

## AN EXPERIENCE OF LAPAROSCOPIC MODIFIED HELLER CARDIOMYOTOMY FOR ACHALASIA CARDIA

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### ABSTRACT

**Objective:** The study was carried out to ascertain the outcome of laparoscopic modified Heller's myotomy for achalasia cardia and to determine the morbidity associated with it.

**Study Design:** Descriptive cross sectional study.

**Place and Duration of Study:** The study was conducted in Combined Military Hospital (CMH) Rawalpindi over a period of 4 years, from Jan 2010 to Aug 2014.

**Material and Methods:** This study was carried out on patients undergoing surgical repair of laparoscopic Heller myotomy for cardiac achalasia at Combined Military Hospital Rawalpindi over a period of four years (2010-2014). Patients undergoing laparoscopic-modified Heller myotomy at a thoracic referral and surgical training center. Eighteen cases of achalasia cardia based on clinical, barium and endoscopic findings were included in the sample using non probability purposive sampling technique. Pseudo achalasia, sigmoid esophagus were excluded. Laparoscopic modified Heller myotomy was done in all patients. Data were analyzed with the help of SPSS 20.0.

**Results:** Age ranged between 14 years to 40 years with mean age of 28 years. The most frequent symptom was dysphagia (95%), followed by regurgitation of ingested food (60%), weight loss (40%) and chest pain (20%). Mean operating time was forty minutes. There was no perioperative mortality. We applied Dor patch in 4 patients. Three patients had mucosal tear on large myotomy, diagnosed per operatively and repaired. There was no conversion to open procedure. There was marked improvement in symptoms especially dysphagia and there was no post operative reflux.

**Conclusion:** Modified Heller myotomy by laparoscopic approach is a safe and effective procedure with acceptable results. It is easy to perform and improves the symptoms of the suffering individual.

**Keywords:** Achalasia cardia, Laparoscopic approach, Modified Heller myotomy.

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### INTRODUCTION

Esophageal achalasia is a functional disease of unclear etiology. It is characterized by a defective peristaltic activity of the esophageal body and impaired relaxation of lower esophageal sphincter (LES) with difficulty in the progression of food to the stomach. The aim of the treatment is the relief of dysphagia through the reduction or complete elimination of LES pressure, which can be achieved by means of nonsurgical therapy<sup>1-4</sup> or by surgical treatment. Surgery seems the treatment of choice for esophageal achalasia, achieving better and longer-lasting symptomatic relief than that obtained with medical or endoscopic treatment<sup>5-7</sup>.

Esophageal motility disorders are uncommon and usually present with dysphagia or its sequelae (regurgitation and aspiration) or atypical noncardiac chest pain. Operation did not become standard until the devastating late effects of severe reflux disease were reported by Barrett and Franklin in 1949. Heller's operation was modified to a single anterior esophagomyotomy by Groeneveldt in 1918 and further popularized by Zaaijer in 1923<sup>8</sup>.

The purpose of our study was to ascertain the outcome of modified Heller's myotomy for Achalasia Cardia and to determine the morbidity associated with it.

### MATERIAL AND METHODS

This descriptive cross sectional study was carried out on patients undergoing surgical repair of laparoscopic Heller myotomy for

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cardiac achalasia at Combined Military Hospital Rawalpindi over a period of four years (2010-2014). Non probability purposive sampling technique was utilized to include all 18 patients reporting with achalasia cardia. Our patient population consisted of all symptomatic patients as consistent with literature on the subject. In our study we employed a modified Heller myotomy by laparoscopic approach 5 ports utilized and 1800 myotomy done with harmonic scalper. Myotomy over esophagus was done till 5 cm and over stomach for 1.5 cm. In 3 patients Dor patch was also done including 2 patients with mucosal breach. Third Dor patch was done due to patulous esophagus. In the beginning the operative time was much longer but it reduced to less than forty minutes in the last ten cases.

