ENDOSCOPY-GUIDED PNEUMATIC DILATION OF ACHALASIA, EXPERIENCE AT HAYATABAD MEDICAL COMPLEX, PESHAWAR

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ABSTRACT

Objective of the Study: To determine the efficacy of endoscopy guided pneumatic dilatation in achalasia.

Patient and Methods: This prospective study was conducted in the Gastroenterology and Hepatology Department of Hayatabad medical complex Peshawar from January 2011 to June 2015. Patients with achalasia were included in the study after applying the exclusion criteria. Detailed history taking, systemic examination and routine investigations e.g. CBC, LFT's, RFT's etc were done for all patients followed by endoscopic examination of the upper GI tract along with dilatation of achalasia. All patients undergoing pneumatic dilatation were followed for 6 months for efficacy of the procedure. All this information was entered into a specially designed proforma. All data was analyzed using SPSS Program 10.0. Descriptive statistics were calculated for the study variables.

Results: A total of 130 patients having achalasia were included in this study out of which 82 (63.08 %) were male and 48 (36.92 %) were female. Patients were in the age range of 30-70 years with mean age was 46 years with a SD of ± 7.9 years. Out of 130 patients 91 (70%) required one session of pneumatic dilatation, 26 (20%) required two session while 7 (5.38%) required three sessions for being in remission. Six (4.62%) patients who did not respond to three sessions of pneumatic dilatation were sent for surgical treatment of achalasia.

Conclusion: In our experience endoscopy guided pneumatic dilatation is a safe and effective non surgical therapy of achalasia with good short and midterm relief of symptoms. Its additional benefit is that fluoroscopic control is not required.

Key Words: Achalasia, Endoscopy guided pneumatic dilatation.

INTRODUCTION

Achalasia is a Greek term which means "does not relax". It is a disease characterized by loss of peristalsis in the distal esophagus and impaired relaxation of the lower esophageal sphincter. The mean age of onset varies between 30-60 years and it has an incidence of 1.1 per 100000[1,2].The diagnosis is usually made by clinical sign and symptoms, barium swallow studies, esophageal manometry and endoscopy[3-7]. The pathogenesis of achalasia remains unknown. Hereditary, degenerative, autoimmune and infectious factors are suggested to be the possible causes for achalasia and the latter two are the most commonly accepted possible etiologies[8,9]. Currently there is no curative treatment for achalasia. The available treatment options are for palliation of symptoms and these include medical treatment, pneumatic dilatation, botulinum toxin injection and surgery. All these options are directed to loosen the lower esophageal sphincter and to achieve esophageal emptying and to relieve symptoms[10-18]. The aim of pneumatic dilatation is basically to weaken the lower esophageal sphincter by tearing its muscle fibers by applying radialy directed force and thus lowering the lower esophageal sphincter pressure. Currently gastroenterologists prefer pneumatic dilatation of achalasia as the first choice of treatment modality due to its safety, low cost and high success rate i.e. about 70-90%[19-22]. The benefit of endoscopy guided pneumatic dilatation is that no fluoroscopy is needed as fluoroscope may not be available in all centers and in case fluoroscope is available but out of order, still pneumatic dilatation can be performed without it. Other than that exposure to radiation is also avoided as no fluoroscopic control is needed. The aim of this study is to evaluate the efficacy of endoscope guided pneumatic dilatation of achalasia and report our experience regarding it.

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OBJECTIVE

To determine the efficacy of endoscopy guided pneumatic dilatation in achalasia.

PATIENTS AND METHODS

This prospective study was conducted in the Gastroenterology and Hepatology Department of Hayatabad medical complex Peshawar, from January 2011 to June 2015. The study was approved by the research and ethics committee of the hospital. Written informed consent was obtained from all the patients.

Patients were interviewed and data regarding demographic profile, history of dysphagia, chest pain, weight loss and regurgitation, presence of associated medical illnesses and medications used were collected.

Patients who had cardiovascular accidents, Parkinson's disease, Multiple sclerosis, systemic sclerosis, Brain stem tumor, Mediastinal tumors, vascular compression or cervical osteophytes and esophageal strictures and mass lesions were excluded from the study.

