TABLE 1. Principal applications of indocyanine green fluorescence imaging in colorectal surgery.

Application	Route/timing	Intended information	Main supporting evidence	Current limitation
Anastomotic perfusion	Intravenous; intraoperative	Arterial inflow and regional bowel enhancement	Multiple randomized trials and meta-analyses; benefit varies by surgical setting [12-19,36]	Subjective interpretation; no universal threshold
Pedicled omentum and reconstructive flaps	Intravenous; after mobilisation and before inset	Distal pedicle or flap enhancement	Small comparative observational studies and feasibility series [37,38]	Small, predominantly non-randomized series
Ileal pouch perfusion	Intravenous; before and after pouch construction or vascular ligation	Effect of lengthening maneuvers on pouch perfusion	Small observational and feasibility studies [39]	No validated time or intensity threshold
Ureteral visualisation	Retrograde intraureteral instillation	Repeated visualisation of ureteral course	Predominantly feasibility studies and observational series [41,42]	Requires cystoscopy; limited comparative outcome data
Lymphatic mapping	Submucosal or peritumoral injection	Lymphatic channels and fluorescent nodes	Feasibility and diagnostic-accuracy studies; systematic reviews [43-47]	Variable sensitivity; cannot replace standard lymphadenectomy
Lesion localisation	Endoscopic submucosal injection before surgery	Localisation of small/non-palpable lesions	Observational studies and technical series [48-50]	Time-dependent loss and injection-related spillage
Peritoneal metastasis detection	Intravenous, protocol-dependent	Additional superficial suspicious deposits	Small pilot and feasibility studies [51,52]	Non-specific uptake and limited penetration
Liver metastasis detection	Intravenous, usually preoperative	Superficial lesions and fluorescent tumour rim	Observational diagnostic studies and feasibility series [53-55]	Limited depth; background liver fluorescence
Transanal dissection guidance	Peritumoral or tissue-plane injection	Orientation and dissection-plane support	Technical reports and video descriptions [56]	Mainly technical evidence; operator-dependent

Note: Evidence categories describe the predominant study designs supporting each application and do not represent a formal GRADE assessment. The availability of randomised evidence does not imply uniform clinical benefit, and technical feasibility alone does not establish improved patient outcomes.