

1. Rediscovering histology: what is new in endoscopy for inflammatory bowel disease?

Solitano V, D'Amico F, Allocca M, et al. Rediscovering histology: what is new in endoscopy for inflammatory bowel disease?. *Therap Adv Gastroenterol.* 2021;14:17562848211005692. Published 2021 Apr 16. doi:10.1177/17562848211005692

Mucosal healing (MH) as well as histological remission (HR) along with symptomatic relief are considered as an ideal target in the successful management of inflammatory bowel disease (IBD). The recommended high definition white-light endoscopy (HD-WLE) is not able to identify residual inflammatory activity more so in Crohn's disease (CD) where transmural layers are involved. Many new endoscopic technologies for the assessment of mucosal inflammation have come to rescue. This review focuses on the new endoscopic techniques and devices and their role in disease assessment.

Dye-chromoendoscopy: The endoscopic assessment of disease extent by this procedure is significantly correlated with that of histological data. This procedure involves usage of staining agents as methylene blue and indigo carmine which are applied to the mucosa for assessment of the mucosal surface.

Dye-less chromoendoscopy: These are different modalities incorporated by different manufacturers of endoscopes using optical light. This aids in better visualisation of mucosal vascular pattern and morphology. Narrow band Imaging (NBI) (Olympus, Japan) uses optic filter which reduces the light spectrum from the endoscope which then gets absorbed by the hemoglobin projecting an enhanced image of mucosal vascularity. Similarly in Fuji intelligent color enhancement (FICE) (Fujiinon, Japan) image is processed mathematically. Pentax, Japan utilises i-SCAN to enhance mucosal vascularity. Fujifilm, Japan enhances the superficial vascularity using blue light with blue light imaging (BLI) and linked color imaging (LCI) techniques. All these modalities have been shown to be more accurate than the conventional HD-WLE and the images produced correlate better with the histologic findings in terms of extent and degree of disease activity.

Endocytoscopy: This is an imaging technique wherein the microscopic visualization of the superficial mucosal layer (50µm in depth) is feasible during the endoscopy procedure. It correlates 100% with histopathology assessment.

Confocal laser endomicroscopy: This can analyse the microscopy up to a depth of 250µm. It can reveal for example in ulcerative colitis (UC), mucosal pathologies as inflammation, impaired and distorted crypt regeneration, and abnormal vascular patterns.

Artificial intelligence: It is useful where observer variation is suspected. A computer aided system with endocytoscopy is used to predict inflammation in UC. It provides good sensitivity, specificity, and accuracy.

Molecular imaging: It uses administration of fluorescent labeled antibody in conjunction with Confocal laser endomicroscopy for the assessment of for membrane-bound TNF in CD.

2. European guidelines on microscopic colitis: United European Gastroenterology (UEG) and European Microscopic Colitis Group (EMCG) statements and recommendations

Miehlke S, Guagnozzi D, Zabana Y et al. European guidelines on microscopic colitis: United European Gastroenterology and European Microscopic Colitis Group statements and recommendations. *United European Gastroenterol J.* 2021 Feb 22. doi: 10.1177/2050640620951905. Epub ahead of print. PMID: 33619914.

Microscopic colitis (MC) is a form of chronic inflammatory bowel disease characterised by chronic watery, non-bloody diarrhoea with a normal or almost normal endoscopic appearance of the colon, and a distinct histologic pattern of collagenous colitis or lymphocytic colitis. It may be associated with fecal urgency, nocturnal stools and fecal incontinence. MC is a complex interplay of luminal factors, immune dysregulation and genetics. The overall incidence is 11.4 cases per 100,000 person-years in western countries and the overall frequency in patients with unexplained chronic watery diarrhoea is 12.8%. Prolong use of proton pump inhibitors (PPIs), nonsteroidal anti-inflammatory drugs (NSAIDs) or selective serotonin reuptake inhibitors (SSRIs) and female gender are risk factors for the development of MC. Disease activity and clinical remission can be assessed by the Hjortswang criteria or MC Disease Activity Index. Endoscopy shows normal appearing mucosa so an elaborate biopsy from right as well as left colon should be obtained. Histology with thickened subepithelial collagenous band along with increased inflammatory infiltrates in lamina propria, confirms the diagnosis. Oral budesonide remains the mainstay of treatment to induce as well as maintain the remission. There is no risk of adverse effect with long term budesonide, however it may be associated with decreased bone mineral density. In case of relapse or no response, thiopurines, anti-tumor necrosis factor (TNF) drugs or vedolizumab can be used in selected patients. In case of failure of medical therapy surgical options as ileostomy or sigmoidostomy can be offered. Surveillance colonoscopy or histological monitoring is not recommended.

