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# Neuroendocrine Proliferations in Inflammatory Bowel Disease

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**BACKGROUND:** Well-differentiated neuroendocrine tumors (NETs) in the gastrointestinal tract are rare. NETs in inflammatory bowel disease (IBD) patients are exceptionally rare. The pathogenesis of NETs and other neuroendocrine proliferations (NEPs) in IBD is not well defined. Our aim is to study clinical and pathologic features of NETs and NEPs in IBD in an effort to understand their pathogenesis and biological behavior.

**METHODS:** Electronic surgical pathology archives were searched from 1994-2016 to identify biopsies and surgical resections of IBD with NEPs. Poorly differentiated neuroendocrine neoplasms were excluded. Clinical data were reviewed by electronic medical records. Microscopic slides were reviewed to investigate pathologic features. NEPs were classified according to size: ECMs (<0.5 mm) and well-differentiated NETs (>0.5 mm). NETs were further classified into microcarcinoid tumors (>0.5,<5.0 mm) and carcinoid tumors (>5.0 mm). Mucosa adjacent to lesion was evaluated for inflammation, glandular dysplasia and neuroendocrine cell hyperplasia. Cases with NETs alone and with normal colonic mucosa were used as controls.

**RESULTS:** Twelve cases of NEPs (age range=18-62; M:F=7:5) were identified from an estimated total of 21,206 IBD cases, including ulcerative colitis (n=6), Crohn's disease (n=5), and indeterminate colitis (n=1). All NEPs were incidentally discovered. Active inflammation was identified in mucosa adjacent to all ECMs. Only 33% of NETs were associated with adjacent active inflammation. Only one ECMs and one microcarcinoid tumor exhibited mucosal neuroendocrine cell hyperplasia.

**CONCLUSION:** Compared to the general population (SEER database), NETs appear to occur more frequently in IBD patients in our institution, likely due to increased surveillance. NETs in IBD are often incidental findings that are not associated with active or chronic inflammation, dysplasia, or neuroendocrine cell hyperplasia. Contrastingly, ECMs in IBD are associated active inflammation in adjacent mucosa, suggesting ECMs are reactive proliferations and probably do not progress to NETs. However, additional cases need to be studied to understand their biologic behavior.