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**Peritoneal immunity and laparoscopy.**

The peritoneal reaction to surgery is affected by co-factors co-incident to the operative injury. These impact upon the provoked cytokine cascade that leads ultimately to the postoperative peritoneal adhesion formation from the earliest stages of its initiation. Therefore address of such factors, as much as effecting the surgical insult itself, may allow amelioration of the fibrotic endpoint. Laparoscopy differs to open surgical procedures by the degree of bacterial translocation induced perioperatively and, by this means, may precipitate less local immunological reaction to intervention. The processes involved likely relate to a resident peritoneal mast cell-initiated process that proceeds via the release and actions of Vascular Endothelial Growth Factor (VEGF)<sup>1</sup>. While other cytokines are undoubtedly also involved in orchestration pathways, VEGF manipulation can specifically be related (both positively and negatively) to the extent of adhesions that form after abdominal operation.<sup>2</sup> Therefore, as much as laparoscopy can be beneficial in terms of reduced adhesion formation, these insights suggest that similar effects can be produced by the administration of anti-bacterial and anti-endotoxin agents to counteract the peritoneal contamination that occurs due to intestinal bacterial translocation after laparotomy.<sup>3</sup> As such agents have been established safe for use in this scenario and, in comparison to the economic burden of adhesional pathology, can be shown to economically favorable, considerable potential for novel, efficacious anti-adhesion agents exists. Furthermore, exploitation of these pathways can be expected to allow preservation of natural defense mechanisms in order to protect the local capacity of the peritoneum to react to anastomotic or infectious complications as well as inadvertent tumor cell seeding.<sup>4</sup>

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<sup>1</sup> Cahill RA, Wang J, Sookhai S, Redmond HP. Mast cells facilitate local VEGF release as an early event in the pathogenesis of postoperative peritoneal adhesions. *Surgery* 2006; 140 (1): 108-112.

<sup>2</sup> Condon ET, Cahill RA, O'Malley DB, Aherne NJ, Redmond HP. Evaluation of Postoperative Peritoneal Adhesion Formation Following Perioperative Nicotine Administration. *Journal of Surgical Research* 2007;140(1):135-8.

<sup>3</sup> Cahill RA, Wang J, Redmond HP. Enteric bacteria and their peptides may exacerbate postoperative peritoneal adhesion formation. *Surgery* 2007; 141: 403-410.

<sup>4</sup> Cahill RA, Redmond HP. Cytokine orchestration in postoperative peritoneal adhesion formation. *World J Gastroenterol* 2008; 14(31): 4861-4866