

To my colleagues of this college; an explanation of medical term “endometrium”⁹⁹

— concerning of my elemental analysis in the human endometrium —

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Now that I so far published in this journal my element analyses inventory and at this point this year I became one of the editors, I am going to take a rest for a while and explain to you medical words such as an endometrium to make you easier to understand my saying with respect to colleagues I happened to be brought into this college as one of the educators.

Endometrium is attached to the uterine wall in all the way around. It is composed of 2 layers microscopically, that is, surface cylindrical epithelium that conforms the glandular one toward underneath, and stroma. The latter is so reactive to the hormonal stimuli or hormone dependent, so to speak, changes its morphology, to the most extent, in extreme to the event of decidualisation in pregnancy. Overall this endometrium exists next to the myometrium directly without submucosa like stomach. Direct fixation of the endometrium to the uterine wall is important in cases of spontaneous endometrial ablation (menstruation) and or artificial scrape of the endometrium, particularly in latter case showing us that scrape would be over when one heard the muscular sound “gurgling”, something like that.

Endometrium is a mucous membrane which becomes progressively thicker and more glandular and has an increased blood supply in the latter part of the cycle, to prepare the endometrium for its implantation site of the embryo. When pregnancy does not occur much of the endometrium breaks down and would be expelled almost all endometrium into the vaginal vault.

More precisely, histologically, endometrium is composed of surface layer of simple columnar epithelium, uterine (endometrial) invaginated surface epithelium, and endometrial stroma, a very thick part of lamina propria composed of connective tissue. The function of endometrium is also divided into two according to the each histological layer. One is called functional layer which lies closer to the uterine cavity. The other is basal layer which is rather permanent and reserved for making functional layer. It repeatedly evokes a new stratum functionalis after each menstruation.

Another term for the cycle is “estrous cycle”, more commonly used in reference to animals than humans. I used this term on my experimental uterine carcinogenesis in rats at the doctoral course of pathology at Kagoshima University.

Tissue culture is one of the tools to examine the endometrium such as glandular cells. I adopted the

modified Gurpide¹⁾ method as follows. Endometrial tissues were excised into 1mm³ block and immersed to 0.25% Collagenase/Ham's F12 5% FCS and incubated at 37°C, for 2 hours. After that procedure they were filtered through mesh made of stainless steel of which pore size was 250um and further intimate filter and so on till endometrial glandular cells were retained. More precisely filter pore size 38um was used for proliferative endometrium and 105um for secretory one. At last filtered glands were washed once through culture medium. After 2 hours incubation stromal cells were attached to the wall of test tube, collecting only glandular epithelial cells for the purpose of further cultivation.

On hot summer day this year, I accidentally found out an interesting article for me that was formerly published in 1999²⁾ and I have'nt noticed untill today. It is a scanning electron microscope (SEM) X-ray microanalysis on individual cell. I was astonished by not only the technical difficulties but its usefulness in cell biology. Colon cancer cells were used in a quantitative analysis with control of a normal bronchial human epithelial cell. I was also surprised to see in this paper the author used ratios rather than net peak intensities. This report encouraged me to say that elemental analysis is important to be surveyed in future. In the next bulletin of this college, I'll propose further data of my own element analysis on the endometrium, that is, a key word of endometriosis.

References

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- 2) Godfried M. Roomans: X-ray microanalysis of cultured cells in the scanning electron microscope and in the scanning transmission electron microscope: a comparison. *Scanning Microscopy*, 13(1): 159, 1999.