Inter-sphincteric Resection for Low Rectal Cancer

KI Deen*, W Wijenayake, ZM Hassan*****

Inter-sphincteric resection (I.S.R.) is a technical development of extended low anterior resection for low rectal cancer which involves the mucosa of the upper anal canal. The technique was first described by Schiessel *et al*[1] who undertook the procedure to enable restorative resection and avoidance of a permanent stoma. The key steps of the operation include a laparotomy with mobilization of the left colon including the splenic flexure, autonomic nerve sparing rectal mobilization with total mesorectal excision down to the pelvic floor including division of Waldeyer's fascia and anorectal mobilization within the puborectalis sling. The perineal phase involves circumferential anal canal transaction just deep to internal anal sphincter, which must be preserved in its distal part, and dissection upwards to meet in the plane of the abdominal dissection. This enables complete mobilization of anorectum with its tumour and permits delivery of the specimen, usually trans-anal, to minimize contamination. Generous lavage of the anal canal and rectum with a tumouricidal agent, 10% Povidone iodine solution and purse string closure of the lower end of anorectum early after trans-anal mobilization are useful additions to the operation that would help minimise tumour spillage and recurrence (Fig. 1). Reconstruction comprises trans-anal hand sewn colo-anal anastomosis.

As in every case of anterior resection, it is essential to prevent coning at the level of the pelvic floor which helps obtain curative circumferential margins. Not all low rectal tumours would be suitable for this type of resection; tumours that are > 3 cms. in circumference, those that are poorly differentiated and those with a mucinous component which also involve part of the pelvic floor muscle or anal sphincters should be excluded. The operation may be performed either by the open or laparoscopic method by surgical teams that have considerable experience with low anterior resection. Pre-operative long-course chemoradiation, known to down-size a proportion of rectal tumours, may convert a previously unsuitable tumour to one that is suitable for intersphincteric resection. Additional investigations that

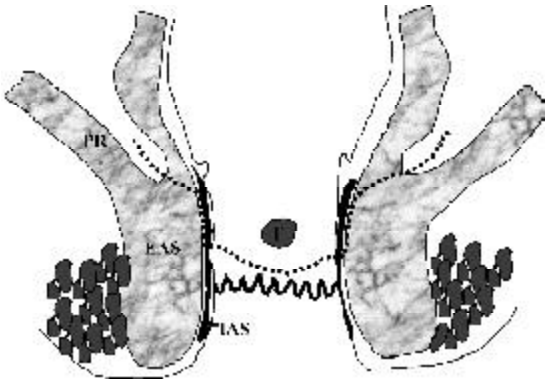

Fig. 1 : Schematic representation of inter-sphincteric resection for low rectal cancer.
PR – Puborectalis muscle; EAS – External anal sphincter; IAS – Internal anal sphincter; T – Tumour; Dotted line – Marks the line of trans-anal resection which aims to excise tumour with the upper part of internal anal sphincter preserving lowermost internal sphincter, external sphincter and puborectalis.

*Professor of Surgery; **Senior Surgical Trainee; ***Colon and Rectal Fellow; Department of Surgery, University of Kelaniya Medical School, North Colombo, Sri Lanka.

facilitate decision making for ISR are endoluminal ultrasound and good quality magnetic resonance imaging. Tumours that are "T" stage 1, 2 or early 3 are identifiable using one of these imaging modalities in over 90%.[1]

Once the hurdle of feasibility of restorative resection with a prospect of oncological cure has been surmounted, the concern is of residual anorectal function and quality of life. This is an important issue in the current context because rectal cancers are being diagnosed at an earlier stage and there is increasing prospect of cure and longer-term survival. In almost all cases of low or extended low anterior resection, anorectal function has been known to improve around twelve months after operation.[2] There are conflicting data about long-term quality of life issues in patients after extended low anterior resection with ISR.[3-5] These patients are known to suffer from an increase in the number of accidents and anal soiling, chiefly due to lack of part of the internal anal sphincter. Our own unpublished data of patients who have lived 3 or more years after low anterior resection (complete preservation of the internal anal sphincter) compared with extended resection and ISR (preservation of internal anal sphincter in part) tend to indicate an increase in the incidence of soiling and accidents in the latter group. However, this must be compared with poor quality of life and the social taboo, including the prohibitive cost of appliances, that has been previously reported in patients living in South Asia.[6] Furthermore, pharmacological agents such as loperamide which are known to modulate internal anal sphincter function are useful adjuncts in management.

A recent review of 612 patients from a variety of centres having intersphincteric resection for low rectal cancer has reported a mortality after ISR of 1.6%, average anastomotic leak rate of 10.5%, a pooled local recurrence rate of 9.5% and average 5-year survival of 81.5%[5] which confirms its oncological safety.

In conclusion, extended low anterior resection facilitated by inter-sphincteric resection has advanced the limit to which we may now undertake restorative surgery for low rectal cancer. The technique must only be offered to those with a high prospect of achieving oncological cure i.e. achieving a distal limit of oncological clearance of at least 10 mm and a negative circumferential margin. It is essential to assess anal sphincter function pre-operatively by complete history including previous obstetric trauma and anal surgery followed by digital examination to assess anal resting and squeeze tone as a minimum. Evaluation by anal manometry and endo-anal ultrasound to determine the proportion of internal anal sphincter that is likely to be left behind are useful but not absolutely essential.

References

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