

Neoplastic Diseases of the Small Bowel



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KEYWORDS

- Small bowel tumors • Capsule endoscopy • Device-assisted enteroscopy
- CT-enteroclysis • MR-enteroclysis • CT enterography • MR enterography

KEY POINTS

- The incidence of small bowel tumors is increasing over time.
- Due to its ability to inspect the entire small bowel in a noninvasive manner, capsule endoscopy (CE) is an ideal diagnostic tool when a nonobstructing small bowel tumor is suspected.
- Dedicated small bowel cross-sectional imaging techniques have a key role in both diagnosis and preoperative staging of small bowel tumors.
- Device-assisted enteroscopy (DAE) provides definitive diagnosis by allowing collection of tissue samples; moreover, by marking the identified lesion, it enables its easier recognition at time of surgery.
- In the diagnostic work-up of small bowel tumors, CE, DAE, and advanced radiologic imaging techniques are complementary rather than competing modalities.

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INTRODUCTION

Although the small bowel represents 75% of the length and 90% of the overall mucosal surface of the gastrointestinal (GI) tract, it is a rare location for the development of neoplasms. Overall, small bowel tumors account for 3% to 6% of all GI neoplasms and 1% to 3% of all GI malignancies.¹⁻³ Despite the identification of more than 40 different histologic types of small intestinal tumors,^{4,5} there are 4 major histologic subtypes: approximately 30% to 45% of small bowel tumors are adenocarcinomas, 20% to 40% neuroendocrine tumors, 10% to 20% lymphomas, and 10% to 15% sarcomas.^{5,6}

According to the US Surveillance, Epidemiology, and End Results (SEER) program, the rate of new cases, age-adjusted and based on 2009 to 2013 diagnoses, is 2.2 per 100,000 persons per year.⁷ Therefore, it is estimated that in 2016 approximately 10,000 people in the United States will be diagnosed with small intestinal cancer and approximately 1300 people will die of it.⁷ International data show that the incidence varies across countries, higher in Western countries and Oceania than in Asia, with an incidence ratio of 2 to 2.5 when US and Japanese populations are compared.^{1,8-14} A higher incidence rate is observed in the black US population compared with whites,^{7,15} and a high incidence rate is also reported among the Maori of New Zealand (approximately 4 cases per 100,000 per year) and Hawaiians.¹ In most countries, the overall incidence of small bowel tumors is higher in men than in women; it starts increasing after the age of 40 to 45 years and tends to rise with age, until the age of 75. The median age at diagnosis is approximately 65 years.^{1,4-6,16-19}

Although some differences exist among studies, mostly concerning the incidence patterns of specific histologic subtypes, several studies consistently show an increasing overall incidence rate of small bowel neoplasms over time. The US SEER program⁷ reported that over the past 20 years (from 1992 to 2013) it increased from 1.5 to 2.2 cases per 100,000 inhabitants (Fig. 1). It is, therefore, calculated that rates for new small bowel cancer cases have been rising on average 2.4% each year over the past 10 years.⁷ Similar time-trend figures were also reported in recent studies from European countries, such as the United Kingdom,¹⁶ Sweden,¹⁷ France,¹⁸ and Denmark.¹⁹ Currently, the reason for this increase remains largely unexplained. Taking into account the epidemiologic trends of predisposing diseases (ie, celiac disease and

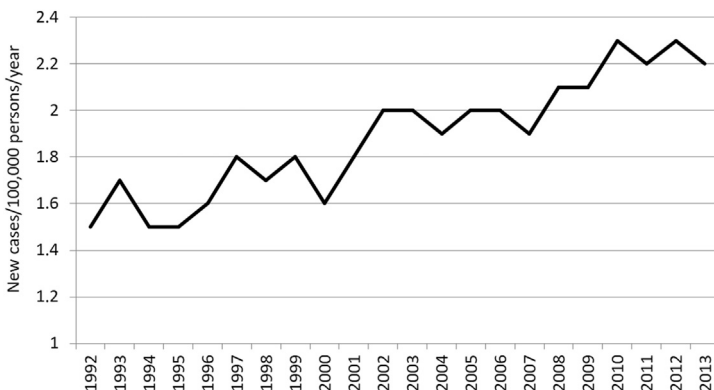


Fig. 1. Age-adjusted incidence ratio of small bowel tumors between 1992 and 2013 in the United States based on SEER program. (Modified from National Cancer Institute. SEER stat fact sheets: small intestine cancer. Available at: <http://seer.cancer.gov/statfacts/html/smint.html>. Accessed 25 March, 2016.)

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