

# TRANSTHORACIC HELLER'S MYOTOMY FOR ACHALASIA OF CARDIA EXPERIENCE WITH 28 PATIENTS

MOHAMMAD ZAHIDULLAH, SHAHKAR A SHAH, ZAHOOR A KHAN  
AND KHALID IRSHAD

*Department of Cardiothoracic Surgery,  
Postgraduate Medical Institute,  
Lady Reading Hospital, Peshawar.*

## SUMMARY

Extra mucosal cardiomyotomy (Heller's myotomy) remains the most common surgical treatment for achalasia of cardia. Twenty eight patients underwent transthoracic Heller's myotomy for achalasia of cardia at Postgraduate Medical Institute, Lady Reading Hospital, Peshawar from May 1990 till April 1995. No anti reflux procedure was combined with the myotomy. There were no hospital deaths. One patient had a reoperation for a leak. All patients have excellent to good clinical results with no gastroesophageal reflux. The follow up ranges from 12 months to 73 months with a mean of 34.5. We conclude that a properly performed Heller's Myotomy can give excellent results in the management of esophageal achalasia, without an antireflux procedure.

## INTRODUCTION

Achalasia is a Greek word which means failure to relax.<sup>1</sup> It is due to decreased number or absence of ganglion cells in the Auerbach's plexus between the inner circular and outer longitudinal layers.<sup>2</sup> The cause of the change in the Auerbach's plexus remains unknown. Primary peristalsis is absent and the cardio esophageal sphincter fails to relax in response to swallowing.<sup>3</sup> The esophagus fills up with food and fluid leaving the contents to tickle into the stomach under the influence of simultaneous contraction waves and gravity.<sup>2</sup> An absent gastric bubble is diagnostic as the air that accompanies a normal bolus does not enter the stomach. The condition is uncommon in children.<sup>4</sup> Though it may affect people of any age, most patients present between the age of 40-60 years.<sup>3</sup>

Treatment with nifedipin and nitrates are not long lasting and rarely avoid surgery<sup>5,6</sup>. The treatment for achalasia is

based on the principle that there is an abnormal sphincter which causes obstruction, and weakening, but not destroying it completely, improves esophageal emptying even though the underlying pathology itself can not be changed<sup>2</sup>. Pneumatic dilatation of the esophagus and dilatation with soft dilators and bougies have been described. A German surgeon Ernest Heller performed the first successful surgical procedure, on 14<sup>th</sup> April 1913, through a laparotomy and consisted of double myotomy<sup>7</sup>. The technique was modified by a Dutch surgeon, Zaaijer, in 1923, by using a single myotomy incision<sup>8</sup>.

The weakening of the gastro-esophageal sphincter by a single incision approached through abdomen or chest is surgical procedure of choice. When the procedure was done through an abdominal incision, gastro-esophageal reflux was almost twice as common as when it was done through a thoracic incision, regard-

less of whether an antireflux procedure was performed<sup>2</sup>.

The aim of study was to show the results of transthoracic Heller's myotomy without an antireflux procedure.

## MATERIAL AND METHODS

Twenty eight patient were operated for achalasia at the Cardiothoracic Unit of Lady Reading Hospital, Peshawar from May 1990 till April 1995. The age range was from 10 to 80 (mean 39.01) years (Table-I). Sixteen (57.14%) were male patients while 12 (42.86%) were female (Table-II).

### Investigations

Barium swallow was done in all the cases. Patients with any suspicion of malignancy on barium swallow or those more than 50 years of age also had esophagoscopy and biopsies to exclude malignancy. The facilities of manometry or 24 hours oesophageal pH monitoring are not available at our Institute, so these tests could not be performed.

### Treatment

Every patient was started on fluid diet 48 hours prior to surgery. The night before the operation a nasogastric tube was put in the dilated thoracic esophagus which was then thoroughly washed with isotonic saline. This was done to prevent aspiration of esophageal contents at the time of anaesthetic induction. Despite that cricopharyngeal pressure and crash induction was used to anaesthetize the patients.

A left thoracotomy was performed through 6th intercostal space. Distal thoracic esophagus was mobilized preserving both

TABLE – I

Less than 30 years	2	7.10%
30-60 years	23	85.80%
More than 60 years	2	7.10%

TABLE – II

Male	16	57.14%
Female	12	42.86%

vagi and religiously avoiding damage to the posterior phreno-esophageal membrane, so essential in preventing gastro-esophageal reflux. A vertical myotomy was then carried out dividing all the muscle layers down to the mucosa. Transverse fibrous bands across the mucosa were also divided. Myotomy was carried down to 1cm below the gastro-esophageal junction and 2 cm. proximal to the narrowed achalasia segment. The divided muscle fibers were finally everted by stitching them to mediastinal pleura over the aorta.

