

## TEETHING PATTERNS IN INFANCY AS INITIAL MANIFESTATIONS OF LATENT MORBIDITIES

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This essay is an attempt to evaluate the influence, if any, which the process of teething may have upon an infant. It is based upon international literature and upon my own observations made first in general practice and later in practice as a paediatrician.

### OPINIONS IN THE LITERATURE

Hippocrates (460—370 B.C.) recognized that diseases in children presented certain features quite different from those usual in adults, and he frequently referred to peculiarities of disease in children. He wrote an entire treatise on the subject of teething,<sup>15</sup> and thus introduced into medical thought the idea of 'Dentitio difficilis' (difficult teething) as a morbid entity, which played for centuries an important part in the diagnosis of disease—and even fatal disease—in children.

West (cited by Perabo<sup>13</sup>) in a statistical study of causes of death in children under 3 years of age recorded in the middle of the 19th century, found 7% 'dead from teething'. The mediaeval figure was 50%. In the years 1877—1910 this cause of death in the statistics in Berlin decreased from 1.5% to 0.3%.

Wichmann in 1797 (cited by Helmerich<sup>8</sup>) was the first to maintain that teething without symptoms was possible, but the belief in 'dentitio difficilis' was so strong that he met the most serious opposition and was refuted, even by clergymen, as if he had attacked a dogma.

So two extreme theories were advanced: on one side, that there are myriads of diseases and upsets due to cutting of the teeth and, on the other side, that teething is responsible for nothing but the cutting of the teeth.

It is easy to understand that many attempts have been made to compromise. Examples of this mentality are mentioned by James<sup>9</sup> from Anglo-American text-books (1940—1949). His conclusion is that the age-old belief that teething can make the infant ill in various ways is still valid. It may be, as he puts it, comforting to the parents and the family doctor if a frightening seizure is regarded as a transient phenomenon, unlikely to be repeated, once the dentition is completed.

On the European Continent the opposite opinion is expressed and in the teaching of medical students and—most important—of nurses too.

Pirquet, father of the term 'Allergy', and Nobel, both professors of Paediatrics in the University of Vienna, in 1928 wrote for their nurses<sup>12</sup>: 'The cutting of the teeth is a process without any pathological disturbances. In former times it was thought that the teething in children was very important, because all diseases with obscure etiology were attributed to the cutting of the teeth. Such an opinion is without scientific foundation.' In 1932 Pirquet's successor, Hamburger, wrote for mothers and nurses interested in paediatric nursing<sup>7</sup>: 'The approach of the cutting of the teeth is announced many days before

by salivation and increased inclination to chew on fingers or other substances. Sometimes the children are ill-tempered and have no appetite, probably on account of sensitivity or pain in the jaws. The old, still popular, belief that teething may be the cause of more serious complaints, such as seizures, fever or diarrhoea can be a danger to the life of the child, because the doctor is not called in for early diagnosis and treatment.'

Gorter, the founder of paediatric teaching in the Netherlands and Flanders, and Hooft, who succeeded him at the University of Ghent wrote in 1938<sup>6</sup>: 'A nurse should know that any disease in this (teething) age has always another cause than the teething; therefore she should call a doctor.' And on page 68 of the same work: 'It is a popular belief that the cutting of the teeth is the cause of numerous discomforts and complications' This obsolete conception, only possible in those cases where the child is not well examined, disappears as soon as the doctor can diagnose gastro-intestinal disturbances, mild infections and other maladies. The mistake made is very understandable, because the period of teething is exactly the age during which the young child is most exposed to those diseases. In coincidence, cause and effect are easily confused.

Feer's opinion (1931) is most instructive for medical students and doctors<sup>4</sup>: "'Dentitio difficilis" does not exist in fact. It is still popular, because it is a comfort for the mother and a welcome cover for our own medical ignorance and for our complacency.' And in his text-book<sup>5</sup>: 'In the famous "teething-fever" teething is not the cause of the fever, but the high temperature, due to some obscure infection, activates metabolism and increases the speed of teething. Therefore this cutting of the teeth is not cause but effect.'