Data regarding age, gender, type of symptom, upper GI barium studies and endoscopic findings were recorded on a performa. Intra operative and early post

dysphagia 94.4% (17), followed by regurgitation of ingested food 66.7% (12), weight loss 50% (9) and chest pain 16.7% (3) (figure). Mean operating time was 40.83 (SD  $\pm$  10.456) minutes with a range of 25 to 57 minutes. There was no perioperative mortality. Mean duration of hospital stay was  $2.18 \pm 0.529$  days with a range from 2 to 4 days post operatively. No patient had surgical site infection.

During follow up visits, opinion of patients regarding post op relief from symptoms was endorsed as given in the table. Only one (1%) patient's parents did not seem to be satisfied. Thirteen patients felt excellent and 4 (27.7%) reported satisfactory results.

## DISCUSSION

Esophageal myotomy is the definitive treatment for achalasia. The goals of the procedure are to reduce the LES pressure enough to allow gravity drainage of the esophagus and paradoxically maintain (or augment) control of

**Table: Post operative opinion of patients regarding symptomatic relief.**

Excellent	Satisfactory	Unsatisfactory
14 (77.7%)	3 (16.6%)	1 (5%)

operative complications were recorded. After discharge, the patients were followed up for up to six months. Opinion of patients was taken and recorded regarding their satisfaction on functional outcome. It was graded as unsatisfactory, satisfactory and excellent. Quantitative variables like age, operating time and length of hosp stay were recorded as mean  $\pm$  standard deviation (SD). Qualitative variables like gender, type of symptoms, upper GI barium studies and endoscopic findings were recorded as frequencies and percentages. Data were analyzed with the help of SPSS 20.0.

## RESULTS

Total numbers of cases operated for achalasia cardia was eighteen. Sixty one point one percent (11) of our patients were males while 38.9% (7) were females. Age range was between 25 years to 57 years with mean age of 40.83 (SD  $\pm$  10.45) years. The most frequent symptom was

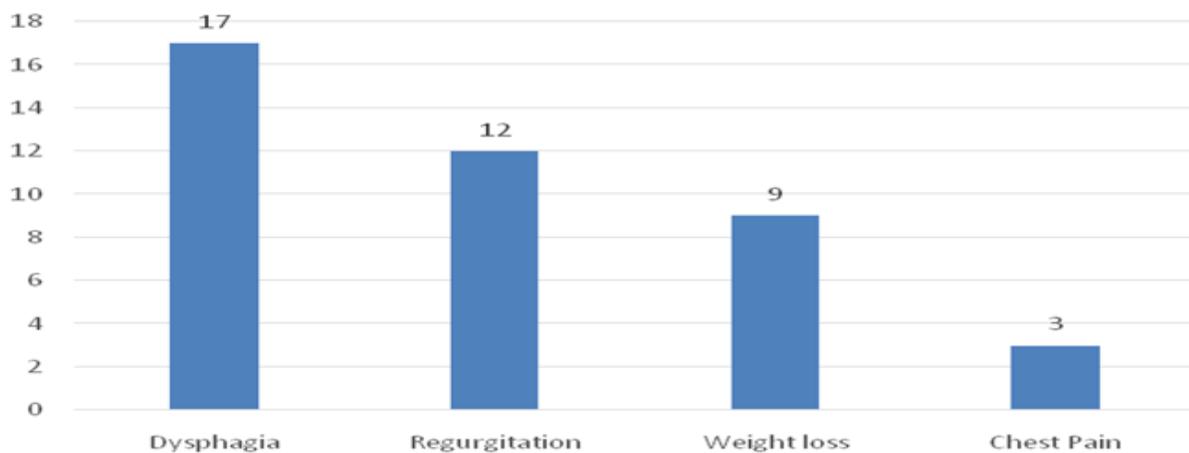
gastroesophageal reflux. Patients with achalasia usually have dysphagia to solids and liquids (76%)<sup>8</sup>. Regurgitation is frequent (79%) and may contain food or saliva. Regurgitation is especially frequent at night during recumbency and may cause coughing or choking spells. Most patients (79%) learn to eat slowly and may have adaptive mechanisms such as repetitive swallows with the neck extended and using liquids to lubricate solid food. Chest pain, weight loss and heartburn are often present as a symptom.

