

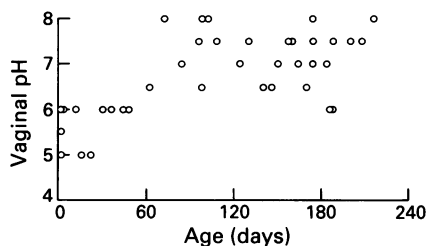
Vulvovaginitis and vaginal pH

SIR,—We read with interest the article by Pierce and Hart on vulvovaginitis¹; there was only one patient less than 12 months of age in their 200 cases. They mentioned that the vaginal mucosa of the newborn girl is affected by maternal oestrogens, the effect of which decreases until about 6 months of age. In females of reproductive age the vaginal pH is acidic as a result of oestrogenic stimulation and the colonisation of the vagina by the lactobacillus.² We studied the vaginal pH in babies less than 8 months to determine if we could detect a declining oestrogen effect on the vaginal mucosa.

Thirty eight babies, inpatients in the Cork Regional Hospital and St Finbarr's Hospital, were examined. Ages ranged from 2 to 216 days. The vaginal pH was measured using Multistix (Ames, Bayer Diagnostics) which have a pH range from 5–8.5. The indicators for blood, ketones, etc, were cut off, leaving the pH indicator at the tip of the strip, which was then cut lengthways into three strips. The indicator stick was gently placed in the introitus until moistened by the vaginal secretions. Secretions were scanty after the first 6 to 8 weeks and there was sometimes doubt as to whether or not there had been a colour change. In this situation the procedure was repeated, leaving the pH sticks in place for about thirty seconds. The reading was then omitted if the indicator paper was not wet.

The results of the study (figure) show that there was a distinct change in vaginal pH at about 8 weeks (about 60 days). It is possible that the pH could have been less than 5 on three occasions as this was the lower limit of the range, but the values were recorded as 5. The mean (SE) vaginal pH, under 8 weeks, was found to be significantly lower at 5.7 (0.48) than the mean pH, over 8 weeks, at 7.18 (0.32) ($p < 0.001$).

We conclude that there is a significant change in vaginal pH at around 8 weeks of age. McKiernan has previously studied hormonal effects in babies using breast tissue as a 'bioassay'.³ His findings were at variance



Cross sectional study of vaginal pH in babies up to 8 months of age.

with the suggestion that maternal oestrogen was the only source of the oestrogen and it was likely that endogenous production of hormones may also be important. The changes in vaginal pH are chronologically different to the changes in breast development in infancy, but the endocrine basis for this difference is unclear. The relative resistance of babies to vulvovaginitis in infancy may be due to an oestrogen effect in early infancy but our study suggests that this effect does not persist beyond the first eight weeks of life.

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- 1 Pierce AM, Hart CA, Vulvovaginitis: causes and management. *Arch Dis Child* 1992;67:509–12.
- 2 Cruickshank R, Sharman A. The biology of the vagina in the human subject. *Journal of Obstetrics and Gynaecology of the British Commonwealth* 1934;41:190–266.
- 3 McKiernan J. Postnatal breast development of preterm infants. *Arch Dis Child* 1984;59:1090–2.

Fever associated with teething

SIR,—I was most interested to read the attempt by Jaber *et al* to investigate the

relationship between teething and fever.¹ They suggested that teething is indeed associated with a low grade fever. There may, however, be a fundamental flaw to their study. The eruption of a tooth is not a single identifiable event but rather a process that takes place over many days. The emergence of the tooth from the bone is followed by a swelling of the gum, hardening of the surface, the first vague eruptions of the tooth through the gingival mucosa, and finally the complete emergence of the tooth. How then can a parent decide when her child is 'teething'? Quite easily; the day in which he is unwell and miserable from an incidental infection!

While the author stated that eruption of the tooth was verified at hospital, the lack of definition of that eruption suggests to me that indeed it was not closely defined. It may be that if the authors were to attempt a definition of eruption, they would have difficulty, as the mother's views of that would vary considerably.

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- 1 Jaber L, Cohen IJ, Mor A. Fever associated with teething. *Arch Dis Child* 1992;67:233–4.

Drs Jaber and Cohen comment:

Dr Massarano can be assured that it is possible to determine when the tooth had erupted. It may be felt, seen, or even heard when a spoon or cup is used to elicit a distinct 'ping'.

This, we agree, is a continuous process. Several colleagues have written to us to report a drop in fever after the tooth erupts, and describe such cases when the gums were lanced. This does not seem to occur if other teeth are about to erupt.

The tooth may not only push its way through the gums but a process of gum reabsorption may precede the tooth. The factor responsible for this effect could be responsible for the systemic effects we have described and would cease when the tooth erupts.