Summary

Anorectal motility disorders considered one of the most important subjects in the whole field of the gastrointestinal tract motility because they can disrupt the life style. The anorectal function depends on the complex interrelation of sensory and motor function, so that diagnosis of motility disorders of the anorectum requires combination of a careful history, physical examination and use of special physiological and image techniques like anorectal manometry, endoanal ultrasound, electromyogram and pudendal nerve latencies in determining the line of treatment in the benign anorectal diseases.

Fecal incontinence is a disabling problem, which may be due to a mechanical defect in the muscle, inadequate innervations of the sphincter mechanism or idiopathic causes, by the use of the manometric study we can differentiate between mechanical and neurogenic defects where the anorectal manometry can document reduced resting and squeeze pressure as well as sphincter length in incontinenent quadrants.
Most patients have low resting anal pressure and abnormal external anal sphincter electromyograms suggesting a neuropathy. But abnormally elevated rectal pressures have been recorded in some patients, so that rectal pressures exceeds anal canal pressure intermittently thus causing leakage. Many patients with incontinence also have an obtuse anorectal angle if the angle is obtuse and anal canal pressures are adequate, incontinence does not occur. Conversely if the angle is obtuse and the sphincter is incompetent, incontinence is inevitable. If the angle is normal and the sphincter is inadequate, continence to solid stool is usually maintained.
These results can be confirmed by transanal ultrasound which is the most sensitive method for documenting sphincter injury where by a cross section image of the sphincter is obtained on each rotation of the transducer and allows evaluation of the anal sphincter muscle in three dimensions as the probe is withdrawn from the rectum.
Also the electromyography can help in diagnosis of incontinence by measures the number of phases in the spontaneous motor unit potential of the resting external sphincter muscle where an increase in the number of phases in each motor unit potential reflects evidence of injury to the terminal branches of the pudendal nerve. This is very sensitive method of detecting pudendal nerve injury but it is extremely painful to the patient. And the nerve conduction studies of the pudendal and spinal nerves also can help in diagnosis of the neurogenic causes as the pudendal nerve terminal motor latency can measure the conduction velocity of the action potential through the terminal 4 cm of the pudendal nerve between Aclock's canal {site of the pudendal nerve} and the external sphincter where any delay in conduction means an injury to the fast-conducting

fibers of the nerve and this injury usually is the result of stretch, direct trauma or systemic disease .

The efficacy of the anorectal manometry in cases of anal fissure becomes well established where by the anal canal pressure can be estimated preoperatively to determine which type of operation to be done as, this may be either internal sphincterotomy with fissurectomy if the anal canal resting pressure is high or fissurectomy alone if the anal canal resting pressure is normal or low. As the spasm is not a constant finding, incision of the internal sphincter in a patient with normal tone or in a patient with deficient striated muscle may lead to fecal soiling.
On the other hand, in cases of advanced disease with marked anal spasm a standard sphincterotomy may be ineffective and the fissure may recur. Therefore, grading the extent of the internal sphincterotomy according to the degree of anal spasm found at preoperative anorectal manometry is suggested.
Haemorrhoidal disease patients can be classified into two main groups, the high manometric findings group and the normal or low manometric findings group. The first group who have high anorectal manometry findings; this group will be beneficially managed if they will be managed by internal sphincterotomy in addition to classic hemorrhoidectomy.
The second group those who have normal or low anorectal manometric findings, this group will be in harm if they are exposed to unneeded manual dilatation or additional sphincterotomy as they may develop fecal soiling or incontinence. So the anorectal manometry considered an important preoperative measure to choose the proper line of management for Haemorrhoidal disease patient.

The causes of constipation may be a defect in fecal propulsion due to dysmotility of the colon, rectum or whole gut or due to a defect in fecal expulsion i.e. obstructed defecation. By the use of anal manometry and EMG studies of the sphincter, pelvic floor muscle will help much in the diagnosis and aid the management. Also, idiopathic constipation may be due to irritable bowel syndrome that has short transit time and pain from hyper segmentation or due to slow transit and a hypo motile sigmoid colon, where these can be diagnosed by the anal manometry and electromyography in a variety of ways. The myoelectrical activity of the sigmoid can be measure using surface electrodes at operation or by needle electrodes introduced into the bowel wall at sigmoidoscopy. Sigmoid myoelectrical activity is increased in patients whose constipation is due to diverticular disease or the irritable bowel syndrome. Myoelectrical activity is increased in slow transit constipation and increased segmentation is responsible for slowing colonic transit.

Rectal prolapse is a relatively common condition, which is distressing as it is associated with fecal incontinence in 80% of patients. Incontinence is particularly prevalent in elderly patients. In the rectal prolapse with incontinent there is lower resting anal pressure than prolapse with continent and the use of preoperative anal pressures manometry study are of predictive value in identifying patients who are likely to remain incontinent after rectopexy.
Single fiber electromyography of the external sphincter and puborectalis in incontinent patients is typical of nerve damage. Pudendal nerve terminal motor latency is prolonged, particularly in incontinent patients and provide objective evidence of pudendal nerve injury and allow some prediction of outcome after repair, nerve injury indicates poor recovery of sphincter function.

From the above we can know the importance of studying of anorectal pressure, endoanal ultrasound, electromyogram and pudendal nerve latencies in determining the line of treatment in the benign anorectal diseases.