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Research Article

Clinical utility of oesophageal manometry in evaluation of chest pain and dysphagia at tertiary centre

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ABSTRACT

Background: Manometry is the gold standard test for diagnosis esophageal motility disorders. Disordered esophageal motor function is a common cause of symptom as particularly dysphagia, chest pain, and those associated with gastroesophageal reflux. Manometric studies are used in the evaluation of patients with symptoms suggestive of esophageal origin such as dysphagia, odynophagia, heartburn, and unexplained chest pain. Motor function can be assessed by a variety of recording techniques including radiology, scintigraphy manometer, and most recently intraluminal electrical impedance monitoring. Some of these are complementary. The gold standard, however, for the assessment of motor disorders remains manometry. Hypertensive LES, ineffective esophageal motility and nonspecific esophageal motility disorder are effectively diagnosed. Manometric measurement of esophageal pressure is the most direct method for assessment of motor function.
Methods: A prospective study done in department of surgery, Vijaya Nagara Institute of Medical Sciences, Bellary, Karnataka, India, between December 2010 to May 2012. Study included 30 patients of age 18-80 years were evaluated by oesophageal manometry who presented with non-cardiac chest pain and dysphagia.
Results: Manometric evaluation of patients presenting with non-cardiac chest pain and dysphagia revealed, hypotensive LES was most common constituting 39.6% of cases followed by, hypertensive LES (16.5%), achalasia (13.2%), ineffective esophageal motility (13.2%), nonspecific esophageal motility disorder (9.9%), nutcracker and diffuse esophageal spasm (3.3%).
Conclusions: Oesophageal manometry helps in identifying different motility disorder and delineates the treatment plan based on the recordings.

Keywords: Motility disorders, Achalasia, Nutcracker esophagus, DES

INTRODUCTION

Manometric studies are used in the evaluation of patients with symptoms suggestive of oesophageal origin such as dysphagia, odynophagia, heartburn, and unexplained chest pain. Manometry is the gold standard test for diagnosis oesophageal motility disorders. Disordered oesophageal motor function is a common cause of symptoms, particularly dysphagia, chest pain, and those associated with gastroesophageal reflux. Motor function can be assessed by a variety of recording techniques including radiology, scintigraphy manometry, and most recently intraluminal electrical impedance monitoring. Some of these are complementary. The gold standard, however, for the assessment of motor disorders remains manometry. Manometric measurement of oesophageal pressure is the most direct method for assessment of motor function.[1-5]

Manometric study is also indicated in the evaluation of reflux and should always be done prior to anti reflux surgery. In addition, it can be useful in determining possible esophageal involvement in systemic disorders such as scleroderma and chronic idiopathic intestinal pseudo-obstruction.[5] Esophageal manometry helps in identifying different motility disorder and delineates the treatment plan based on the recordings. Manometry has effectively changed the treatment in few of the motility disorder.

METHODS

The patients attending with chest pain and dysphagia to the department of surgery and also patients referred from other departments after thorough investigated and ruled out for other causes of chest pain and dysphagia in combined hospitals of Vijaya Nagara institute of medical sciences, Bellary, Karnataka, India, form the subjects for our study. Minimum of 30 patients who presents with chest pain and dysphagia was selected for the study between the time periods of December 2010 to May 2012.

The study was conducted prospectively in minimum of 30 patients of age between 18-80 years who are scheduled to undergo esophageal manometry at vijaya Nagara Institute of Medical Sciences, Bellary Karnataka, India. The study was conducted in department of general surgery with written informed consent, detailed history taking, thorough clinical examination, endoscopy and manometry for these patients. The data collected was entered into a specially designed case record form.

All Patients with oesophageal dysphagia and chest pain were included in the study. Patients with cardiac, respiratory and musculoskeletal chest pain are excluded. Patients with organic oesophageal obstruction, Diverticula's or fistulas and hypersensitive gag reflux are also excluded.

Data of all patients was collected from a specially designed case recording proforma (CRF) pertaining to patient's particulars, proper history, clinical examinations, investigations, diagnosis and surgical procedures.

All patients who underwent manometry were advised and explained about the procedure before placed on table. The manometry catheter was introduced through nares after applying local anaesthesic ointment for anaesthetic effect and smooth passage. The average duration of the procedure was 20 minutes and during the procedure the patient was continuously monitored. Procedure and post-procedure recovery in all patients was uneventful except for the incidence of hyper salivation during the procedure and nausea and vomiting after the procedure which was seen only in a few cases.

