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Laparoscopic Cardiomyotomy in Management of Achalasia and Its Outcomes.

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ABSTRACT

Introduction: *Achalasia cardia is characterized by aperistalsis in the body of the esophagus coupled with inadequate relaxation of the lower esophageal sphincter, leading to the development of progressive dysphagia. Surgical treatment in the form of laparoscopic Heller's cardiomyotomy with the addition of partial fundoplication procedure like anterior Dor fundoplication is being preferred as the treatment of choice for this condition.*

Aims and objectives: *To Assess the outcome of Laparoscopic Hellers Cardiomyotomy with respect to:*

1) Subjective: Improvement in symptomatology

2) Objective: Changes in LES pressure

3) Change in Quality of Life

Materials and Method: *This prospective study was carried out at the Department of General Surgery at P.D.U. Medical College, Rajkot. 15 patients were included in the study. The main chief complains included were dysphagia, regurgitation, heartburns, etc. They had undergone pre-operative investigations in form of barium swallow, upper GI-endoscopy, manomerty apart from the routine basic investigations. Proper counseling and written and informed consent were taken into account before proceeding for the operation. Standard laparoscopic hellers cardiomyotomy was done along with dor fundoplication.*

Results: *Post-operatively results were assessed and compared according to relief or continuation of symptoms, upper GI-scopy, Manometry findings and Quality of life index calculated by the Modified SF-36 Score. It was noted that there was improvement both subjectively and objectively.*

Conclusion: *Laparoscopic cardiomyotomy is safe with beneficial outcomes for treatment of achalasia so as to be considered as a gold standard.*

KEYWORDS : Laparoscopic Cardiomyotomy, Achalasia, Upper GI-scopy, Manometry.

INTRODUCTION:

Achalasia cardia is an uncommon benign primary disorder of esophageal motility. The reported incidence is about 1 in 100,000 persons per year. (1, 2) It occurs due to the impaired or absent esophageal motility in combination with an inappropriate and inadequate relaxation of the lower esophageal sphincter in response to food bolus. Though the disease is well documented and the treatment protocols established, the pathogenesis is still not clearly understood. It has been postulated to occur as a result of degeneration of the ganglia in the myentric plexus. (3, 4) Other acquired causes of achalasia cardia include viral infections and autoimmune pathology. (5, 6)

Achalasia was first described by Sir Thomas Willis, who in 1672, treated a patient with such condition using a sponge on a whalebone for dilatation. (7) It was however known as cardiospasm till the term 'achalasia' was coined by Sir Arthur Hurst in 1927. (8) Ernst Heller, in 1913, described a technique to surgically treat the condition. He divided the muscular fibres of the gastroesophageal junction (GEJ) both anteriorly and posteriorly by a thoracic approach. (9) Zaaijer modified this procedure and performed only the anterior myotomy with equally good results. (10) Later there were modifications in the approach from thoracic to abdominal and recently to the minimally invasive surgery which was first demonstrated by Shimi et al in 1991. (11) The symptoms of achalasia include dysphagia, heartburn, regurgitation, chest pain, weight loss and occasionally respiratory symptoms. (2) Primary screening for achalasia is usually by a real time fluoroscopic barium swallow examination (BE) which demonstrates a dilated and aperistaltic esophagus with narrowed lower esophageal sphincter which classically is termed as "bird beak" appearance. Esophageal manometry (EM) is the investigation of choice to confirm the presence of achalasia. It demonstrates the peristalsis of the body along with raised lower esophageal sphincter pressure with an incomplete relaxation of the lower esophageal sphincter. (12,13) Upper gastrointestinal (GI) endoscopy is also used to identify the condition but its use is mainly to identify cases of pseudoachalasia due to malignancy. (2) The technique of laparoscopic myotomy has been widely accepted as the treatment of choice for achalasia. However there are differences regarding the addition of a fundoplication and also the type of fundoplication.(14,15)

Materials and Method:

This prospective study was carried out at the Department of General Surgery at P.D.U. Medical College, Rajkot. 15 patients were included in the study in the time period from may 2011 to june 2013. The main chief complains included were dysphagia, regurgitation, heartburns, etc. Preoperative workup was done in all cases and included a detailed history and a clinical examination. Investigations included routine hematological and biochemical parameters. Barium swallow, upper GI endoscopy and esophageal manometry were done in all cases.

The operative procedure followed was laparoscopic Heller's myotomy with anterior Dor fundoplication in all cases. The positioning was French type and we usually use five ports. Two 10mm ports – one for the telescope and camera positioned supraumbilically and the other for the working port, in the left hypochondrium below the costal margin in the mid clavicular line and three 5mm ports – one in the epigastrium for liver retraction, one in the right hypochondrium for working port and the last in the left lumbar region lateral and inferior to the umbilicus for stomach retraction. Myotomy was done starting at or above the gastroesophageal junction and was extended cranially for 4-5cms and caudally for about 1-1.5cms and finally a Dor fundoplication is performed.

