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Role of rectal myomectomy in refractory chronic constipation

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ABSTRACT

Background: To assess the role of diagnostic and therapeutic value of anorectal myectomy in cases of chronic refractory constipation. **Materials and Methods:** Twenty-eight patients 11 months to 9 years of age presenting with chronic constipation, with contrast enema showing dilated rectum and sigmoid colon were included in the study. Anorectal myectomy under general anaesthesia was carried out in these selected patients and were followed-up for up to 6 months to 5 years. Clinical improvement was measured by post-operative bowel habits and relief of symptoms. **Results:** Twenty-two patients improved clinically; partial response in 4 patients, no response in 2 patients. Two patient required further pull through surgery and was found to have transition zone at the recto-sigmoid level. Ten patients had aganglionosis (of which 5 had ganglion cells present in the proximal part of speciment), 7 had normal histology, 7 had hypoganglionosis, 2 had intestinal neuronal dysplasia, one had nerve hypertrophy and one had immature ganglia. **Conclusion:** Anorectal myectomy is an effective and technically simple procedure in selected patients with chronic refractory constipation, for both diagnostic and therapeutic purpose. Because apart from confirming Hirschsprung's disease, it also therapeutically relieves symptoms in 93% of patients with chronic refractory constipation.

Key words: Rectal myomectomy, refractory constipation, hirschsprungs diseases

INTRODUCTION

As chronic constipation in infants and children is becoming more prevalent, increasing number of chronically constipated patient are referred to paediatric surgeons for evaluation and treatment. It is time to take a look at the diagnostic and therapeutic role of anorectal myectomy for such conditions.

Anorectal myectomy was first described for the diagnosis and treatment of short-segment Hirschsprung's disease (HD).[1] Later Martelli *et al.*[2] introduced this as a surgical procedure for treatment of idiopathic constipation.

The dilatation of rectum by intractable accumulation of faeces may originate in several ways, but these are not always easy to distinguish by history or the physical and radiological signs. Some of the patients have ultra-short-segment HD and some may have internal sphincter achalasia [3,4] and histological examination is then required to identify the abnormal innervations of the distal colon.[5]

MATERIALS AND METHODS

This is a retrospective study carried out over a period of 5 years (January 2004 to December 2009) and included 28 patients. All children presenting with chronic constipation and showing no response to rigorous medical management over a period of 1 month or more were included in the study. Rectal examinations and contrast enema showed a dilated rectum.

Children with documented metabolic and endocrine disease, contrast enema showing classical transition zone, per-rectal examination showing absence of stool in the rectum and patient presenting with intestinal obstruction were excluded from the study.

Each patient underwent pre-operative contrast enema without preparation and those fulfilling the above criteria were taken for trans-anal anorectal myectomy as described below:

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1. Complete bowel preparation with poly-ethylene glycol.
2. Under general anaesthesia, in lithotomy position an anal speculum was applied to stretch the posterior wall.
3. A small transverse 2 cm incision was made at six O' clock position.
4. Dissection of the internal sphincter from the mucosa and external sphincter was performed in the inter-sphincteric plane. The dissection was extended proximally to include the rectal muscle for 5 cm or till the dilated part of the rectum was reached.
5. Excision of 1 cm wide strip of the dissected muscle, with its distal end including a part of internal anal sphincter [Figure 1] was done.
6. Haemostasis secured with bipolar coagulation and the mucosal defect was closed with vicryl 4-0 sutures.
7. Oral feeding with clear liquids was started 6 hours after the procedure and the patient was discharged from the hospital 24 hour later with laxative for 3 weeks.
8. Tissue sent for histo-pathological examination (HPE), by haematoxylin–eosin staining.
9. Follow-up protocol included questionnaire regarding bowel habits, complications and symptomatic improvement. Patients were followed-up at monthly interval for 6 months, then at 3 months interval till 1 year and yearly thereafter.

RESULTS

The study group included 17 boys and 11 girls with age ranging from 11 months to 9 years. Pre-operative contrast enema showed rectal dilatation in all cases. A narrow segment was detected in 5 cases with low cone position. The length of muscle strip ranged from 5 to 7 cm. HPE of the muscle strip showed agangliosis in 10 cases (5 of them had normal ganglia at the proximal end of the muscle strip). The HPE results are presented in Table 1.

No immediate post-operative complications were reported. During follow-up, 4 patients developed recurrence of the symptoms within 3 months, which were treated successfully with laxatives. Two patients with complete agangliosis of the specimen had persistent symptoms and recurrent enterocolitis and required pull through surgery, which revealed transition zone at the recto-sigmoid level.

One patient developed post-operative faecal incontinence, which resolved over a period of 6 weeks. No anal stricture was recorded in our series. Patient satisfaction regarding symptomatic relief and regular bowel habits is presented in table 2. Out of 28 patients, 22 were relieved of the symptoms completely and 4 showed partial improvement and require laxatives for maintaining regular bowel moments. Overall, 92.86% of patients were benefited by the procedure therapeutically.

