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Regarding “Ultrastructural Investigation of Pelvic Peritoneum in Patients with Chronic Pelvic Pain and Subtle Endometriosis in Association with Chromoendoscopy”



To the Editor:

We did appreciate the nice pictures in the article on ultrastructural investigation of pelvic peritoneum in women with pain and endometriosis [1]. The use of methylene blue to stain and diagnose endometriosis or damaged peritoneal areas remains debatable since the original observation in 1994 [2].

We are interested to know the time interval between the beginning of laparoscopy and the peritoneal biopsy. Indeed, some of the changes observed could be explained by mesothelial cell trauma by the CO₂ pneumoperitoneum and/or by removing the biopsy specimen through the trocar. Indeed, over the last decade awareness has grown that mesothelial cells are extremely sensitive to any type of trauma and react within seconds by retraction. Exposure to CO₂ pneumoperitoneum thus leads to bulging of cells within 30 minutes of exposure [3]. Unfortunately, this article did not mention that in order to obtain their excellent scanning electron microscopy images in mice, in vivo fixation of the peritoneum had been necessary. Indeed, the time needed to take a peritoneal biopsy specimen by laparoscopy or laparotomy and the unavoidable exposure to CO₂ pneumoperitoneum or, worse, to air with 20% oxygen already induced important mesothelial changes. In addition, saline used for irrigation rapidly damages the mesothelium. This mesothelial reaction [4] and the consequences for postoperative adhesion formation and their prevention by conditioning were recently reviewed [5–7].

Because pathologists generally see more than can be described in an article, this comment is a suggestion to reconsider your results, especially the relationship with endometriosis by taking into account this rather recent observation of rapid mesothelial damage by CO₂ laparoscopy. In addition, we hope to increase awareness of this rapid mesothelial reaction because it is important for future studies on mesothelial morphology.

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Author’s Reply



To the Editor:

On behalf of all authors of the paper entitled, “Ultrastructural Investigation of Pelvic Peritoneum in Patients with Chronic Pelvic Pain and Subtle Endometriosis in Association with Chromoendoscopy” [1], we thank Drs. Philippe R. Koninckx and Anastasia Ussia for the kind words of appreciation and comments on the scanning electron microscopy (SEM) images. Here we reiterate some comments discussed before in detail by the authors in original article.

In gynecology the idea of staining with methylene blue to identify abnormal peritoneal areas dates back to a 1994 report by Canis et al [2]. As mentioned in the article, most stained areas displayed mild and moderate destruction, and the nano-scale methylene blue granules could settle between the destroyed superficial tangle strands but could not deposit on the denuded cell surfaces (for severe destruction). Hence, all severely destroyed and denuded mesothelial surfaces were colorless. We do agree that the use of methylene blue cannot be a precise diagnostic method for all affected peritoneal areas.

As to the inquiry regarding the time interval, after placement of umbilical and lateral trocars, careful inspection of the pelvic cavity was done in 2 to 3 minutes. Instillation and washing with methylene blue was performed in 5 minutes. To minimize tissue damage, the peritoneum was excised by scissors, grasped, and pulled out gently through an 10 mm Kii Access Systems trocar (Applied Medical, Santa Margarita, CA). This cannula has the advantage of a detachable