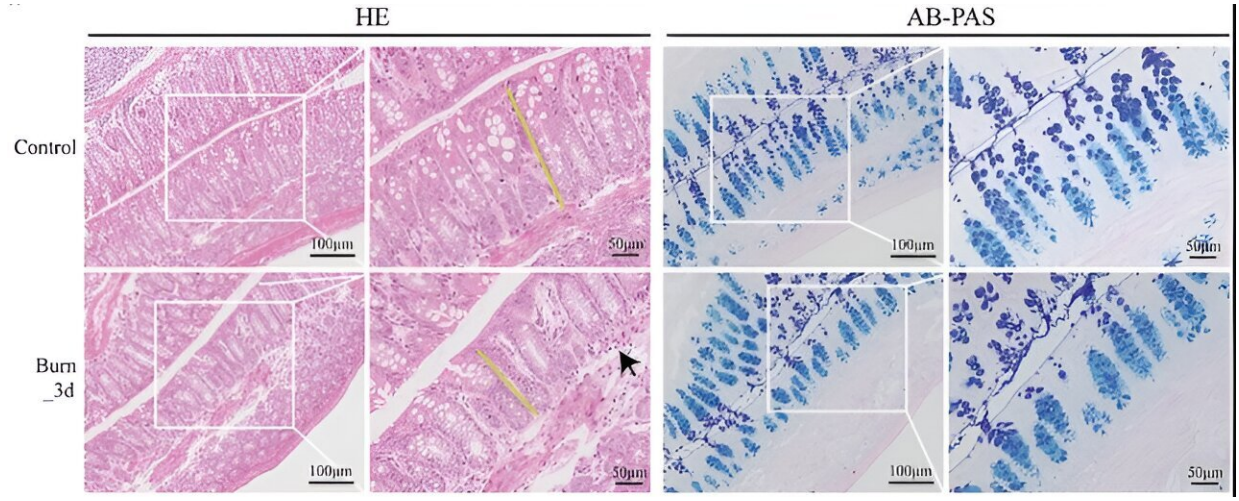
Burn injury disrupts gut microbiome and weakens intestinal mucus barrier, finds study

February 5 2024



The effect of burn injury on colonic tissue and intestinal mucus barrier. (a) hematoxylin and eosin (HE) and Alcian blue/periodic acid Schiff (AB/PAS) staining of the distal colon in mice on day 3 after burn injury. The yellow line indicates the height of the crypt. Aggregation of basal lymphocytes is indicated by a black arrow. Credit: *Burns & Trauma* (2023). DOI: 10.1093/burnst/tkad056

In a study published in the journal *Burns & Trauma*, researchers employed a combination of techniques to analyze the effects of burn injury on the gut microbiota and mucus barrier in mice.

A modified histopathological grading system assessed colon tissue and mucus barrier integrity. 16S rRNA sequencing revealed changes in gut

microbial composition over 10 days post-burn. Metagenomic sequencing provided deeper insights into mucus-related bacteria and potential underlying mechanisms.

This study provides compelling evidence that burn injury disrupts the intestinal mucus barrier and alters the gut microbiota composition. Mucus-degrading bacteria appear to play a role in mucus breakdown, while probiotics may promote repair through short-chain fatty acids production.

Professor Xi Peng, the leading researcher of this study, emphasizes, "This study is a breakthrough in understanding the intricate relationship between gut microbiota and intestinal health post-burn injuries. It highlights the dual role of microbiota in both exacerbating and healing intestinal damage, offering a new perspective for targeted therapeutic strategies."

This research holds significant promise for improving burn treatment outcomes. By targeting specific gut bacteria or their metabolites, it may be possible to protect the intestinal mucus barrier, prevent bacterial translocation, and ultimately improve patient survival and recovery. Further research is warranted to translate these findings into clinical applications.

More information: Xule Zha et al, The impact of gut microbiota changes on the intestinal mucus barrier in burned mice: a study using 16S rRNA and metagenomic sequencing, *Burns & Trauma* (2023). DOI: 10.1093/burnst/tkad056

Provided by TranSpread