The history of surgical treatment of achalasia with an emphasis on Heller's contribution was reviewed by Payne<sup>9</sup>. In 1914, Heller reported a successful result in a patient treated with a transabdominal double (anterior and posterior) esophagomyotomy. Heller's operation was modified to a single anterior esophagomyotomy by Groeneveldt in 1918 due to late severe devastating reflux reported by Barrett and

Franklin in 1949 and further popularized by Zaaijer in 1923<sup>8</sup>. To achieve enough relief in outflow obstruction by reducing LES pressure by single myotomy is now accepted by all<sup>8</sup>. Laparotomy and thoracic approach is being practiced all over the world. Since 1990s, esophageal myotomy was performed with video-assisted thoracic surgery (VATS) techniques<sup>8</sup>, due to need of perpendicular approach for myotomy, single-lung ventilation and chest drainage<sup>10</sup>. Thoracic approach seems inferior to abdominal due to shorter length of surgery, shorter length of stay, better dysphagia relief, less postoperative heartburn, and less incisional discomfort as found by Ramacciato and associates<sup>11</sup>. Laparoscopic Heller myotomy is the preferred

during the early postoperative period, were maintained at longest follow-up<sup>14</sup>.

Twenty four patients who underwent laparoscopic Heller without fundoplication had greater improvement in esophageal clearance time than did 71 patients whose procedure included a Dor fundoplication as studied by Finley and colleagues<sup>15</sup> there were no significant differences in the symptom scores for dysphagia, regurgitation, or heartburn between the two groups postoperatively. In another study Dor patch was done only to buttress an esophageal repair or to manage a patulous hiatus or hiatal hernia<sup>16</sup>. They found no significant difference in postoperative dysphagia scores between patients who had fundoplication and those who did not.



**Figure: Breakdown of symptoms associated with achalasia cardia.**

treatment at Vanderbilt<sup>12</sup>. Conversion to an open procedure is very rare. In 5% cases intraoperative mucosal injury occurs. This complication is easily handled by intraoperative laparoscopic suturing and buttressing by Dor patch.

Consideration for Dor wrap is a conflicting issue. There was no significant difference in the severity of gastroesophageal reflux symptoms or the rate of reflux detected by pH monitor<sup>8</sup>. With fundoplication lower rate of reflux on pH studies was seen as observed by Lyass et al<sup>13</sup>. Laparoscopic Heller myotomy can safely reverse the symptoms of achalasia and improve esophageal transit. These benefits, realized

There were higher resting and residual LES pressures postoperatively with fundoplication (n=88) than those without fundoplication (n=61)<sup>17</sup>. There was no significant difference in postoperative dysphagia between the groups as seen by Richards and coworkers<sup>18</sup>. In another study twenty-one patients (88%) were successfully contacted. Mean follow-up was 16.5 months. The laparoscopic approach was successful in all but 3 (88%). Twenty (95%) of 21 patients reported improvement after the operation. Laparoscopic Heller myotomy with anterior fundoplication significantly relieves the symptoms of achalasia without causing the symptoms of gastroesophageal reflux disease.

This procedure results in excellent overall patient satisfaction<sup>19</sup>.

In our study we had no perioperative mortality or major complication. Mucosal breach identified during surgery was repaired by vicryl 3/0 and buttressed by anterior Dor patch. No patient had surgical site infection or need of transfusion and conversion to open procedure. The overall perioperative complication profile was comparable to studies published by eminent surgeons like Wright<sup>18</sup>.

We consider the overall outcome of our study population fairly satisfactory. Only one patient reported lack of satisfaction for dysphagia. Rest all reported satisfactory to excellent results. This is also comparable to various studies carried out at centres where high volume of achalasia surgery is being done. We consider the post operative relief from symptoms was satisfactory in our study population.

## CONCLUSION

Modified Heller myotomy by laparoscopic approach is safe and effective procedure with acceptable results. It is easy to perform and improves the symptoms of the suffering individual.

## CONFLICT OF INTEREST

This study has no conflict of interest to declare by any author.

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