

Colonic Polyp and Treatment Options

The colonic polyps are usually identified during colonoscopy and the incidence increases with age. Standard colonoscopy based on white light may have a polyp miss rate of anywhere from 1% to 26%. Some newer modes of enhanced polyp detection and classification have been developed over the last few years. High definition colonoscopy & optical chromoendoscopy (NBI) are useful to enhance polyp detection.

Colonic polyp may be found in about 20% of overall adults. People of all ethnicities and genders are at risk. Most colon polyps have the potential to become malignant. Around 75% of colorectal cancers start from adenomatous polyps, and about 80% of all colon polyps are adenomas. But only about 5% of adenomas are actually malignant. The risk of a random, average-size colon polyp becoming cancerous is estimated to be 8% over 10 years and 24% over 20 years.

Most colon polyps won't cause any symptoms. Usually, by the time when it is symptomatic then either it has become a difficult one for resection or has already turned into malignancy. So, by interrupting the adenoma carcinoma sequence, colonoscopic polypectomy can prevent the development of colorectal cancer ¹.

The method used to perform colonic polypectomy depends on the size, shape and histological type of the polyp. Prior to performing polypectomy, polyps should be biopsied to determine the need and also the methods of polypectomy.

A variety of polypectomy techniques and devices are available, and their use can vary greatly based on local availability and preferences ². In general, cold forceps and cold snare have been the polypectomy methods of choice for smaller polyps, particularly polyps 1 to 3 mm in size. In slightly larger polyps, jumbo forceps could be considered. Cold forceps can easily grasp small polyps that otherwise might be too small to snare. Advantages to cold forceps polypectomy include avoiding risk associated with electrocautery and an almost negligible

risk of colonic perforation. One challenge associated with cold forceps polypectomy is that after the initial bite, minor bleeding can obscure the polypectomy field increasing the risk of leaving residual polyp behind. The use of hot forceps is not recommended now a day for its complications.

Snare polypectomy is found to be the preferred method for removal of polyps 1 cm or greater in size. A snare can be either hot or cold depending on use of electrocautery or not. The two most common post-polypectomy complications are bleeding and perforation. Their incidence can be decreased with the use of meticulous polypectomy techniques and the application of some devices like endoclips or endoloop in the pedicle before polypectomy.

Hemorrhage is the most common complications of polypectomy and is usually divided into immediate (less than 12 h post-procedure) and delayed (after 12 h post-procedure but up to 30 d). There is a greater risk of immediate hemorrhage associated with cut or blended electrocautery and a greater risk of delayed hemorrhage with the use of coagulation current.

Perforation is another serious complication that can result from polypectomy. If a perforation is visualized during the procedure, it can be closed with endoclips; surgery may be needed in some cases. Treatment of post-polypectomy syndrome is usually conservative involving antibiotics, fluids, and bowel rest.

Some polyps provide distinct challenges and are very difficult to remove ³. These includes polyps that are located behind colon folds, polyps that are very large, polyps that are just out of reach, and flat, carpeted, or polyp having thick pedicle ⁴.

Now large polyps are managed endoscopically either by Endoscopic Mucosal Resection (EMR) or Endoscopic submucosal dissection (ESD) ⁵. EMR and ESD are valuable endoscopic resection techniques that have evolved extensively over time as our understanding of the mucosal and submucosal layers has expanded.

Table-I

<i>Comparison between EMR & ESD</i>		
	EMR	ESD
Cost	Cheap	Expensive
Technique	Less complex	More Complex
Duration	Relatively shorter	Longer procedure
Bleeding Risk	<1%	2%
Perforation Risk	<1%	5- 18%
Need for In-patient care	Not usually needed	Up to 5 days normally.
Need for CO2 insufflation	Not needed	Needed
Sedation	Conscious sedation	Preferably under GA
En-bloc resection	Not possible if piecemeal EMR	Usually possible

These are two well-known endoscopic resection procedures used for some difficult polyps. As compared to standard polypectomy techniques, they provide wider and deeper resection margins and allow en bloc removal of lesions for more detailed pathology with curative intent for early neoplastic polyps.

EMR was first developed in Japan for the treatment of early gastric lesions and has since expanded its use to include various dysplastic lesions of the esophagus, stomach, small intestine, and colorectum. There are several variations of EMR that can be broadly classified as injection, cap, and ligation assisted techniques. Newer methods, such as underwater EMR (U-EMR) and cold snare EMR (CS-EMR) are modification to the standard EMR techniques that are gaining popularity due to their excellent safety profile and favorable outcomes⁶. In general, conventional EMR utilizes submucosal injection to lift the mucosal-based lesion and either uses blended-cut current or pure coagulation for resection. EMR can be performed on sessile polyps 2 cm in size or larger. EMR involves submucosal injection (often of saline) creating a cushion for the polyp and then hot snaring the polyp either *en bloc* or in piecemeal⁷.

After its first introduction in 1988, endoscopic submucosal dissection (ESD) has evolved significantly with development of new tools as well as techniques⁸. ESD has an important role in en bloc removal sessile polyp & lateral spreading mucosal lesions. ESD in the colon has been widely used for laterally spreading tumors larger than 20 mm in diameter⁹.

There are difference between EMR and ESD

Each technique has its own advantages and disadvantages¹⁰. EMR is easier to learn and perform, has a lower risk of adverse events, and carries a low-cost burden. Its main disadvantage is that some patients who are treated with this procedure may require additional surgery. However, if they had been treated with ESD, they may have been cured. The other major disadvantage of EMR is that it has a high lesion recurrence rate in the range of 15% to 20%, which necessitates further therapy. The main advantage of ESD is that it allows complete dissection of any type of lesion regardless of size. Removing the entire lesion in a single piece is a basic oncologic principle and carries the benefits of accurate histological assessment and staging, determination of curative resection and a very low recurrence rate of less than 1%. However, it is technically more demanding than EMR. Furthermore, ESD is a relatively complex procedure associated with a higher perforation rate compared with EMR. Fortunately, most perforations caused by an ESD can be successfully treated by endoscopy without the need for surgery.

Colonoscopic polypectomy require not only expertise on behalf of the endoscopist, but also sufficient time, appropriate accessories, and knowledgeable ancillary staff. These procedures should be pursued by specially trained therapeutic endoscopist, as some of them may be technically challenging than routine polypectomy. Judicial use of different approach can lead to a decrease

in the need for surgical resection and reducing complications related morbidity & mortality.

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