Satisfactory	"	Good

reached, gives a complete rest to a tired patient and gives her time for recuperation.

2. The drugs are safe, cheap, can be obtained anywhere, and can be kept as stock mixtures.

3. There is no elaborate administration. Any skilled person can give the rectal injection.

4. The method can be used for cardiac, toxæmic, or chest cases.

We do not claim to have discovered anything new, for American observers have quoted thousands of cases in which the Gwathmey technique has been used as a routine. In this country, however, rectal methods have not won any considerable popularity, and it is for this reason that I wish to show that there is a very definite field for this form of analgesia.

The incidence of forceps deliveries for the rectal ether cases is two and a half times greater than the average for the year, and for the paraldehyde cases three times greater than the average. I must, however, draw attention to the fact that the cases quoted in the tables are unselected groups which have received this form of analgesia for the very reason that they are the more complicated cases of labour, so that it should not be concluded that these methods lead to more instrumental deliveries. The number of lacerations including episiotomy cases in these groups are also 20 per cent. and 8 per cent. higher than the average, but again for the same reason I think it cannot be proved that these are attributable to the analgesic methods.

The resident medical officers have volunteered the information that the rectal methods seem to produce a marked relaxation of the perineum.

In the tables I have reserved the comment "very good" for those patients who have either had no recollection of events after the injection or have made such remarks as "It was wonderful." From our records there is no evidence that these forms of analgesia increase the stillborn rate or the neo-natal rate. The amount of haemorrhage has been tabulated as: normal; + indicating loss slightly above the average; ++ loss considerably above the average; +++ a definite post-partum haemorrhage. There is no evidence to suggest that these methods lead to increased post-partum haemorrhage.

I am much indebted to Professor Fleming for her permission to produce these results.

PROGNOSIS OF CARCINOMA OF THE CERVIX

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In a paper published in the *British Medical Journal* Fletcher Shaw and Dougal¹ remarked on the scarcity in this country of statistical reports on the results of radium treatment of carcinoma of the cervix over a five-year period. The following analysis of 497 consecutive cases treated at St. Thomas's Hospital between the years 1918 and 1930 inclusive may be of interest. In selecting the cases all patients who had previously received treatment elsewhere have been excluded, and only those whose entire care was undertaken by St. Thomas's Hospital are considered.

Follow-up Clinic

After discharge from the hospital all patients suffering from malignant disease of the genitalia are encouraged to attend a special "follow-up clinic," usually at intervals of three months, but more often if the condition of the patient makes this desirable. In this way the progress of each case can be noted, and further treatment given if necessary. Not all patients are able or willing to attend this clinic, for some live in distant parts of the country and others drift away from the hospital after a few years have passed without recurrence of symptoms. The almoner's department makes every effort to trace these patients, but unnotified changes of address make the loss of a certain proportion inevitable. The ill patients nearly always keep in touch with the hospital, and probably only a small number of deaths are missed; it is usually the fit and healthy patient who becomes tired of attending the clinic, and who does not trouble to communicate her change of address. For example, in the present series of cases the majority of patients lost sight of had been progressing favourably when last seen, and a few had been free from recurrence for four years or longer. Of the 497 patients treated in the years under review 458, or 92.2 per cent., were followed for at least five years or until death. In recent years it has been the practice

to confirm by microscopy the diagnosis in all cases of carcinoma of the cervix. A few of the earlier cases did not have this check, but throughout the series any case in which the diagnosis was in reasonable doubt had this settled by biopsy.

The Age Factor

The patients treated fell into the age groups shown in Table A. In column 1 are shown all the cases treated; column 2 contains only those which were adequately followed up. The average age in the whole series was 50.2 years; and over 50 per cent. of the patients were aged between 45 and 59 years.

TABLE A.—Age Groups in Patients Treated

Age in Years	Number of Cases	
	Column 1	Column 2
20-24	2	2
25-29	10	9
30-34	18	16
35-39	49	48
40-44	68	62
45-49	100	95
50-54	81	74
55-59	74	69
60-64	57	49
65-69	24	22
70-74	11	9
75-79	3	3
Total	437	458

In the remainder of this paper only those cases appearing in column 2—that is, those that were adequately followed—will be dealt with. These patients fell into the groups shown in Table B, using the classification advocated by the League of Nations Radiological Subcommittee. The numbers of patients alive after three and five years are shown in the same table.