## RESULTS

### Morbidity and Mortality

One patient had a leak detected post operatively which was treated with careful suturing of the mucosa on re-operation. We did not have any in-hospital mortality.

### Follow up

The presenting symptoms were; dysphagia in all the 28 patients (100%), vomiting in 15 (53.57%), pain in 6 (21.45%) and respiratory problems in 3 (10.7%) (Table-III).

Four patient have been lost to follow up. Rest of the 24 patients followed up from 12 months to 73 months with a mean of 34.5 months. All our patients are free of dysphagia. They do not have any gastro-esophageal reflux on clinical grounds.

## DISCUSSION

The treatment of the dilatation of the lower esophaguse by a whalebone probang was first described in 1672 by Willis<sup>9,10</sup>. Current treatment modalities for achalasia of esophagus are palliative and aim at improving esophageal emptying by reducing distal esophageal sphincter resistance to the pass-

TABLE – III

Dysphagia	22	100%
Vomiting	15	53.57%
Pain	6	21.45%
Respiratory Symp.	3	10.70%

age of bolus. This can be done either by pneumatic dilatation or by surgical myotomy<sup>11</sup>. Dilatation with soft dilators and bougies have also been described<sup>4,12</sup>. The effects of drugs like nitrates and calcium channel blockers (nifedipine) may produce relief of symptoms by causing a significant fall in the lower esophageal sphincter pressure but the effect is most often short lived and rarely avoids surgery<sup>5,6</sup>.

Extramucosal cardiomyotomy as reported by Heller in 1913, is the most common procedure done for achalasia of esophagus<sup>13</sup>. It can be carried out both through chest and abdomen. There can be two main complications of the procedure: 1. Recurrent dysphagia because of incomplete myotomy, and 2 gastro-esophageal reflux<sup>2</sup>. diagnosis of reflux can be made by symptoms analysis or radiology or esophageal pH measurement. Esophagoscopy and biopsy can also be used for diagnosis of esophagitis<sup>2</sup>.

Various antireflux procedures have been described both with thoracic and abdominal approaches. Mark IV Belsey repair is the most common antireflux procedure with thoracic approach<sup>14,15,16</sup>, while Nissen funduplications with abdominal approach<sup>17,18</sup>. Lateral and anterior funduplications have also been described<sup>19,20,21</sup>. When the operation was done through an abdominal incision gastro-esophageal reflux was almost twice as common as when it was done through a thoracic approach<sup>2</sup>. The incidence of reflux in various studies has been reported from 0 to 29%. Jaakkola A and Colleague have reported the incidence of reflux symptoms to be twice as common in operations through abdominal approach as compared to thoracic approach<sup>22</sup>.

The use of esophageal manometry was employed only in 5% of series reported, in the review paper by Andrello NA and Earlam RJ. Esophagoscopy was done in 12% of the patients while other tests such as acid perfusion, pH measurement and cine-radiography were rarely used<sup>2</sup>.

We do not have facilities of manometry, and acid perfusion, pH measurement and cine-radiography available to us. These tests were also not routinely used in the study mentioned above. All our patients being followed up are symptoms free with no complaint of reflux on clinical grounds.

We did esophagoscopy in patients, (17.9%) who were more than 50 years old as compared to 12% in the study already mentioned<sup>2</sup>.

We had one patient of 10 years of age while two other were 70 and 80 years each. Majority of our patients (85.8%) were between the age of 30-60 years which is in accordance with the literature<sup>3,4</sup>. The older patients in our study did not have any evidence of malignancy on esophagoscopy and biopsy and were offered Heller's myotomy.

The most important early complication of Heller's myotomy is perforation of mucosa. It's incidence in the literature has been reported to be 1.1%.<sup>2</sup> We had one patient with the complication (3.6%). It was dealt with by suturing of the mucosa with no complications, later on.

The mortality of Heller's myotomy has been reported to be 0.7% in various studies.<sup>9,23</sup> We did not lose any patient in our study.

We have not, being a Cardiothoracic unit, done any cases via laparotomy which as indicated in literature may require an antireflux procedure.

