

## Flat and Depressed Lesions of the Colon and Rectum: Pathogenesis and Clinical Management

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### Abstract

**Introduction:** It is not clear whether flat lesions play a role in the pathogenesis of colorectal carcinoma. Flat lesions are being increasingly recognised with new colonoscopic techniques. **Materials and Methods:** A total of 10,939 consecutive colonoscopies were performed over a 9-year period. After bowel preparation with polyethylene glycol electrolyte lavage solution, high-resolution video colonoscopy and indigocarmine spraying were performed to detect flat lesions. All lesions suggesting neoplastic change were removed by polypectomy or surgery. Cancers invading beyond the submucosal layer were excluded from this analysis. The gross appearance of flat-type lesions was classified as flat elevated type or flat depressed type based on the presence or absence of central depression. **Results:** A total of 5408 neoplastic lesions were index lesions, including 5035 adenomas and 373 carcinomas (124 with submucosal invasion). The prevalence of flat depressed and flat elevated lesions were 2.8% and 18.1%, respectively. Submucosal invasion rates were 17.1% in the flat depressed, 0.8% in the flat elevated, 1.6% in the sessile, 4.0% in pedunculated lesions and 9.3% in creeping lesions. The submucosal invasion rate in the flat depressed lesions was significantly higher than in any others, except for creeping lesions ( $P = 0.06$ ). The percentage of flat elevated and flat depressed carcinomas among all carcinomas invading the submucosa was 6.5% and 21.0%, respectively. **Conclusion:** Flat lesions were common during routine colonoscopy. One-quarter of colorectal cancers may be derived from flat lesions. Training in dye spray technique may result in a higher detection rate of flat colonic lesions.

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**Key words:** Carcinogenesis, Chromoscopy, Flat adenoma, High-resolution video endoscope

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