TABLE B.—Classification and Survivals

Extent of Disease	No. of Cases	3-year Survivals	5-year Survivals
Stage 1	79	54	51 (64.6 per cent.)
Stage 2	90	42	26 (28.8 ..)
Stage 3	206	18	6 (2.9 ..)
Stage 4	83	3	0
Total	453	117	83 (18.1 per cent.)

In allotting cases to the different stages a large number of borderline types were inevitably present, and in a few instances the records were rather vague on certain essential points. In not a few cases laparotomy proved the disease to be considerably more advanced than had been thought after ordinary methods of examination, but every effort has been made to secure the maximum of accuracy. The end-results do not compare favourably with those published by Victor Bonney,² and later by Fletcher Shaw and Dougal¹ in this country, but it should be remembered that the cases in this series are consecutive and unselected, and include a number of patients in whom the disease was too far advanced for any form of treatment to be given.

Duration of Symptoms

It was thought that comparison of the length of the histories of patients in this series might throw some light on the prognosis of the disease. In over 70 per cent. of cases irregular bleeding was the symptom which caused the patient to seek advice. The average duration of the symptoms before treatment was started was almost exactly six months. In Table C the cases have been divided into those with histories up to six months and over six months respectively, and the survival rate has been recorded in each instance.

TABLE C.—Duration of Symptoms in Relation to Prognosis

Length of History	Number of Cases	3-year Survivals	5-year Survivals
Six months or less ...	330	88	64 (19.4 per cent.)
Over six months ...	128	29	19 (14.8 ..)

As would be expected the cases with the longer histories have a worse prognosis, but the duration of the symptoms is of much less importance than the extent of the disease. It was noticed that where two patients were in the same stage, as classified in Table B, the prognosis was the better in the one with the longer history, the carcinomatous process being of slower progress. The end-results were next compared with the ages of the patients to see whether the latter had any bearing on the prognosis. The results are shown in Table D.

TABLE D.—Age in Relation to Prognosis

Age Group	Number of Cases	3-year Survivals	5-year Survivals
20-24	2	1	1 (50 per cent.)
25-29	9	2	2 (22.2 ..)
30-34	16	5	4 (25 ..)
35-39	48	8	8 (16.6 ..)
40-44	62	12	9 (14.5 ..)
45-49	95	18	14 (14.7 ..)
50-54	74	21	13 (17.6 ..)
55-59	69	23	18 (26.1 ..)
60-64	49	15	8 (16.3 ..)
65-69	22	6	3 (13.6 ..)
70-74	9	5	3 (33.3 ..)
75-79	3	1	0

Examination of these figures appears to show that the prognosis is worst in the pre-menopausal decade. It is probable that some of these patients ascribe irregular bleeding to climacteric disturbance, and therefore neglect to seek advice. This is in agreement with the increased length of history that was common in this age group.

Results of Treatment

In the series under review the treatment varied with the extent of the disease, and was also influenced by the opinions of different surgeons. In general, the majority of cases still in Stage 1 were treated by open operation. It is worth repeating that several cases were found at operation to be considerably more advanced than the findings at routine rectal and vaginal examination had suggested. For this reason it is fair to assume that a proportion of the cases treated with radium alone were in reality more advanced than they appeared. In Table E a comparison of the various methods of treatment is made, the cases being graded as in Table B.

TABLE E.—Summary of Treatments

Type of Treatment	Extent of Disease			
	Stage 1	Stage 2	Stage 3	Stage 4
Wertheim's hysterectomy ...	29	13	2	1
Wertheim's hysterectomy plus radium	21	16	5	0
Total hysterectomy ...	7	3	1	1
Total hysterectomy plus radium ...	12	14	4	2
Operation abandoned...	0	0	3	2
Radium alone ...	10	44	191	54
Too advanced for any treatment...	0	0	0	23
Total ...	79	90	206	83

In the following tables the results of different methods of treatment are given.

TABLE F.—Wertheim's Hysterectomy Alone

Extent of Disease	Number of Cases	Operative Deaths	3-year Survivals	5-year Survivals
Stage 1 ...	29	3	15	15 (51.8 per cent.)
Stage 2 ...	13	2	4	3 (23.1 " ")
Stage 3 ...	2	1	0	0
Stage 4 ...	1	0	0	0
Total	45	6	20	18 (40 per cent.)

TABLE G.—Wertheim's Hysterectomy Preceded by Radium

Extent of Disease	Number of Cases	Operative Deaths	3-year Survivals	5-year Survivals
Stage 1 ...	21	0	16	15 (71.4 per cent.)
Stage 2 ...	16	2	11	8 (50.0 " ")
Stage 3 ...	5	0	1	0
Stage 4 ...	None			
Total	42	2	28	23 (54.8 per cent.)

