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P353. Precise Imaging of Endometrium using real time rotational pullback Optical Coherence Tomography: A pilot study

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Background: Optical coherence tomography (OCT) measures amount of backscattered signal at micrometer-scale resolution. The images obtained resemble the tissue architecture observed in histology and can therefore be considered as an "optical biopsy". While it is widely used on surface organs such as eye, skin, the use of OCT on gynaecology is limited. OCT Imaging System (OCTIS(TM)) can obtain non- or minimally-invasive, real-time, high-resolution, cross-sectional, pull-back positioning and quantitative images of epithelial or sub-epithelial tissues in a ductal organ such as endometrium.

Objective: To evaluate OCTIS(TM) on endometrium imaging and to correlate the OCTIS(TM) images with standard histology and ultrasound.

Method: A pilot prospective ex-vivo observational study carried out in 15 women underwent hysterectomy for various gynaecological conditions including fibroids, endometrial hyperplasia and endometrial carcinoma. Specimen were collected immediately after the hysterectomy and cut open to carry out OCTIS(TM) imaging. Following OCTIS(TM) scanning, the scanned region of endometrium was excised and placed in formalin for histological examination. OCTIS(TM) images were compared to histological and ultrasound images.

Results: We demonstrated that OCTIS(TM) could differentiate different phases of menstrual cycle with special characteristics and visualized some pathological conditions such as endometrial hyperplasia and cystic endometrium which correspond well with histological findings. Distinct differentiation between epithelium, glands, cysts, stromal tissue could be observed on OCTIS(TM).

Conclusion: OCTIS(TM) is a user friendly, real time and sensitive imaging modality to view endometrial pathology. It has a great potential to be developed in the use of endometrial assessment such as to diagnose endometrial malignancy or to look at the characteristic of endometrium in different phases of menstrual cycle.

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