Nasogastric tube was removed on the eve of operative day. Oral feeds were initiated by 24 hrs and gradually solid foods were introduced. The patients were usually discharged on 2nd or 3rd post operative day. All cases were subjected to a repeat barium swallow examination and upper GI endoscopy, manometry at one month and 3 months after surgery and results were noted. Quality of life was inquired and calculated at one month and than every 6 monthly. Patients were followed up first at 1st and 2nd week after discharge than every monthly for next 6 months and than every 6 monthly.

Results: After thorough analysis and study the results concluded

are as illustrated under. The age of patients ranged from 26 to 54 years averaging around 40 years as the mean. Out of the total 15 patients there were more no of males that is males were 11 (73%), and females were 4(27%). The percentage distribution of symptoms among the patients pre-operatively was 86.6%, 60%, 20%, 33.3%, 26% for dysphagia, regurgitation, chest pain, heartburn, weight loss respectively. Thus dysphagia was the most common and the distressing symptom. Pre-operatively the LES pressure was calculated and found to hypertensive in 10(66.6%) of patients while it was normotensive in 5(33.3%) patients. The pre-operatively calculated quality of index ranged from 68 to 89 (mean 78.5). On doing upper GI-scopy of all the patients 5(33.3%) patients were found to have esophagitis.

The operating time was between 90-150 mins (mean 122.14) in patients. The blood loss during the surgery was negligible and none of the patients required blood transfusions. There were no any complications in form of esophageal perforations, pleural tear, pneumothorax or subcutaneous edema. Ryles tube was removed in the evening of the day of surgery. Orals were started on the next day and gradually shifted to liquids and soft diet. The hospital stay ranged between 3 to 6 days(mean 3days).

All the patients were followed up for a varying period of time after discharge (range 6 months to 18 months). At one month post-operative period the symptom percatage was drastically reduced upto 20%, 13..3%, 6.6%, 6.6%, 0% for dysphagia, regurgitation, chest pain, heartburn, weight loss respectively. All the patients were subjected to barium swallow examination and upper GI endoscopy at one month and at three months after the surgery. Both demonstrated a good myotomy with no resistance to the passage of bolus or the endoscope and the patient with evidence of esophagitis was reduced to 2(13.3%). The LES pressure assessment revealed that now only 2(13.3%) were hypertensive and rest 13(86.6%) were normotensives. The quality of index score also improved ranging between 79 to 94(mean 86.5%).

There were no any intra or post operative complications and any recurrences seen.

DISCUSSION:

Achalasia cardia is an uncommon benign primary disorder of esophageal motility. Achalasia cardia is essentially diagnosed by the use of barium swallow, upper GI endoscopy and esophageal manometry. Barium swallow and manometry effectively diagnosed 95% and 100% of cases in our study. Upper GI endoscopy has been primarily used to identify pseudoachalasia. The primary goal in the treatment of achalasia cardia is the alleviation of symptoms mainly dysphagia.

In our study 86.6% patients suffered from dysphagia which was relieved and reduced upto 20%. The percentage of patients with hypertensive pressures of LES was decreased from 66.6% to 13.3%. On follow upper GI-scopy no of patients with esophagitis was decreased from 33.3% to 13.3%. The quality of life index scores also improved from a mean of 78.5 to that of 86.5.

In the past many other modalities of treatment have been used to treat achalasia in from of Botox therapy and Esophageal dilatation. However these have not been proved beneficial in long term symptom relief and convicted with high recurrence rates. Cardiomyotomy has been undergone the test of times and proved the most beneficial and almost a permanent solution for the treatment of achalasia. Not only that, with advent of time now minimal access approach has been introduced which now the acceptable method because of obvious benefits. The length has been under controversy right from its inception, however the consensus reached is to have myotomy of 4 to 6 cms on esophagus and of about 2 to 4 cms on stomach side to prevent recurrences. It is however essential to overlap the procedure with a wrap or partial fundoplication, which prevents from complications like hiatus hernia. In that there is a choice, some surgeons prefer anterior Dor fundoplication, which others advocate posterior Toupet fundoplication. Any of them can be used as both of them have their pros and cons, but main point to be kept in mind is to do the procedure with precision.

CONCLUSION:

Laparoscopic cardiomyotomy has a great impact on improvement of symptoms and quality of life post-operatively for long term basis in patients with Achalasia. Moreover it is a minimal invasive procedure which has its own added benefits of minimal access surgery, hence it should be considered as a Gold Standard procedure for management of Achalasia.

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