By combining the tables it is seen that Wertheim's method of hysterectomy was employed in eighty-seven instances. Operative deaths totalled eight, the mortality being thus 9.2 per cent.

TABLE H.—Total Hysterectomy Alone

Extent of Disease	Number of Cases	Operative Deaths	3-year Survivals	5-year Survivals
Stage 1 ...	7	0	7	7 (100 per cent.)
Stage 2 ...	3	0	1	1 (33.3 " ")
Stage 3 ...	1	0	0	0
Stage 4 ...	1	0	0	0
Total	12	0	8	8 (75 per cent.)

TABLE I.—Total Hysterectomy Preceded by Radium

Extent of Disease	Number of Cases	Operative Deaths	3-year Survivals	5-year Survivals
Stage 1 ...	12	0	9	8 (75.0 per cent.)
Stage 2 ...	14	1	5	3 (21.4 " ")
Stage 3 ...	4	0	1	0
Stage 4 ...	2	0	0	0
Total	32	1	15	11 (34.4 per cent.)

By combining the two tables above it is seen that total hysterectomy was performed in forty-four cases. One death was due to the operation, the operative mortality being 2.3 per cent.

TABLE J.—Application of Radium Alone

Extent of Disease	Number of Cases	Operative Deaths	3-year Survivals	5-year Survival
Stage 1 ...	10	0	6	6 (60.0 per cent.)
Stage 2 ...	44	0	21	11 (25.0 " ")
Stage 3 ...	191	0	16	6 (3.1 " ")
Stage 4 ...	54	1	3	0
Total	299	1	46	23 (7.7 per cent.)

Of the 299 patients who were treated with radium alone one died as a result of the treatment. The immediate mortality was thus 0.33 per cent.

TECHNIQUE OF RADIUM TREATMENT

The technique of radium treatment did not reach any true degree of uniformity until the last three years of the period under review, when the following method was generally adopted. One bar containing 25 mg. of radium element, screened by 1 mm. of platinum and a rubber tube, was inserted into the cervical canal; five needles, each containing 5 mg. of radium element screened by 0.5 mm. of platinum were also inserted directly into the growth. Three separate applications were given, with an interval of from one to two weeks between the first and second applications, and of two to three weeks between the second and third. The first application was left *in situ* for forty-eight hours, and the second and third for twenty-four hours each, this giving a total dosage of 4,800 mg.-hours. If the neoplasm recurred the patient was either given further radium therapy or else deep x-ray therapy, the choice of treatment depending on the individual patient. In a certain number of cases the usual radium dosage was reduced on account of the development of burns.

End-results

In this series of cases it is clearly unfair to make a direct comparison of the results of operation and of radium therapy, for operation was practically limited to cases that were thought to be in Stages 1 and 2, and the operability rate was only 29.4 per cent. On the other hand, only twenty-three patients (5 per cent. of those followed up) were considered to be too far advanced for radium treatment. In Table K a summary of the end-results is given in the form of the percentage of five-year cures.

TABLE K.—Five-year Cures after Different Treatments

Treatment Adopted	Stage 1	Stage 2	Stage 3	Stage 4
Operation alone ...	61.1 per cent.	25.0 per cent.	Nil	Nil
Operation plus radium	69.7 " "	36.7 " "	Nil	Nil
Radium alone ...	60.0 " "	25.0 " "	3.14 per cent.	Nil
Combined results...	64.6 per cent.	28.8 per cent.	2.9 per cent.	Nil

It will be seen that radium treatment followed by operation gave the best results in Stages 1 and 2 in this series. The cases in Stage 3 show a very poor prognosis, but it should be mentioned that a large number of these were very advanced and on the borderline of Stage 4. Burns were not infrequently caused by the radium technique described, this probably being a result of the rather poorly screened needles. At present a different technique is being evolved.

The analysis of the series demonstrates the importance of early diagnosis of carcinoma of the cervix, the extent of the disease being of greater importance in the prognosis than any other factor. The results of operation on cases in Stages 1 and 2 are slightly better than those of radium alone, but it will be noticed that the immediate mortality of radium treatment is almost negligible.

REFERENCES

- ¹ Shaw, W. F., and Dougal, D.: *British Medical Journal*, April 18th, 1936, p. 786.
² Bonney, V.: *A Textbook of Gynaecological Surgery*, by Sir Comyns Berkeley and Victor Bonney. Cassell and Co., 1935, p. 339.