3. Impact of Trans-anal Irrigation Device in the Management of Children With Fecal Incontinence and Constipation

Patel S, Hopson P, Bornstein J, Safder S. Impact of Transanal Irrigation Device in the Management of Children With Fecal Incontinence and Constipation. *J Pediatr Gastroenterol Nutr.* 2020

Sep;71(3):292-297. doi: 10.1097/MPG.0000000000002785. PMID: 32404764.

Patients having neurogenic bowel (NBD), anorectal malformation (ARM) or refractory constipation (RC) often have social stigma associated due to fecal incontinence, also the constipation is refractory to medical therapy, diet, toilet training and behavioural therapy.

This is a retrospective study involving 147 patients with NBD, ARM and RC. Bowel management was done using Trans-anal irrigation (TAI) and results were analysed.

The main objective of TAI is to provide an empty distal colon thereby reducing the chances of incontinence TAI device consists of a pump, a water bag and a rectal catheter with soft inflatable balloon. The catheter is placed into the rectum and balloon is inflated to create a seal. Irrigation is done with a 10-20ml/kg of water once or twice daily. TAI benefitted all the patients in terms of relieving fecal incontinence, constipation and abdominal pain. Few side effects as pain during insertion, abdominal cramps during irrigation, difficulty in catheter retention and perianal irritation were experienced.

4. Fulminant Wilson Disease in Children: Recovery After Plasma Exchange Without Transplantation

Proost, Renee & Cassiman et al. (2020). Fulminant Wilson Disease in Children: Recovery After Plasma Exchange Without Transplantation. *Journal of Pediatric Gastroenterology & Nutrition*. Publish Ahead of Print. 10.1097/MPG.0000000000002894.

Liver transplant (LT) remains the mainstay of treatment in fulminant Wilson disease (WD). There have been many publications outlining the importance of plasma exchange (PE) as a bridge therapy before transplant. The main principal behind is elimination of high levels of free circulating copper which is a result of liver cell necrosis in fulminant WD. These free copper lead to damage to the red blood cells and hemolytic anemia, and other classic symptoms of acute liver failure. This paper presents a patient with fulminant WD with New Wilson Index of 14 (> 11 is a predictor of mortality without transplant) who underwent PE and had a transplant free survival. This girl was diagnosed as WD at the age of 7 years and landed up in acute liver failure without encephalopathy at the age of 14 years. She was started on PE with 10 sessions over 10 days where 3L of plasma was exchanged over 2 hours in each session. Calcium gluconate was administered to combat hypocalcaemia. She was kept of D-penicillamine therapy. She had marked improvement in hepatic functions by one month of therapy. Her MELD score improved from 24 to 20 and Child Pugh from C 12 to B7 after a month. There was no requirement of LT after 3 months on reassessment and the girl remained asymptomatic with normal liver function tests till 3 years of follow up. According to this paper, after literature search 29 relevant articles were found on PE wherein a total of 63 patients have been described aged 5-30 years. Transplant free survival was observed in 25 patients (40%), 28 patients (44%) needed and received LT, and 10 died (16%). This paper proposes that PE should be considered in fulminant WD if transplant option is not there due to various reasons or if the patient is on the waiting list for transplant.

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