Editorial

Endoscopic mucosal resection in colorectal neoplasms

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Polypectomy using a snare and electrocautery through a flexible colonoscope has been used with increasing frequency over the last 40 years and is a form of endoscopic mucosal resection which has been used principally in the treatment of colorectal neoplasms. Technical developments in the 1970 and 1980's: clips, endcaps and band ligation and in the 1990's injection to treat bleeding and saline cushion assisted polypectomy allowed the development and application of endoscopic mucosal resection techniques in the treatment of early gastric cancer.[1] The good results of minimally invasive resections achieved by careful Japanese endoscopists with outstanding histopathological assessment and clinical follow up has established endoscopic mucosal EMR as a first line treatment for patients with smallish (2 centimeter or less) well-differentiated cancers confined to the mucosal layer.[2] These results led to experienced Japanese colonoscopists extending this type of treatment in the colon.[3] Careful colonoscopy associated with a frequent use of chromoendoscopy led to the identification of so called flat adenomas, which were easy to miss on a cursory examination.[4,5] Nonpolypoid colorectal neoplasms maybe macroscopically classified into three groups: slightly elevated (small flat adenomas), laterally spreading, and depressed. Flat adenomas are not invasive until they are rather large, whereas depressed lesions can invade the submucosa even when they are extremely small. Nonpolypoid lesions are difficult to detect and are often overlooked. Keys to detect them are their slight colour change, interruption of the capillary network pattern, slight deformation of the colonic wall, spontaneously bleeding spots, shape change of the lesion with insufflation and deflation of air and interruption of the innominate grooves. Spraying of indigo carmine dye helps to clarify the lesions. A pit pattern analysis with a zoom colonoscope is useful for the diagnosis and staging of early colorectal cancer. Small flat adenomas are thought to be precursors of protruded polyps and lateral spreading tumors, whereas depressed lesions are thought to grow endophytically and become advanced cancers. Small depressed lesions are treated with an endoscopic mucosal resection (EMR) technique; but when they massively invade the submucosa, surgical resection is indicated. Laterally spreading tumors are not as invasive despite their large size and therefore are good indications for the EMR or piecemeal EMR method. Small flat adenomas need not be treated urgently, as almost none is invasive. Accurate diagnosis with dye-spraying and zoom colonoscopy is vital for deciding the treatment strategy. Although the colon wall is much thinner than the stomach and the risks of perforation are higher than in the stomach. In the colon, EMR was shown to be an effective and safe treatment for flat early cancers and highly dysplastic adenomas in several series. In the last few years the indications for resection in the stomach and colon have been extended by the development of a technique known as endoscopic submucosal dissection (ESD), which involves elevation of the flat abnormality using an injection of saline or hyaluronic acid with subsequent careful dissection of the submucosa from the deep muscle (muscularis propria).[6,7] En block resection rather than piece-meal resection allows complete histopathological resection[8] of larger cancers up to 3 centimeters in diameter which may be invading up to 500 microns into the submucosal layer and may be poorly differentiated. A variety of specialized tools are in use including a variety of endcaps and needle knives such at an insulated tip (IT) knife[7] with a ceramic tip to reduce the chance of perforation, a hook knife which cuts as you pull back and a flexible wire-wound (Flex) knife which allows a change in angle of approach. Bleeding can be controlled with careful cautery and perforations

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can be closed with clips. Endoscopic full thickness resection has been proposed and used in animal trials. These procedures can be time consuming and require substantial skill and practice and are not yet widely practiced outside Japan.

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