DISCUSSION

The concept of correcting an area of anatomical or functional bowel obstruction by myomectomy is not new. It was successfully applied to the oesophagus (Heller's cardiomyotomy for achalasia cardia), pylorus (Ramstedt's pyloromyotomy for hypertrophic pyloric stenosis) and small and large intestine (Martin's total colonic myotomy for long-segment HD) in the early part of the last century by various researchers, its role in the anorectal region was proposed and described with successful results by Hurst,[6] Bentley[7] and Thomas.[8]

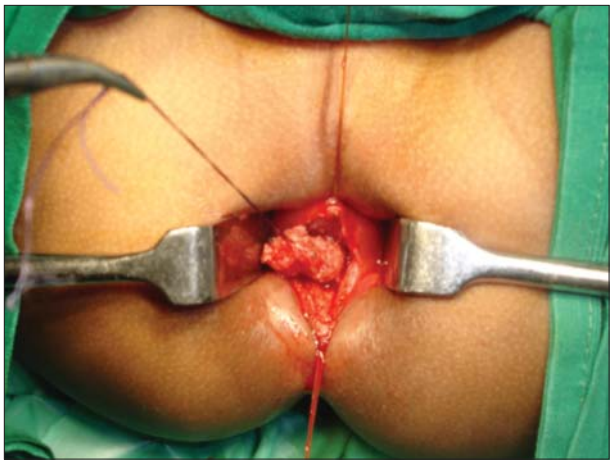


Figure 1: Rectal myectomy

Table 1: Histo-pathological examination findings

Aaganglionosis (5 had ganglion cells present in proximal specimen)	10
Nerve hypertrophy	1
Intestinal neuronal dysplasia	2
Immature ganglion	1
Hypoganglionosis	7
Normal	7
Total	28

Table 2: Clinical outcome

Good	22
Partial improvement	4
No improvement	2
Clinical deterioration	Nil

Bentley *et al.* described posterior excisional anorectal myectomy in the management of chronic faecal accumulation.[5]

In 1966, Bentley *et al.*[5] reported their experience on the treatment of what they described as ultra-short-segment HD by anorectal myectomy. They defined ultra-short-segment diseases as aganglionosis of distal third of the rectum or less, being akin to achalasia of the internal sphincter (Hurst, 1934).[9]

Bentley *et al.* also demonstrated that most of the patients with labelled idiopathic megacolon to have an abnormality of the myentric plexus diagnosed on HPE.[5]

The division of internal sphincter has been used by Swenson and his associates[14,16] for recurrent symptoms and after proctosigmoidectomy in HD, and has also been used by Bentley (1964)[7] in patients with megarectum.

Barium enema may suggest the presence of ultra-short-segment HD but may not indicate precisely the extent of the diseases, and in some instances, a constricting segment may not be demonstrable.[10] Thus, although the diagnosis may be suspected by history as well as contrast enema, confirmation can be made only by the histological examination of the rectum. Some patients improved even though the muscle biopsy specimen showed no ganglia along its whole length, possibly the remaining aganglionic segment is too short to cause further symptoms or this group represents a sub-group of sphincteric dysfunction group among the HD patients.[11]

Patients with ultra-short-segment HD often present with constipation when solid food is introduced, after a normal neonatal course and often do not show coning on contrast enema[2]; however, these patients show good response to anorectal myectomy, which also confirms the diagnosis.[2]

The propulsive capability of the large bowel in HD does not necessarily coincide with the extent of aganglionosis.[12] This may be partly explained by the fact that although in the 5 specimen of our series and one third of the specimen reviewed in the literature, no ganglion cells were found in the tissue excised, symptoms in most patients disappeared following anorectal myectomy.[5,7,13]

The internal sphincter in HD does not relax reflexly as in the normal defecation reflex.[12,14] This led Swenson *et al.* to perform internal anal sphincterotomy for abdominal distention and diarrhoea following rectosigmoidectomy for HD.[14] Distention of rectum caused by an inflated balloon shows evidence of hypertonicity and hypercontractibility not only in the internal sphincter, but also in the aganglionic segment, as compared to the normal rectum.[15-17] This abnormal response of the aganglionic segment and the internal sphincter contribute to element of obstruction in HD, which thus resembles achalasia of the gastro-oesophageal area. Ultra-short-segment HD was termed achalasia by Hurst[9]. Since the obstructive element in the achalasia can be overcome by gastro-oesophageal myotomy, it was logical to assume that the case would be similar in the ultra-short-segment HD as suggested by Bentley in 1964.[7] Doodnath and Puri[3] and De Caluwé *et al*.[4] have also recommended the rectal myomectomy as the gold standard procedure for internal sphincter achalasia.

If there is no relief of symptoms following this operation, any of the major procedures currently used in the treatment of HD can be performed.[7]

Anal stricture and incontinence have both been reported as complications of myectomy; however, we have not seen any of the anal strictures. However, one of our patients had transient incontinence, which resolved over a 6-week period.

The usefulness of diagnostic myectomy to provide full thickness muscle biopsy specimen is well understood. Further intervention with other procedures is not affected by the myectomy and a considerable group of patients responded well to this procedure.[11] It is an excellent diagnostic and therapeutic procedure for various causes of refractory chronic constipation.[11,18,19] Its role as a primary diagnostic and therapeutic procedure for ultra-short-segment HD patients and internal sphincter achalasia has already been accepted. It has also been useful as a secondary procedure following definitive surgery after pullthrough when the symptom persists.[20-22]

The advantage of this operation is its relative simplicity. It is no more than an extended rectal biopsy, and in addition serves as both the diagnostic and therapeutic modality.

CONCLUSION

Anorectal myectomy is an effective and technically simple procedure in selected patients with chronic refractory constipation, for both diagnostic and therapeutic purpose. This gives the rectal biopsy confirmation of the HD and helps therapeutically in 92.86% of the patients with chronic refractory

constipation. This is the gold standard for the diagnosis and could benefit the patients therapeutically as a bonus.

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