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Summary

AN UROPATHOGENIC ESCHERICHIA COLI STRAIN INDUCED CHOLANGITIS IN THE PROGRESSION OF PRIMARY BILIARY CHOLANGITIS

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UEG Week Copenhagen 2023 | Poster

Hepatobiliary

October 17, 2023

A specific uropathogenic Escherichia coli strain identified in PBC patients disrupts the intestinal barrier and translocates to the liver, inducing anti-mitochondrial antibodies and cholangitis in mouse models.

KEY POINTS

- Researchers isolated 93 E. coli strains from feces of 31 PBC patients and 90 strains from 30 healthy controls, identifying a specific strain (Ex) colonizing PBC intestines that also caused urinary tract infections.
- Mice gavaged with Ex strain developed high titres of anti-mitochondrial antibodies, severe intestinal barrier destruction, and translocation of bacteria to mesenteric lymph nodes and liver, unlike control mice.
- Ex-gavage in dnTGFβRII mice induced earlier anti-mitochondrial antibody production and significantly enhanced cholangitis compared to control E. coli strain K12 or PBS, with increased inflammatory dendritic cells, CD8+ T cells, and CD20+ B cells.
- Liver biopsies from PBC patients showed significantly increased abundance of bacteria and E. coli, with E. coli detected around bile ducts in PBC but not in autoimmune hepatitis or non-alcoholic fatty liver disease livers.
- The findings suggest an uropathogenic E. coli strain may be a critical causative pathogen for PBC through intestinal barrier disruption and hepatic translocation.

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