

The Peak and the P Mucus – Some Recent Aspects

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Abstract

Group of 34 women (37 cycles) investigated to correlate subjectively estimated slipperiness with the P subtypes. Estimations – weak 'W' and strong 'S' in 2 groups. Significant difference between 2 groups indicating that "P6 mucus most probably is responsible for the Peak sensation of slipperiness."

In the Bulletin of OMR&RCA Vol 25, No. 2, July 2008, pp 24-26, Dr Lyn Billings presents an informative and important paper on the Peak. She points out that the peak day is the "gold standard" of the cycle, and I agree completely. She also correctly states that when I was introduced to the BOM in the mid-1970s, I believed that women had difficulty in determining the symptom of slipperiness, but I soon changed my opinion.

To understand my temporary hesitation, one must recognize that, at that time, we only knew about the existence of L, S and G mucus types, and it appeared that no combination of these types could explain the peak sensation. I therefore started to "hunt" for a "Peak mucus". It was not until the 1991 meeting in San Antonio, Texas, USA, I could informally present evidence for its existence, and it was first published at the Third International NFP Meeting in Malaga, Spain, in 1992.

Why did it take so long – about 15 years – to find and prove the existence of the P mucus? Many difficulties had to be overcome, the most important were:

- The crypts producing the P mucus are located high up in the cervix and often surrounded by the enzyme-secreting glands. This made it difficult to get crypt samples.

- P mucus is present in small amounts. Often much less than 5 per cent of the total mucus quantity.
- The quantity and quality of P mucus varies with age (more in young, less in older women) and parity (more in multiparous women).
- P mucus has the same NMR (nuclear magnetic resonance) properties as S mucus.
- There are several subtypes of P mucus, both in crystal patterns and in functions (see table and figures).
- An independent confirmation or support of a scientific result is necessary, and this came in 1990 by Dr Helvia Temprano (Thesis, La Coruna, Spain, p 112, fig 79).

Later, in 1998, Dra Mikaela Menarguez showed in her thesis (Murcia, Spain), by scanning electron microscopy that S, L, G and P types had all different and specific macromolecular network patterns. Minor alterations in the macromolecules may give rise to various subtypes.

The P mucus subtypes discussed in this paper are shown in the microphotographs of fig 1, 2 and 3, and are schematically presented in the table at fig. 4.

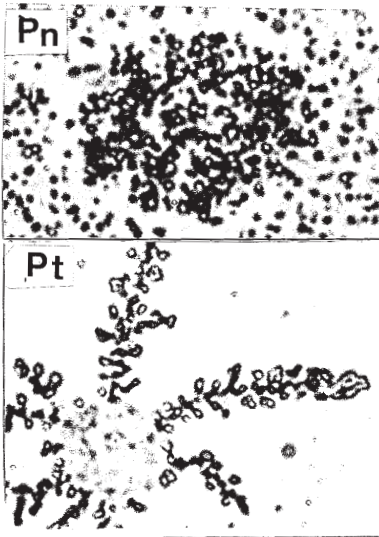


Fig 1. Microphotographs of one Pn cell and one Pt cell and their secretions. Magn. X 280.



Fig 2. Microphotographs of the two varieties of P6 mucus, P6r and P6s. Magn. X 280. Intermediate forms are common.

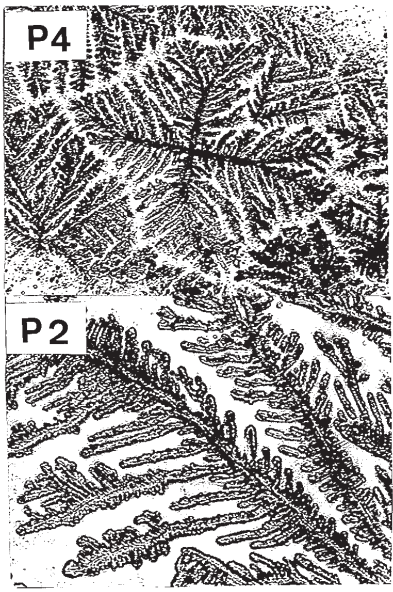


Fig 3. Microphotographs of mucus subtypes P4 and P2. Magn. X 280.