Among other text-books in which similar views are expressed are those of Rominger<sup>14</sup> (1950), Fanconi<sup>2</sup> (1954) and the dentist Perabo,<sup>13</sup> who illustrated his views with carefully investigated cases. Fanconi<sup>2</sup> points out that during teething many children, especially the neuropathic types, put their fingers in their mouths, causing mild infections of the gums, which are followed by a mild rise in temperature especially with thermolabile children.

### THE AUTHOR'S OWN OBSERVATIONS

When I was in general practice in Java, where distances from out-lying plantations to town are vast, visits to baby-clinics by mother and child were often impossible, and for better or worse their place was taken by weighing at home, report and advice by telephone. Always the warning was given: Remember, teething is no excuse whatsoever for fits, fever, vomiting, diarrhoea, cough, restless crying, etc. If this happens, telephone and ask for advice.

*First case.* Telephone-call from the mother: Baby 8 months breast fed, with supplementary food; normal weight; always healthy, but not too well 10 days ago; grandmother comforted, 'Nothing but teething', and baby improved. But now again it is not too well; temperature 37.8°C (100°F). Is this teething?—No, as I told you.—Can you come? we have no transport.—After 2 hours' speeding through the hills I was at the baby's bedside, 300 feet above sea level, in malaria-infested country. After careful examination: no abnormalities detected; urine normal. But armed with microscope and a little box of stains I stained a blood-smear and examined it; after a full hour's searching—two beautiful seal rings in one erythrocyte; diagnosis—malaria falciparum. Therapy (1927) aethylcarbonas chinini (not bitter) in nicely flavoured syrup. In 4 days, long before the treatment was completed, all complaints disappeared and further teething was uneventful till the child was 3 years old, cutting the last 4 teeth of the first dentition.

The same baby produced the *second* instructive case. Telephone: baby is in agony, crying and screaming. No fever, no common cold, his throat is not red, he is not catching at his ears or head. He is not obstipated; on the contrary, stools are looser than usual and a little slimy. When he sits on the pot he presses, cries, presses again and refuses to stand up.—I guess I know what it is; can you come to town?—Not possible, no transport.—So I went again through the jungle. This time the diagnosis was easy, the condition had become typical: little loose stool, more mucus, with tiny blood-stained trails. A trace of this, mixed with two drops 2% eosine solution on a slide with cover-glass produced that impressive moving picture in the microscope of the amoeba histolytica 'walking' with its pseudopodium. The early diagnosis guaranteed the success of treatment.

*Third case* (1931). A baby 8 months old, bottle fed from 4th week, started vomiting and diarrhoea; no fever. I saw the baby the same day. In the family a common cold. Baby with acute gastro-enteritis, throat red, tonsils not swollen. Ears, lungs, urine—NAD. The therapy seemed simple; diet carefully written down. But unexpectedly the condition did not improve satisfactorily. The throat was normal after 2 days, but more loss of weight and many watery stools. Examinations again and again; glands, ears, lungs, urine, numerous bloodcounts, X-rays of the lungs—NAD. When the report from the bacteriological laboratory 120 miles away came in—No pathological organisms in stool and cultures—I was completely in the dark and asked for a second opinion. In the big town, 120 miles away, were two able specialists, a 'she' and a 'he'. She was chosen by the parents (the grandmother objected, 'Teething'). But the lady-paediatrian came and made a very good examination, first of me—I was never so cross-examined in my life—and then of the patient. She agreed that nothing in my examination was omitted and that treatment was as it should be. My proposal to take the patient with her to the Children's Hospital was found not imperative and rejected by the grandmother: 'Nonsense, it is all teething.'

But there was no improvement; after a few days more loss of weight and toxicosis was serious. As I felt uncertain about the punctual preparation of the feeding, baby was taken to the hospital, where a nurse, keen in infant feeding, nursed the child. No results. Repeated investigations—NAD. I asked for the second time for a consultant. Now 'he' had to come. And again the opinion was—therapy is right, carry on, prognosis is good. But after 10 days the baby died. A P.M. was granted—NAD, except in the mastoid antra, bilateral cloudy mucus. The consultant's opinion was that this was not the cause, but *sub finem vitae*.

At the end of the year I stopped general practice, and before I went overseas I said good-bye to the family where I lost that sweet baby. The last words of the grandmother were, 'Doctor, believe me, it was teething!' I was amazed by this comfort and resignation. I was unhappy, convinced of my ignorance.

