



Low anterior resection syndrome: is it predictable?

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Advances in technology and the development of neoadjuvant therapy have made low anterior resection, which avoids a permanent stoma and preserves the sphincter, an increasingly common option for patients with rectal cancer [1, 2]. However, posttreatment surveillance has mainly focused on recurrence, while the functional consequences of treatment and survivors' quality of life (QOL) are often overlooked.

Low anterior resection syndrome (LARS) refers to bowel dysfunction following rectal cancer resection. LARS is a constellation of symptoms that includes urgency, fecal incontinence, increased frequency, and other altered bowel habits [2]. It is estimated that 50% to 90% of patients undergoing low anterior resection are affected, with 5% ultimately requiring a permanent stoma [3]. These symptoms can significantly diminish patients' QOL, including physical discomfort and emotional distress. Although the exact mechanisms underlying LARS appear to be complex and multifaceted, emerging research has identified several risk factors.

LARS rates after rectal surgery vary widely and are influenced by the postoperative evaluation strategy, surgical approach (e.g., open, laparoscopic, or robotic surgery), and other risk factors (e.g., type of radiotherapy, patient obesity, and the tumor site) [2–4].

A meta-analysis by Ye et al. [5] reported LARS risk factors based on data from 21 studies with over 5,000 patients. Seven risk factors (sex, age, tumor height, anastomotic height, radiotherapy and chemotherapy, anastomotic leakage, and dysfunctional stoma) were selected for detailed analysis. The authors reported that low tumor height, low anastomosis height, radiotherapy and che-

motherapy, and dysfunctional stoma were significant independent predictors of postoperative LARS. In particular, low tumor height (odds ratio [OR], 2.91; 95% confidence interval [CI], 1.65–5.13) and low anastomotic height (OR, 4.01; 95% CI, 2.94–5.46) were major predictive factors. Neoadjuvant and adjuvant radiotherapy were also among the main risk factors, even for patients with a larger remnant rectum. A study conducted by Sun et al. [6] reported that neoadjuvant chemoradiotherapy (nCRT) was an independent risk factor for major LARS (OR, 2.20; 95% CI, 1.24–3.91). The authors posited that radiation adversely affected rectal compliance, and thus increased the frequency and urgency of bowel movements.

In a cross-sectional study by Liang et al. [7], low tumor height (less than 8 cm from the anal verge) increased the risk of LARS by 3 times compared to the risk in patients with a tumor height of 8 cm or more (OR, 3.11; 95% CI, 1.06–9.13). However, no significant associations were observed between LARS occurrence and nCRT use. This may reflect the limitations of the cross-sectional study design and the small number of patients who received radiotherapy. Furthermore, unmeasured confounders such as adjuvant chemotherapy, medications, diet modifications, and physiological adaptation after surgery may also affect cross-sectional analyses.

The literature contains conflicting evidence regarding the risk of major LARS with regard to age, sex, anastomotic leakage, and dysfunctional stoma. Among these, anastomosis leakage and dysfunctional stoma may be confounding factors for low anastomosis

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and preoperative radiotherapy. A recent analysis of prospective data from a well-designed clinical trial (ROLARR) [8] identified additional variables that may affect LARS, including perioperative American Society of Anesthesiologists (ASA) grade and body mass index.

Emerging novel treatment strategies may reduce the incidence of LARS, including through selective use of radiation and increased adoption of nonoperative management (NOM). A recent randomized controlled trial by Schrag et al. [9] found that in patients with locally advanced rectal cancer, preoperative FOLFOX (fluorouracil, leucovorin, and oxaliplatin) chemotherapy and preoperative chemoradiotherapy yielded similar oncologic outcomes. Furthermore, the use of immunotherapy for locally advanced rectal cancer, where tumors have high microsatellite instability, can result in a more long-lasting, complete response. This allows more selective use of radiotherapy and possibly greater use of NOM, thereby limiting bowel injury. However, most patients with rectal cancer require standard therapy, and LARS will continue to be an important issue for survivors.

The current issue is thus to identify perioperative parameters that best identify patients at greater risk of major LARS, thereby promoting informed patient-clinician decision-making. In 2016, Battersby et al. [10] developed the Preoperative LARS Score (POLARS), a prediction model and nomogram to estimate postoperative bowel function after restorative proctectomy. Although it is an excellent screening tool, it might not be as useful for assessing outcomes after treatment. The score has been reported to be useful in predicting postoperative LARS and identifying patients at risk of major sequelae and needing intensive post-surgical treatment.

To better identify LARS risk factors and strengthen predictive decision-making, well-designed large longitudinal studies with serial measurements of bowel function over long follow-up periods are needed. Mechanistic studies and models with larger sample sizes will improve our understanding of the appropriate predictive variables and allow better calculation of risks to patients' QOL and long-term health.

ARTICLE INFORMATION

Conflict of interest

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