

Chapter 8

THE IMPORTANCE OF ANATOMICAL REGION IN COLON TUMORS

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INTRODUCTION

Tumors originating in different areas of the colon show clear clinical and molecular differences. Tumors of the cecum, the ascending colon, the transverse colon and the splenic flexura are included in the diagnosis of right colon cancer (RCC), while left colon cancers comprise tumors of the descending colon, the sigmoid colon and the rectum. Anatomical classification of colorectal cancers (CRC) was first performed by Bufill et al. (Bufill, 1990). In later studies, clear differences in the molecular pathways, epidemiology, pathogenesis, genetics and epigenetics of tumors were observed according to their anatomical region.

The left and right colon are different both embryologically and anatomically. The right colon derives from the midgut, and the left colon from the hindgut. The right colon is fed mainly from the superior mesenteric artery, while the left colon is fed mainly from the inferior mesenteric artery, and while RCC patients are diagnosed at a later stage with symptoms of anemia and weight loss than LCC patients, LCC shows itself with changes in bowel habits and rectal bleeding (Also, vascular invasion is more frequently seen in mucinous and high grade right colon tumors) (Nawa & et al., 2008).

Gao et al. showed that the location of the tumor was an independent indicator of survival in mucinous adenocarcinoma. A worse survival rate was found in rectally located mucinous adenocarcinomas than in right-located mucinous adenocarcinomas (Gao & et al., 2013).

It has been observed that 80% of sporadic CRCs have chromosomal instability characterized by oncogene activation (KRAS) and/or loss of tumor suppressor genes (APC, SMAD4 and p53). This accumulation of genetic changes supports the adenocarcinoma model described by Fearon and Vogelstein. These genetic and epigenetic changes are clearer in rectal cancer and are more frequent in left colon tumors (Fearon & Vogelstein, 1990).

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