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A single center 26-year experience with treatment of esophageal achalasia: is there an optimal method?

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Abstract

Purpose: Treatment modalities for achalasia are evolving and remain controversial. Herein, we report the relative efficacy and outcomes after dilatation or myotomy in children with achalasia.

Methods: A retrospective analysis of all children treated for achalasia at a tertiary center from 1981 to 2007 was performed (n = 40). Demographics, presenting symptoms, perioperative parameters, and outcomes were analyzed using *t* tests and χ^2 statistics.

Results: Thirty patients were initially treated by esophageal dilatation (ED), whereas 10 were treated by laparoscopic or open Heller myotomy (HM). Both groups were similar with respect to age (10.6 vs 12.4 years; $P = .19$). There were 18 males and 12 females in the ED group, compared to 5 males and 5 females in the HM group ($P = .72$). Mean duration of symptoms before diagnosis, including dysphagia, vomiting, food sticking, chest pain, and weight loss, was 15.9 months for ED and 10.7 months for HM ($P = .41$). Mean time from diagnosis to initial intervention was 76 days in ED vs 86 days in HM ($P = .78$). Subsequent interventions by myotomy or both dilatation and myotomy were required in 9 (30%) of 30 patients in the ED group and 2 (20%) of 10 patients in the HM group ($P = .70$). A clear transition from open to laparoscopic approach occurred between 1995 and 2001. Mean operating times were comparable (186.3 vs 156.0 minutes; $P = .48$). Of 14 laparoscopic myotomies, 11 (79%) had fundoplication, and 2 (18%) of the 11 were converted to open procedure. Intraoperative mucosal perforation rates were similar between open and laparoscopic groups (17% vs 18%). At follow-up, 32% of ED patients vs 43% HM had complete symptom relief (mean follow-up duration, 75.2 months; SD, 196.5).

Conclusion: Both dilatation and myotomy are effective immediate treatment of achalasia. A clear transition to and preference for laparoscopic approach has occurred in the treatment of achalasia in children.

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Achalasia is a motility disorder of the esophagus with an estimated incidence of 0.11 cases per 100,000 children [1], occurring more often in males than females and increasing in frequency [2]. It is a chronic condition characterized by absent or poor esophageal smooth muscle peristalsis and failure of lower esophageal sphincter (LES) relaxation with swallowing. Because the cause of achalasia remains unknown and there is no cure, treatment is aimed at relief of symptoms. The optimal initial treatment of this condition remains poorly understood.

Pharmacologic therapy with nitrates, calcium channel blockers, and Botox injection can be attempted; however, these do not provide satisfactory long-term relief from symptoms of achalasia [3,4]. Beyond medical management, the current options for treatment of achalasia in children are esophageal dilatation and the modified Heller esophagomyotomy. Treatment of achalasia by esophageal dilatation (ED) has been well established in adults [4,5], and several articles reporting similar outcomes have been presented in the pediatric literature [1,6-9]. The goal of dilatation is to forcefully disrupt the LES to allow the passage of food, thereby, relieving symptoms. The modified Heller myotomy (HM) is the most accepted surgical approach to management of achalasia and may be performed before or after dilatation, using the open or laparoscopic technique. During this procedure, an incision is made through the musculature of the esophagus, extending over the esophagastric junction to the stomach to enable passage through the LES.

There is little known about the impact of changing patterns in practice and the relative outcomes and efficacy of evolving treatment options in childhood achalasia. The purpose of this study was to evaluate the efficacy of ED when compared with HM and to examine the outcomes of evolving treatment approaches through a retrospective review of our 26-year experience with management of childhood achalasia.

1. Methods

The health records of children treated for achalasia at the Hospital for Sick Children in Toronto (Ontario, Canada) from July 1, 1981, to June 30, 2007, were reviewed (REB no. 1000011310). Patients were included in the study if the diagnosis of achalasia was confirmed, and the patient was treated by esophageal dilatation or modified HM. Patients were excluded if the diagnosis of achalasia was unclear. Diagnosis was confirmed by barium x-ray, endoscopy, and manometry. After diagnostic workup, the suitability of ED or HM was discussed, and parents were involved in the treatment decision making.

Table 1 Patient characteristics

	ED	HM	*P*
Age at initial treatment	10.6 ± 4.6	12.4 ± 4.8	.19
Sex (male-female)	18:12	5:5	.72

Data are presented as means ± SD. All *P* values are not significant.

Table 2 Presenting symptoms

	ED (n = 30)	HM (n = 10)	*P*
Dysphagia	22 (76%)	7 (70%)	1.0
Emesis	19 (63%)	5 (50%)	.48
Food sticking	9 (31%)	3 (27%)	1.0
Cough	10 (33%)	1 (10%)	.23
Weight loss	15 (50%)	6 (60%)	.72
Mean duration (mo)	15.9 ± 28.8	10.7 ± 10.0	.41
Time to treatment (d)	76 ± 96.4	86 ± 91.7	.78

Data are presented as percentages and means ± SD. All *P* values are not significant.

Esophageal dilatation was performed with the patient under general anesthesia and guided by endoscopy or radiographic screening to confirm correct placement and full dilatation. Heller myotomy was performed with the patient under general anesthesia using either the open technique or minimal access surgery, the laparoscopic myotomy. Because a disadvantage of this procedure is the development of postoperative gastroesophageal reflux (GER), some surgeons performed an antireflux procedure upon completion of the myotomy.

Patient demographics, presentation of achalasia, method of diagnosis, and confounding diagnosis were collected on each patient. Patient demographics included age at diagnosis, age at initial treatment, and sex. Presentation of achalasia included reported symptoms, length and frequency of symptoms, and time to initial treatment. All patients underwent upper GI, endoscopy and manometry to confirm the diagnosis of achalasia. The primary outcome for this study was treatment failure indicated by the need for subsequent interventions after the initial treatment of achalasia. Secondary outcomes were length of operative time, hospital length of stay, complications, and length of follow-up. Two-sample *t* tests were performed for continuous data including the length of operative time and length of stay. χ^2 analysis was performed for proportional data, such as incidence of perforation, pneumonia, infection, and other complications, with a *P* value of .05 considered significant.

2. Results

2.1. Demographics

Forty patients underwent evaluation and treatment of achalasia (Table 1). Thirty patients were initially treated by ED, and 10 patients were initially treated by open or laparoscopic HM, including 2 patients who were initially treated at an outside institution. Age at initial intervention was similar between both groups (10.6 vs 12.4 years; *P* = .19). There were 18 males and 12 females in the ED group, compared to 5 males and 5 females in the HM group