## CONCLUSION

We conclude that a properly performed Heller's Myotomy can give excellent results

in the management of esophageal achalasia, without an antireflux procedure.

## REFERENCES

1. Earlam RJ. Pathophysiology and clinical presentation of achalasia. *Clin Gastroenterol* 1976; 5: 73.
2. Andreollo NA, Earlam RJ. Heller's myotomy for achalasia: Is an anti reflux procedure necessary? *Br J Surg* 1987; 74: 765.
3. Games OF, Way LW. Esophagus and Diaphragm. In: Way Eds. *Current surgical diagnosis and treatment*, 8th edition, Appleton and Lange, 1988; 367.
4. Emblem R, Stringer MD, Hall CM, Spitz L. Current results for achalasia of the cardia. *Arch Dis Child* 1993; 68: 749.
5. Maksimak M, Permuter DH, Winter HS. The use of Nifedipine for treatment of Achalasia in Children. *J Pediatr Gastroenterol Nutr* 1986; 5: 883.
6. Smith H, Buick R, Booth I, Campbell C. The use of Nifedipine for treatment of achalasia in children. *J Pediatr Gastroenterol Nutr* 1988; 7: 146.
7. Heller E. Extramukose Kardio plastik beim chronischen Kardio spasmus mit dilatation des oesophagus. *Mitt Grenzgeb Med Chir* 1914; 27: 141.
8. Zaaier JH. Cardiospasm in the aged. *Ann Surg* 1923; 77: 615.
9. Ellis FH Jr, Olsen AM. Achalasia of the esophagus. In: *Major problems in clinical surgery*. Vol IX Philadelphia, London, Toronto WB Saunders Co, 1969.
10. Earlam RJ. Clinical tests of oesophageal function. London Crosby Lockwood Staples 1975.
11. Bonavina L, Nosadini A, Bardini R, Baessao M, Peracchia A. Primary treatment of esophageal achalasia: Long term results of Myotomy and Dor Fundoplication. *Arch Surg* 1992; 127: 222.
12. Chen PP, Chen T, Chen H, Sun H. Dilation treatment for achalasia by Chen's soft (fibrous ) Dilators. An observation of 233 cases. (Abstract) *Clin Med J Engl*. 1994; 107(4): 276.
13. Monson JR, Darzi A, Carey PD, Guillous PJ. Thoracoscopic Heller's cardiomyotomy: a new approach for achalasia Surg Laparosc Endosc. 1994; 4(1): 6.
14. Jamieson WRE, Myagishima RT, Carr DM. Surgical management of primary motor disorders of the esophagus. *Am J Surg* 1984; 148: 36.
15. Bjorck S, Dernevik L, Gatzinsky P, Sandberg N. Oesophagocardiomyotomy and antireflux procedures. *Acta Chir Scand* 1982; 148: 525.
16. Murray GF, Battaglini JW, Keagy BA, Starek PJK, Wilcox BR. Selective application of fundoplication in achalasia. *Ann of Thoracic Surg*. 1994; 37: 185.
17. Duranceau A, Lafontaine ER, Vallieres B. Effects of total fundoplication on function of esophagus after myotomy for achalasia. *Am J Surg*. 1982; 143: 22.
18. Kessler B, Stegemann B, Langhans P, Schwering H. Surgical therapy of achalasia for prevention of reflux esophagitis. *Helv Chir Acta* 1980; 47: 533.
19. Csendes A, Larrain A, Strauszer RE, Ayala M. Long term clinical, radiological and manometric follow up of patients with achalasia of the esophagus treated with esophagomyotomy. *Digestion* 1975; 13: 27.
20. Giovinetto A, Catania G, Grillo S, Buscarino C, Occhiato V. Surgical treatment of esophago cardiac achalasia. *Minerva Chir* 1978; 33: 149.
21. Castrini G, Pappalardo G, Mobarhan S. New approach to esophagocardiomyotomy. Report of 40 cases. *J Thorac Cardiovasc Surg*. 1982; 84: 575.
22. Jaakkola A, Ovaska J, Isolauri J. Eur. (Esophago cardiomyotomy for achalasia. Long term clinical and endoscopic evaluation of transabdominal vs transthoracic approach). *J Surg* 1991; 157(6-7): 407.
23. Ellis FH Jr. Management of oesophageal achalasia. *Clin Gastroenterol* 1976; 5: 89.