*Latent otitis* (otitis without any otological or haematological symptom) as a cause of toxicosis in infants was first discovered by Ten Bokkel Huinink, Professor of Paediatrics in the University of Utrecht. He reported upon his observations and the favourable results of

early operation in a meeting of the Paediatric Association in the Netherlands published in 1935<sup>16</sup> and 1936.<sup>17</sup> These observations were confirmed by Nobel in Vienna. A young doctor Liem Wie Liang, who studied at both Universities, wrote an excellent thesis<sup>11</sup> (1937) on this subject, so important because an early diagnosis and operation can save the life of the child.

When I returned to Java as a specialist my first difficult case was a latent otitis with toxicosis! Early operation and recovery. Demonstrating this case at a meeting of general practitioners gave me a good opportunity to stress the warning: 'No compromise! Teething is never the cause of disease.'

This resulted in a very instructive case. One of my friends, a general practitioner, asked my opinion: Child 1½ years, bottle fed, now on mixed diet, no fever, obstipated and crying more than usual, had a seizure. He examined the child carefully—NAD—and was anxious to know the cause. Teething?

We went to see the child. His examination was good, he had even tried the reflexes of Chvostek and Trousseau—negative. He rightly supposed a latent tetany, becoming manifest by hyperventilation (crying). But he did not know that these mechanical reflexes are negative during and shortly after a seizure. Now, 4 hours later, the Chvostek reflex was positive, bilateral. To make sure, I took a few drops of blood for a micro-biochemical test; the calcium in the serum, estimated in my humble lab., proved to be 8 mg. %. This confirmed the diagnosis and therapy was simple. No seizures any more, with or without teething.

A few weeks later my opinion was asked in a similar case, but it proved to be completely different. Seizures in a child 1½ years old; obstipated. No reflex of Chvostek, serum calcium normal, but temperature 37.8°C (100°F); cell-count in the blood raised and the history—grandmother died one month ago in her home in another town of 'chronic bronchitis'. Three months ago the family and the baby had spent their holidays in the home of the old lady! Lumbar puncture: C.S.F. under pressure. Pandy positive, cell-count (30 minutes after taking) 101 (73 leucocytes, 20 lymphocytes, 8 monocytes). After 3 hours reticulum formed and stained (Ziehl Neelsen<sup>10</sup>) proved to contain tubercle bacilli. To find the bacilli thus is exceptional, but without this the diagnosis of meningitis tuberculosa was certain and at that time (1937) 100% fatal.

This sad state of affairs did not change before streptomycin treatment was introduced. Even in June 1948 Fanconi and Löffler<sup>1</sup> had to admit that more than 50% of the cases of tuberculous meningitis treated with streptomycin died. This improved when the beneficial combination with INH with or without PAS was understood and applied in specially equipped hospitals (Van Zeben<sup>18</sup>). Fanconi<sup>3</sup> (1954) has now rightly written: Results of the treatment of tuberculous meningitis will improve more and more; if treatment starts in the very beginning recovery will be nearly 100%.

This is extremely impressive because we all remember the grief and sorrow when we made that gloomy diagnosis in 1950 and before. Our helplessness has disappeared *if diagnosis is made early*.

This makes the position of the general practitioner more and more important. They should not weep. Their position is not deteriorating; it is but improving, if they stamp out the superstitions about teething, teething powders, the abuse of purgatives and all that nonsense—dangerous because delaying an early diagnosis.

In this land with its vast distances the patient and the family doctor are in more classic relationship than in any other country. Early investigation by the doctor, with his own methods and his own microscope, can

produce the facts necessary for early diagnosis and successful treatment at home or, if necessary, in hospital; and will gain for him the full confidence of the parents.

#### CONCLUSION

Teething patterns are initial manifestations of latent morbidities. They may be very valuable, because they give the first alarm to the mother, who calls the family doctor, the only man who knows how to combine family circumstances with the complaints, interpreting them by his investigations into an early diagnosis. But if she treats them as 'only teething' and fails to consult her practitioner their value as a useful warning is lost and their danger to the baby is unrepelled.

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