Eight channel sensor catheters were used for procedure. Depending on the various manometric graph recordings the oesophageal motility disorders are diagnosed. Further investigations were carried out where ever necessary to confirm diagnosis and for treatment. Statistical Analysis was done by compiling the data in Microsoft excel and analyzed using SPSS (statistical package for social sciences) version 15. Statistical tests used were proportion (percentage) and Chi square test.

RESULTS

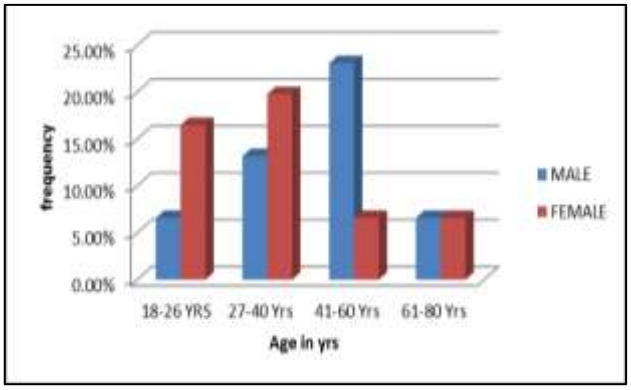

Figure 1: Age and sex distribution in manometry study.

In patients with abnormal manometry findings, 15 were male and 15 were female. Highest percentage of study participants were in the age group of 41-60 years (33.3%). Motility disorders were common in age group of 26-60 years (63%).

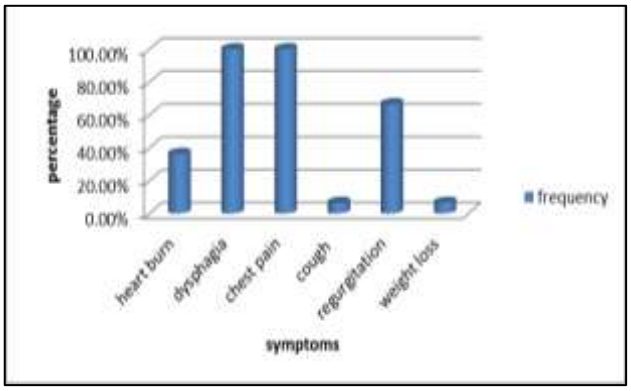

Figure 2: Presenting symptoms of patients of esophageal motility disorders.

All patients presented with chest pain (100%) and dysphagia (100%). Esophageal motility disorder also presented with regurgitation in 66.6% and heart burn in 36.3%, which helps in evaluating different types of motility disorders.

Manometric evaluation of patients presenting with chest pain and dysphagia revealed, hypotensive LES was most common constituting (39.6%) of cases followed by

hypertensive LES (16.5%), achalasia (13.2%), ineffective esophageal motility (13.2%), nonspecific esophageal motility disorder (9.9%), nutcracker and diffuse esophageal spasm (3.3%).

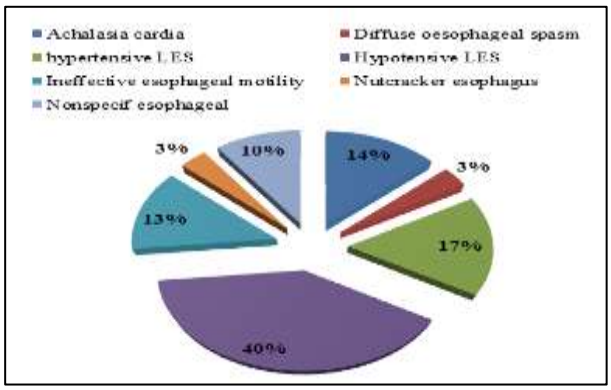

Figure 3: Frequency of esophageal motility disorders.

The esophageal motility disorders main presenting complains is dysphagia and chest pain. The motility disorder also presents with heartburn, regurgitation and sometimes as nocturnal cough and weight loss. In the present study all the patients presented with chest pain and dysphagia as compared to Lacy BE et al study where dysphagia as a presenting complaint was seen in 74% and chest pain in 59%.

As in our study the main inclusion criteria for manometry was chest pain and dysphagia thus all patients have these symptoms. The symptoms of motility disorders of western studies also show chest pain and dysphagia as their main presenting complaints.