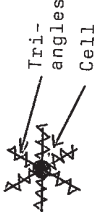



Sub-type	Symmetry	Remarks	Morphology	Probable function	When in cycle	Max. p.c.
Pn	Spherical grain distribution. Cell in centre	n stands for nebulous		Precursor for Pt and P6	Any time, but more visible in the Luteal phase	0.03 p.c.
Pt	Triangular structure in six directions	t stands for triangular		Intermediate between Pn and P6	Max. on day -1	About 1 p.c.
P6	Six-fold symmetry	Exists in 2 forms, P6r and P6s		Contributes to sperm selection	Max. on day 0 More P6 gives more slipperiness	4 p.c. young 2 p.c. middle-age 1 p.c. preclimact.
P4	Four-fold symmetry of main axes			Unknown, but may attract defect sperm	Max on day 0	0.5 p.c.
P2	Mirror symmetry	Branching angles often less than 60°		Carries mucolytic enzyme from isthmus	Max: -7 young Day -5 middle-age By -3 preclimact	6-7 p.c. in beg. of fert. phase A:sec. max, on day 0 with max. 4 p.c.

Fig 4. Table and schematic drawings of the various P mucus subtypes and their most important properties.

To investigate if the subjectively estimated slipperiness on the peak day correlated with the P subtypes, 37 cycles in 34 women were investigated. The studies were performed from 1981 to 2005. Preliminary studies showed that only the subtype P6 showed a correlation, so that problem was studied in more detail. The women, all experienced in BOM, came for mucus sampling in the evening of the Peak day and mucus was extracted and smeared out in thin layers on several slides, so that all mucus could be carefully investigated and the areas covered by all known types could be evaluated, The women had estimated slipperiness in four levels – very weak, weak, strong and very strong. The results are shown in fig. 5. Very weak and weak were not significantly different and therefore treated as one group – W. Strong and very strong were similarly treated as one group – S. When the groups W and S were compared there was a significant difference: The P6 amounts were:

For W – 0.57 p.c., S.D. = 0.42, S.E. = 0.11

For S – 1.80 p.c., S.D. = 0.71, S.E. = 0.16

Difference – 1.23 p.c., S.E. = 0.20 p.c., $P < 0.01$

This indicates that P6 mucus most probably is responsible for the peak sensation of slipperiness.

During these studies we also observed that P6 mucus is present in two morphological varieties – P6r and P6s. Sometimes we needed to take a new sample after an hour. In these re-samplings we nearly always got only the P6r variety, so that component is supposed to form more rapidly than P6s. In these notations r means rapid and s means slow. Apparently they are both equally effective for the sensation of slipperiness. The flow diagram in fig. 6, indicates cell interactions which might possibly occur, mediating one slowly acting mechanism and one more adaptable and rapid way for regulating the P6 mucus, which is important in the sperm selection process.

