Middle Articles

Pink Disease—Ten Years After (The Epilogue)

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Brit. med. J., 1965, 1, 1181–1182

Since pink disease was described by Swift in 1914 there has been no unanimous view concerning the causation of this disease. Warkany and Hubbard (1948) first suggested that the cause might be chronic metallic poisoning, incriminating mercury, particularly that administered to infants in the form of teething powders.

This view received support from Bivings (1949), who found mercury in 28 out of 31 consecutive cases of pink disease, and was reinforced by Gaisford (1949) in Manchester. Three years later, however, in a reply to a question in the House of Commons, Miss Hornsby-Smith (1952), for the Minister of Health, stated: "Inquiries are already in progress at various children's hospitals, and, although the indiscriminate use of teething powders is clearly undesirable, there is not yet definite evidence to justify general publicity."

The deaths of two infants in 1953 were reported to H.M. Coroner in Stoke-on-Trent, and the verdict at each inquest showed that death was from bronchopneumonia due to pink disease resulting from chronic mercurial poisoning from teething powders. On 10 December 1953 the attention of the Home Secretary was drawn to the first of these inquests, and he was asked whether, in view of the evidence, action should not be taken to prohibit the use of these substances. During the course of his reply the Home Secretary stated that "inquiries were not yet complete." Thus his reply differed little from that made on behalf of the Minister of Health some 20 months earlier.

However, as a direct result of these two inquests, which received wide publicity, the manufacturers of the teething powders concerned ceased their production, and subsequently advertised "new and improved" powders, made to a formula which did not include mercury.

The *British Medical Journal* (1954), commenting upon the paper incriminating mercury that appeared in the same issue (Dathan, 1954), stated that "there will be a good opportunity for investigating the residual cases which occur after the present supplies of powders containing calomel have disappeared from the chemists' shops." This opportunity is now taken after 10 years, and results show how correct earlier authors had been in their belief that chronic mercury poisoning was the main, if not the only, cause of pink disease.

Our Experience Since 1953

Up to 1953 the children's wards in Stoke-on-Trent were hardly ever without cases of pink disease, and during the three or four months following the 1953 events several more cases were seen, which gave rise to some concern lest other sources of mercurial ingestion might have been overlooked. In 1954 the medical officer of health for the city therefore arranged for

the collection of teething powders of the old formula from all the chemists' shops and the small mixed businesses, and their free replacement by the harmless powders containing no mercury.

The result of this withdrawal of mercury-containing powders was most dramatic—there has not been an authentic case of pink disease in the city of Stoke-on-Trent during the 10 years that have now elapsed since this action was taken. Evidence collected in this area therefore supports strongly the view that pink disease was the direct result of chronic mercurial poisoning, and that the disease is now practically extinct.

Evidence collected independently in another industrial area of the North of England provides figures which leave little room for further doubt regarding the aetiology of this disease. In all, 65 cases of pink disease occurring in one paediatrician's practice (C. C. H.) in industrial South Yorkshire since 1948 have been reviewed; the results are shown in Table I. The sharp fall in the case incidence of pink disease from 1954 onwards coincides with the withdrawal by the manufacturers of mercury-containing teething powders.

TABLE I.—New Cases of Pink Disease in One South Yorkshire Area

Year	Mercury Powders Definite	Mercury Powders Unproved	Total
1948	2	5	7
1949	2	2	4
1950	5	4	9
1951	9* (2 died)	3	12
1952	7	5	12
1953	9*	3	12
1954	5	0	5
1955	0	0	0
1956	0	1	1
1957	1	0	1
1958	0	0	0
1959	0	0	0
1960	0	0	0
1961	0	0	0
1962	0	1	1
1963	1 (1 died)	0	1
	41	24	65

* Two of the children with proved mercury powder risk in 1951 and one in 1953 were later found to have bronchiectasis.

