THE pH OF THE MOUTH IN THE NEWBORN INFANT

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Introduction

In an article on vaginal thrush, Liston and Cruickshank (1940) state that 'the organism finds an acid moist surface on which to grow in two situations—the mouths of suckling infants or invalids and the vaginae of adult women in certain circumstances.' Further, they 'attach great importance to the pH reaction as a factor influencing the possibility of infection with *Oidium albicans*.' Confining their attention to the question of vaginal thrush, they offer no evidence in support of the statement that the mouth of the suckling infant provides an acid moist surface, and no pH observations are given.

Published information with regard to the pH of the mouth of the newborn appears singularly scarce, the only reference the writer has found being that of Allaria (1907). Here it is stated that 'the reaction of the mouth in the newborn infant is neutral or slightly acid to litmus and in the nursling continues to react acid to litmus but does not turn methyl-orange. The pH is very slightly on the acid or the alkaline side, or indeed exactly at the neutral point (7.0), provided freshly secreted saliva is taken. After it remains in the mouth for a while it becomes distinctly acid.'

In view of the importance which Liston and Cruickshank attach to this aspect of the soil upon which the *Oidium albicans* flourishes so commonly, and because of the lack of readily available data, it seems desirable that some observations should be recorded.

Technique

The well known B.D.H. capillator method was used. Specimens of the oral fluid were taken from infants during the first nine days of life. These specimens were obtained by capillary tube and were taken never sooner than two and a half hours from the time of the last feed. They were all from infants who were being started on a three-hourly feeding regime. No observations on ill infants were included, neither were there any observations included where the infant was known to have vomited or regurgitated since the previous feed.

Results

The observations are portrayed graphically (fig. 1) to show the 'scatter' of the observations made as well as the daily average pH. It will be seen that in most instances (about two out of every three) the pH is initially in the neighbourhood of 6.8 and only rarely may be as low as 5.2. It will also be observed that it is more likely for the pH to be above the average figure of pH 6.5 for the first day, than below it.

By the second day the chance is equal, but after that it is more likely that the pH will be less than the average figure shown (see table).

The daily average figure shows a daily increase in acidity during the whole of the first week. By the end of this time a fairly constant range of pH has been reached, the level fluctuating from approximately pH 5.2 to pH 5.6.

In most instances curves obtained from individual infants follow the average trend (fig. 2). Now and

FIG 1.—Daily average pH of oral fluid in the newborn.

FIG. 2.—Daily variation of the pH of the mouth in individual infants.

TABLE
DAILY AVERAGE pH OF ORAL FLUID IN
NEWBORN INFANTS

Day	1	2	3	4	5	6	7	8	9
Av. pH	6.5	6.04	5.7	5.5	5.45	5.44	5.3	5.49	5.35

then, however, somewhat erratic readings are obtained. For these no explanation is offered.

Summary

Some observations on the pH of the oral fluid in the newborn infant are recorded.

They show that the pH increases in acidity from day to day for the first seven days of life.

The statement of Liston and Cruickshank that the mouth of the suckling infant is a moist acid surface is substantiated in so far as the first nine days of life are concerned.

REFERENCES

- Allaria, G. B. (1907). *Jahrb. Kinderheilk.*, 66, 259.
Quoted in Abt's *Pediatrics*.
Liston, W. G. and Cruickshank, L. G. (1940). *Edinb. med. J.*, 47, 369.