EP 05-04 - Comparative analysis of bidimensional images of gynecological specimens provided by microtomography compared to traditional optic microscopy

A.P. Matos[1], H. Werner[1,2], AS Machado [3], OL Aranda [3], A Moreira[4], EA Junior[6] P.T. Castro[1,5].

1. Fetal Medicine, CDPI, Rio de Janeiro, RJ, Brazil.
2. CDPI, Rio de Janeiro, RJ, Brazil.
3. Universidade de Vassouras, Vassouras, RJ, Brazil.
4. Universidade Federal do Rio de Janeiro Centro de Tecnologia, Rio de Janeiro, RJ, Brazil.
5. Fetal Medicine, Alta Diagnósticos, Rio de Janeiro, RJ, Brazil.
6. Universidade Federal de Sao Paulo, São Paulo, SP, Brazil.

Objective:

To compare the main characteristics of bidimensional images provided by microtomography and traditional optical microscopy (OM) in gynecological specimens.

Methods:

Five gynecological specimens were evaluated: one uterine cervix, three ectopic pregnancies, and one fallopian tube. The specimens were immersed in formalness and Lugol solution and analyzed by microtomography. After imaging collection, the specimens were immersed in formalin solution and studied by traditional optic microscopy.

Results:

Analyzing the microtomographyc images, all specimens presented good impregnation throughout their volumes, with good contrast between the soft tissues. The volumetric images allowed the bidimensional visualization of the specimens in any spatial plane. The field of view of the images allowed the visualization of the entire specimen preserving the contiguity of tissues and their characteristics without necessity of additional software. However, the traditional optic microscopic images allow the augment of the images to sub cellular scale, with great differences between the tissues limits. Due the destructive characteristic of OM, the microtomographic section of the specimens for slide construction, images of OM present fractures and foldings of the specimens. The specimen can present sliding along the TOM slides, increasing the spaces between the tissues and altering their microscopic architecture.

Conclusion:

Microtomography can provide bidimensional images of gynecological specimens in microscopic scale in all spacial planes, with large field of view and without artifacts caused by traction and slicing of the specimen during slide production for OM. However, microtomographic images does not achieve magnification in subcellular scale.

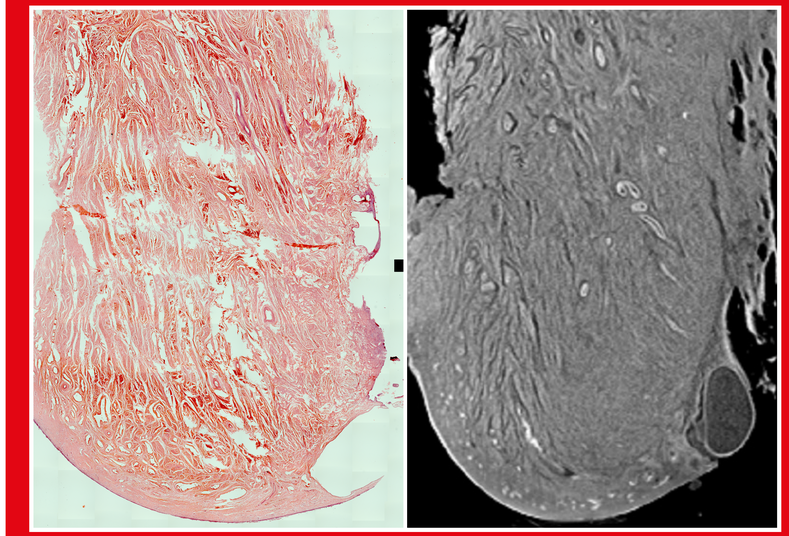

Figure 1: comparison between optic microscopy (left) and microtomographic image (right). The optic microscopic can achieve subcellular scale. but requires additional software for imaging gathering, with different contrast between the slices. The optic miroscopy also present foldings and fractures.