Discussion

Aetiology.—That the role of mercury in the causation of pink disease was not universally accepted even as late as 1956 is suggested by Farquhar, Crawford, and Law (1956), and much more emphatically by McCance (1955), who belittled the role of mercury, and pointed out that the symptoms and signs were essentially manifestations of gross overactivity of the sympathetic nervous system. They expressed the view that "pink disease may represent the misdirected zeal of an inexperienced defence mechanism to a number of noxious stimuli in certain predisposed infants." The association between pink disease and mercury ingestion is still not wholly accepted, as is shown by correspondence in the *British Medical Journal* as

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recently as 1963, when Braithwaite (1963) disputed Lightwood and Butler's (1963) "unjustified acceptance of a transatlantic theory," on the uncertain evidence of 21 patients who had suffered pink disease in infancy, of whom only nine had been given teething powders. He had to admit, however, that he had seen only one case since 1953. Farquhar (1963), in reply, referred to the ever-increasing weight of evidence incriminating mercury, only to have further doubts expressed by Frances Braid (1963), though without supporting evidence. McGregor and Rayner (1964) adduce fresh evidence for a mercurial cause, in the form of a calomel dusting powder in siblings—one presenting with renal acidosis, and the other five years later with pink disease.

W. P. D. Logan (1949) from the General Register Office showed that the death rate from pink disease varied little between 1923 and 1947. It seems probable that the slight decrease during the years 1950 to 1953 may have resulted from a lessening in the use of teething powders resulting from improved propaganda in welfare centres and elsewhere, but the death rate was halved in 1954, and halved again in 1955, and is now practically nil. Any remaining doubts about the cause of pink disease must surely be resolved by the comparison of Tables I and II, bearing in mind that the withdrawal of mercury-containing powders occurred early in 1954.

TABLE II

Year	Male	Female	Total
1950	34	23	57
1951	34	19	53
1952	15	13	28
1953	19	17	36
1954	8	7	15
1955	4	3	7
1956	3	1	4
1957	2	1	3
1958	0	1	1
1959	1	1	2
1960	1	1	2
1961	0	0	0
1962	0	0	0

A nation-wide survey, compiled by the chief medical statistician of the General Register Office (C. C. Spicer, personal communication, 1964), shows deaths registered as being due to pink disease during the years 1950 to 1962 (Table II). The marked national decline in deaths from pink disease parallels to a remarkable degree the local incidence of the disease quoted in Table I.

It seems somewhat tragic that isolated deaths can still occur through shops still holding stocks of the old type of teething powders containing mercury.

On 30 September 1963 a 6-month old firstborn girl was referred to one of us (C. C. H.) by her doctor as a case of pink disease, with restlessness, slight cough, and loss of appetite, and with the significant comment, "these symptoms are said to have developed since she started teething." She had between 3½ and 4½ months of age received nine mercurial teething powders of the old pre-1954 formula containing 26% calomel, purchased from a village store in Oxfordshire. Classical symptoms began at 4 months of age: irritability, insomnia, anorexia, with excessive sweating at 5 months, cold discoloured hands and feet, and hypotonia. She was found dead in her cot at

home on the morning following consultation, and no urinary excretion studies were made.

At the inquest the pathologist's evidence led to a verdict that the child had died from pink disease due to mercury poisoning from these powders.

Public health inspectors have since this recent fatality been on the alert; and in one urban district in the West Riding 60 packets have been collected from the local shops, each containing 20 powders, including 1 gr. (65 mg.) of calomel per powder, manufactured by a firm which went out of business seven years previously.

Action now by medical officers of health similar to that taken in Stoke-on-Trent in 1954 and more recently in the West Riding could remove most of the remaining risks that there might be any further deaths from pink disease. At the same time, the risk of mercurial ointments, lotions, and vermifuges should continue to receive publicity internationally within the medical profession (Blattner, 1964).

Summary

The incidence and mortality rate of pink disease have fallen dramatically since teething powders containing mercury were withdrawn from the market in 1954. In one paediatric practice in South Yorkshire an average of nine new cases had been seen annually during the period 1948–54, whereas only four cases have occurred since. The national death-rate from pink disease shows a similar decline, from 57 in 1950 to seven in 1955, and to none in 1961 and 1962. A fatal case occurring in 1963 is described where out-of-date mercury-containing teething powders, bought from a village shop in Oxfordshire, had been administered. The divergent views on the causation of pink disease are discussed, and the results of this survey interpreted as conclusive evidence that this disease is caused by the ingestion of mercury.

Our thanks are due to Dr. J. L. Emery, Consultant Pathologist, Sheffield Children's Hospital, for information and advice; to Dr. C. C. Spicer, Chief Medical Statistician, General Register Office; and to Dr. E. C. Butterworth for many hours of biochemical work during the original series of cases in Stoke-on-Trent. We also thank Dr. R. W. Elliott, West Riding County Medical Officer, and Dr. J. S. Hamilton, Medical Officer of Health for Stoke-on-Trent, for their co-operation and example in the collection of obsolete powders containing mercury.

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