Table 1: Comparative study based on symptomatology for esophageal manometry.

Symptomatology	Lacy BE et al[6]	Present study
Dysphagia	74%	100%
Chest pain	59%	100%
Regurgitation	81%	66%
Loss of weight	-	6.6%
Heart burn	-	36.3%
Cough	-	6.6%

Oesophageal motility disorders also presents with regurgitation as presenting complain. As in present study 66% patients presented with this compared to Lacy BE et al study where the main presenting complaint was regurgitation which was present in 81% of motility disorder patients.

Chest pain and dysphagia remains the main presenting complaint among the abnormal manometric finding patients because most of the patients in this part of country neglect the minor symptoms like heart burn and regurgitation and seek medical advice only when they manifest with either chest pain or dysphagia. Thus they remain as their main presenting complaint in all patients. In western countries patients seek medical advice even for minor complaints like regurgitation before they develop major symptoms.

Thus the presenting complaints of motility disorder for inclusion is well supported by the manometry results and also by comparing the symptomology of present study with the Lacy BE et al study.

Esophageal manometry helps in identifying different esophageal motility disorders .In present study hypotensive LES is the most common motility disorder accounts for 39.6% as compared to Jaffin BM et al study hypotensive LES is 35% which is most common motility disorder in that study. Thus hypotensive LES is the most common motility disorder in present study and western study which is statistically significant.

Table 2: Comparative study based on manometric recordings.

Manometry findings	Jaffin BM et al[8]	Present study
Achalasia cardia	12%	13.2%
Hypotensive LES	35%	39.6%
Hypertensive LES	13%	16.5%
Nonspecific esophageal motility	12%	10%
Ineffective esophageal motility	7%	13.2%
Diffuse esophageal spasm	7%	3.3%
Nutcracker esophagus	14%	3.3%

The incidence of Ineffective Esophageal motility and diffuse esophageal spasm was 7% in Jaffin BM et al study compared to 13.2% and 3.3% in present study. The low incidence of both these disorders is shown by present and western study.

The incidence of Achalasia cardia is 13.2% in present study and 12% in Jaffin BM et al study, which is significantly important as it has increased incidence among middle aged patients.

The incidence of nonspecific esophageal motility and hypertensive LES was 12% and 13% respectively in Jaffin BM et al study compared to 16.5% and 10% in present study. The low incidence of both these disorders is shown by present and western study.

DISCUSSION

In the present study all the patients presented with chest pain and dysphagia as compared to Lacy BE et al study where dysphagia as a presenting complaint was seen in 74% and chest pain in 59%.[6]

Oesophageal motility disorder is considered in all patients, who had chest pain and dysphagia after ruling out other causes. Regurgitation is present in 66% of patients which is most common complain among hypotensive LES (39.6%) and Ineffective esophageal motility disorder (13.2%). In present study hypotensive LES is the most common motility disorder accounts for 39.6% as compared to Jaffin BM et al study hypotensive LES is 35% which is most common motility disorder in that study.[8] Heart burn is present in 39.3% patients which is also main presenting complain among hypotensive LES and Ineffective esophageal motility disorder. Nocturnal cough and weight loss is present in 6.6% of patients, which is 50% for achalasia patients which indicates the distal esophageal obstruction.

In Jaffin BW et al study the mean age is 39.8 years compared to Howard PJ et al study the mean age is 47.6 years.[7,8] In the present study the mean age is middle age, 41.2 years which is significant as most of the esophageal motility disorder presents during this age group.

Hypertensive LES, ineffective esophageal motility and nonspecific esophageal motility disorder are effectively diagnosed but the etiology remains unknown and are treated conservatively with oral medications.

CONCLUSION

Oesophageal manometry helps in identifying different motility disorder and delineates the treatment plan based on the recordings. Manometry has effectively changed the treatment in few of the motility disorder. Oesophageal manometry was helpful in finding the length of LES and esophageal length in achalasia patients which helps in planning the incision and length of cardiomyotomy. Hence oesophageal manometry is a safe investigative tool in evaluation of oesophageal motility disorders. The oesophageal manometry data base can be an important resource for future research in motility disorder by documenting current practice patterns and changes in treatment plan over the time.

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Ethical approval: The study was approved by the institutional ethics committee

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