ACTIVE IMMUNIZATION AGAINST DIPHTHERIA

RELATIVE VALUES OF TWO METHODS AS SHOWN BY SUBSEQUENT SCHICK TESTING

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Active immunization against diphtheria by the "one-shot" method has aroused much controversy during the last year or two, and the comparison of results obtained by this method and those obtained in the same community by three injections of the previously more used preparations is of importance. The following review shows the results obtained in Southampton during the last two years.

Two Years' Experience in Southampton

Southampton is a town of 178,000 inhabitants and possesses both industrial and residential characters. Immunization in Southampton was begun during a period of epidemic prevalence of diphtheria. The initial response to take advantage of the facilities offered was too great to allow of preliminary Schick testing in any but too few to enable us to arrive at reliable conclusions as to the Schick negative rate, but experience in other towns has shown that the large majority of children under 10 years are positive reactors.

Since immunization began the materials we have used have been toxoid-antitoxin floccules (Burroughs Wellcome and Co.; Evans Sons Lescher and Webb) and alum-precipitated toxoid (Parke Davis and Co.). Owing to a shortage of supply of floccules we were for a short time compelled to use toxoid-antitoxin mixture (Burroughs Wellcome and Co.) as a substitute. The dose of T.A.F. and T.A.M. was 1 c.cm. at fortnightly intervals for three injections. The dose of A.P.T. was 0.5 c.cm.—one injection only.

This review compares the results, as shown by subsequent Schick testing, between the three injections of antigen and the "one-shot" method. The actual inoculations and Schick testing were carried out at elementary schools, child welfare centres, and special clinics. The Schick testing was carried out by the same group of medical officers throughout, so that discrepancies in the reading of Schick tests can be discounted.

Although children of all ages over 12 months were treated, alum-precipitated toxoid was employed only in those under 10 years in view of reported severe reactions in older children. In order to make the findings entirely comparable, Tables I and II refer to children under 10.

Comparison of Methods

It was felt to be important to know whether one method attained immunity more rapidly than the other, and consequently the results are tabulated to show percentages of failures in immunity establishment at various periods up to twelve months after the last inoculation. It should be noted that the various groups of children were not retested; neither, however, were they in any way selected, so that each group is comparable with the others and forms a fair sample of the general community at the selected age group.

TABLE I.—Results of Schick Test in Children under 10 at the End of Certain Periods following Inoculation with T.A.F. (T.A.M.) with Percentages

At end of...	2 Months	3 Months	4-6 Months	7-12 Months	Total
Number of children tested ...	342	357	671	2,303	3,673
Number of children Schick positive	6	7	5	15	33
Percentage of children Schick positive	1.75	1.96	0.75	0.65	0.9

TABLE II.—Result of Schick Test in Children under 10 at the End of Certain Periods following Inoculation with A.P.T. with Percentages

At end of...	2 Months	3 Months	4-6 Months	7-12 Months	Total
Number of children tested ...	190	157	248	230	825
Number of children Schick positive	18	20	39	43	120
Percentage of children Schick positive	9.47	12.74	15.76	18.7	14.55

The above tables indicate most strongly that the three-injection method of T.A.F. (T.A.M.) gives much more certain immunity than does the "one-shot" method with A.P.T., as judged by subsequent Schick testing.

The figures would also appear to show that in a number of children immunity from three injections of T.A.F. (T.A.M.) may take longer than three months to develop, though the vast majority will have acquired immunity at the end of two months. The children who show delayed development of immunity may be those who for various reasons—for example, until recently domiciled in rural districts—have previously avoided contact with infection.

With regard to the "one-shot" method as shown in Table II the figures indicate the possibility of a short-lived complete immunity in a considerable number of children. This, however, cannot be taken as a definite conclusion as no group of children has yet been retested, but it agrees with Volk's suggestion of a possibly high Schick reversion rate.

Comparative Review of Older Age Groups

TABLE III.—Result of Schick Test in Children over 10 at the End of Certain Periods following Inoculation with T.A.F. (T.A.M.) with Percentages.

At end of...	2 Months	3 Months	4-6 Months	7-12 Months	Total
Number of children tested ...	201	192	552	1,055	2,000
Number of children Schick positive	4	4	10	19	37
Percentage of children Schick positive	2	2.08	1.81	1.8	1.85

Comparison with Table I indicates a slightly increased difficulty in establishing immunity in older children. A small number of children over 10 years received "one-shot" inoculation of 0.5 c.cm. A.P.T. The total number so treated who were subjected to Schick test more than two months subsequently was 102, and this number