Crohn’s disease and ruminant farming. Got lactase?

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Crohn’s disease (CD) is a well known chronic pathological condition whose aetiology has remained unrecognized for nearly a century. Complex immune mechanisms in a specific genetic background causing an abnormal local inflammatory response are thought to be directly responsible for the clinical picture, but no external factor triggering such host responses has been identified. Humans lose the capability of breaking down milk lactose early in life and, afterwards, ingestion of large amounts of lactose causes a transient digestive illness known as lactose intolerance. Since some populations have developed a lactose tolerance mutation, we submit the hypothesis that this adaptation to dairy farming could be related to CD as a collateral effect of exposure to a intestinal inflammation-causing ruminant parasite to an epidemiological analysis of association throughout the world.

Data from published sources regarding by country CD and type I diabetes incidence, lactose tolerance, livestock population, food production, Gross National Income and human population were submitted to correlation, multiple regression and principal components analyses. Multiple regression was also applied to a published 20-year time series for CD incidence in Japan. These analyses showed a strong association between country incidence of CD and frequency of lactase persistence as well as other ruminant production and consumption variables that further supports the meaning of those observations.

The evolutionarily plausible framework provided by this association with the species suffering a similar inflammatory bowel disease (IBD), its coincidence with the expanse of the Friesian cattle lineages, that could act as a Trojan horse, in addition to recent microbiological, immunological and therapeutical observations consistent with a slow infection type of pathogenesis, supports a mycobacterial aetiology of human IBD. Further research challenging the hypothesis of a shared aetiology by Mycobacterium avium subsp. paratuberculosis of human and ruminant IBD is needed for confirmation or rejection of this hypothesis.