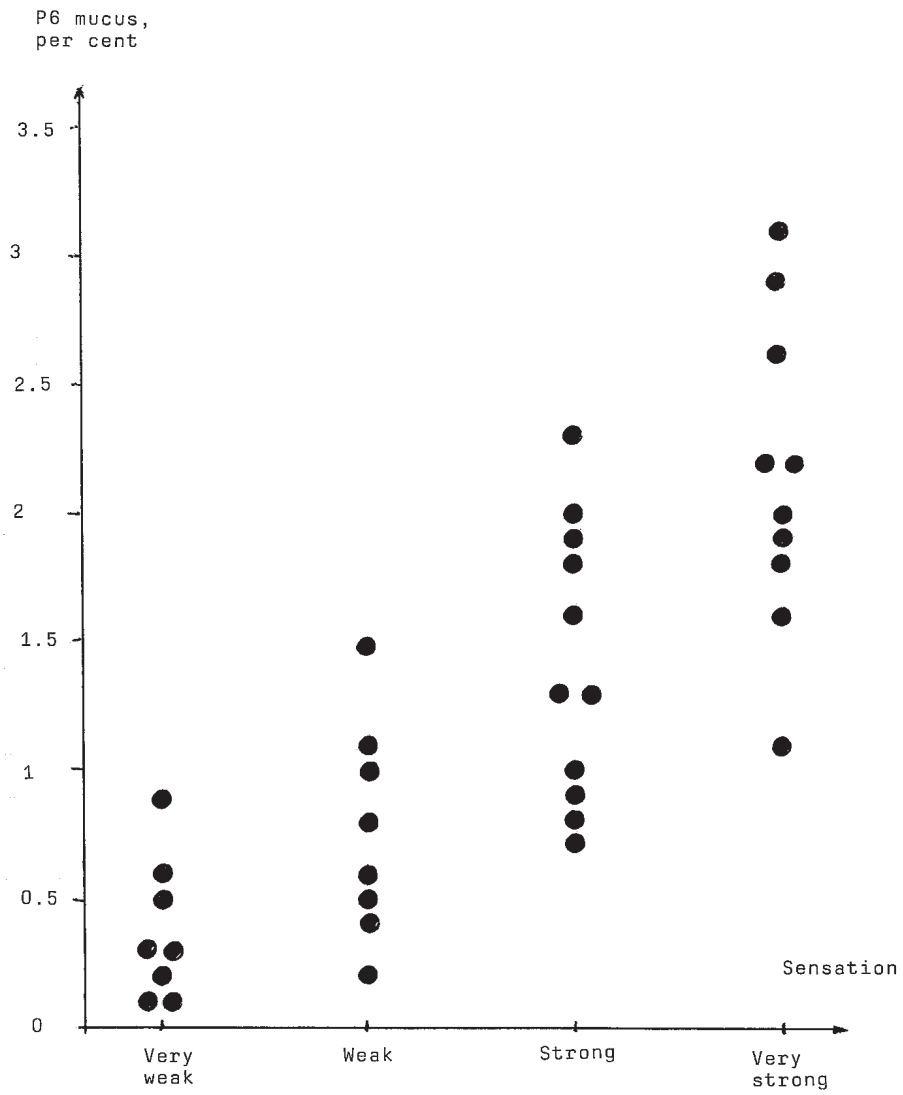
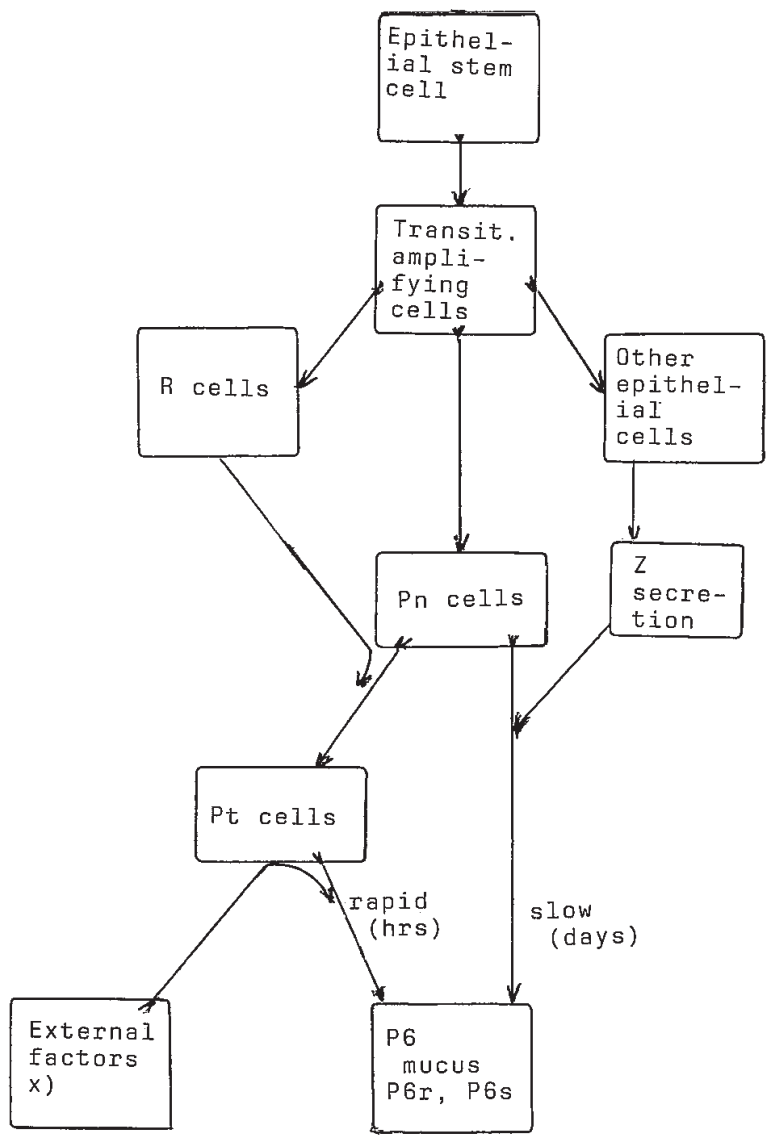


Fig 5 Estimated subjective intensity of the slippery sensation versus percentage of P6 mucus on mucus slides.



x) Can be inflammation
sperm, moving
spermatozoa,
antibiotics, etc.

Fig 6. Preliminary flow diagram of P6 mucus production constructed from data available in Stem Cells in Epithelial Tissues by J M W Slack, Science 287, 2000, p 1431, and in the Proc. Int. Conf. Barcelona 2005, presented by E Odeblad et al.