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INCREASE IN DENDRITIC CELL MIGRATION MARKERS CCR7 AND CCR9 IN THE NEO-TERMINAL ILEUM OF POSTOPERATIVE CROHN'S DISEASE: AN ADAPTIVE RESPONSE TO BACTERIAL EXPOSURE?

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Introduction Gut dendritic cells (DCs) are crucial in bacterial recognition, T cell signalling and inflammatory regulation. DC TLR expression is altered in CD: increased on myeloid DC (MDC) in colonic CD and reduced on plasmacytoid DCs (PDC) in postoperative CD (POCD) ileum. In active CD, peripheral CD4 and CD8 T cells showed increased intestinal homing with high CCR9 levels. In Crohn's colonic tissues, CCR7, a homing marker crucial for DC trafficking to mesenteric lymph nodes, was elevated compared with controls. Additionally CCR7 expression on MDC is higher in ileal compared with colonic tissue in CD.

CCR7 and CCR9 expression on DC in POCD is unknown. After ileo-caecal resection the neo-terminal ileum is exposed to the bacteria rich contents of the colon. The authors hypothesise that alteration in gut microflora after surgery may modulate expression of homing markers on DC from POCD patients. The authors aimed to examine homing marker expression on MDC and PDC from the ileum and the colon in healthy controls (HC) and POCD patients.

Methods HC and POCD patients were identified at colonoscopy. Intestinal lamina propria mononuclear cells were collected using collagenase digestion and labelled with directly conjugated monoclonal antibodies to CCR7 and 9. PDC and MDC were characterised as CD11c+ve and –ve respectively and expression of CCR7 and 9 by multicolour flow cytometry measured. Statistical analysis was via unpaired *t* tests. In experiments with paired colonic and ileal samples paired *t* tests were performed.

Results In paired samples, HC ileal CCR9+ve PDC concentrations were lower than colonic PDC (26.46±10.43/ml SEM vs 53.76±20.16/ml SEM, p<0.05). However, POCD ileal CCR9+ve PDC did not differ from colonic concentrations (108.0±33.24/ml SEM vs 93.1±43.01/ml SEM, p=NS).

There were significantly higher concentrations of CCR9+ve and CCR7+ve PDCs within ileal POCD compared with ileum normal controls (103.8±22.64/ml vs 37.68±7.434/ml, p=0.039 and 117.4±26.97/ml SEM vs 40.47±3.97/ml SEM, p=0.03).

No differences in MDC concentrations of both homing markers in all types of tissue existed.

Conclusion POCD neo-terminal ileum showed higher CCR7+ve and CCR9+ve PDC than normal ileum. This novel finding indicates a potential role for PDC in CD pathogenesis. The loss of the ileocaecal valve in POCD may alter microbiota flora exposure in the ileum with an adaptive response of CCR9+ve DC to a level seen in normal colonic tissue. Additionally, this may induce migration of PDC by upregulation of CCR7 expression. Further studies to examine the changes with disease progression may unravel the function of PDC in ileal POCD tissues.

Competing interests None.

Keywords CCR7, CCR9, dendritic cells, migration markers, postoperative Crohn's Disease.