All adult patients from 30-70 years of age of either sex who were having achalasia, diagnosed on the basis of clinical features, barium swallow and endoscopy, were included in the study on the basis of non-probability convenience sampling after careful history, examination and required investigations along with upper gastrointestinal endoscopy. Endoscopy guided pneumatic dilatation of achalasia with Rigiflex achalasia balloon dilators of 3, 3.5 or 4 cm diameter was done after 24 hour of liquid diet and an overnight fast. After conscious sedation, endoscope was passed and site of lower esophageal sphincter (LES) was marked on the scope from incisor. It was followed by placement of a guide wire in the duodenum through the scope. After this the scope was removed and balloon dilator was passed over the guide wire after marking the waist of balloon dilator on the midpoint and also measuring its distance from the incisor with the help of previously measured distance on endoscope. It was followed by reinsertion of the endoscope and under direct vision the marked midpoint of the balloon was place across the LES (Figure 1) and then the balloon was dilated gradually up to 10 psi for 1-2 minutes. After that the balloon was deflated and the guide wire and balloon were removed. Good dilatation was confirmed with endoscopy at the same time by observing free passage of the endoscope through the LES which was previously tight. All these patients were observed for 6-8 hours after the procedure for any complication and chest X ray was done for every patient after the procedure. All these patients were followed for 6 months at 1, 4 and 6 months time after endoscopy guided pneumatic dilatation for efficacy of pneumatic dilatation. Efficacy was measured in terms of symptom relief and reduction in severity of dysphagia on the basis of a dysphagia severity score up to ≤ 1 as shown in table 4.

Data was recorded in a specially designed proforma. All data was analyzed using statistical package SPSS 10.0. Descriptive statistics were used. Mean and standard deviation was calculated for age. Frequencies and percentages for variables were calculated.

RESULTS

A total of 130 patients were enrolled into the study on the basis of inclusion and exclusion criteria. Out of them 82 (63.08 %) were male and 48 (36.92 %) were female with a male to female ratio of 1.7:1 as shown in Table 1.

Age range was from 30 to 70 years with a mean age $\pm$ SD of 46 $\pm$ 7.9 years. Most of the patients were in the age range of 40 to 50 years as shown in Table 2.

Different symptoms with which patients with achalasia presented included dysphagia, weight loss, regurgitation of undigested food and chest pain etc as shown in Table 3. Many patients had more than one symptom at presentation.

Over all 95.38 % patients with achalasia were in remission at the end of six months after endoscopic guided pneumatic dilatation with dysphagia severity score of ≤ 1 and 70 % (N=91) of them required only one session of endoscopic guided pneumatic dilatation as shown in Figure 2. Commonly observed complication in our study was post procedural chest pain as shown in Table 5.

Table 1: Gender wise distribution of Patients

GENDER	NUMBER OF PATIENTS	PERCENTAGE
MALE	82	63.08 %
FAEMALE	48	36.92 %
TOTAL	130	100 %

Table 2: Age wise distribution of patients

Age Range	Number Of Patients	Percentage
30 - 40 years	24	18.46 %
41 – 50 years	58	44.62 %
51 – 60 years	38	29.23 %
61 – 70 years	10	7.69 %
TOTAL	130	100 %

Table 3: symptoms at presentation

SYMPTOM	PERCENTAGE
DYSPHAGIA	100%
WEIGHT LOSS	54%
CHEST PAIN	21%
REGURGITATION OF UNDIGESTED FOOD	48%
HICCUPS	3%

Table 4: Dysphagia severity score

SCORE	SEVERITY OF DYSPHAGIA
0	Able to eat normal diet / no dysphagia.
1	Able to swallow some solid foods
2	Able to swallow only semi solid foods
3	Able to swallow liquids only
4	Unable to swallow anything / total dysphagia

Table 5 : Complications

complication	Number of patient	percentage
Post procedural pain	26	20 %
Esophageal perforation	1	0.7
Esophageal mucosal tear	0	0
Intramural hematoma	0	0
Bleeding	0	0
diverticula at the gastric cardia	0	0

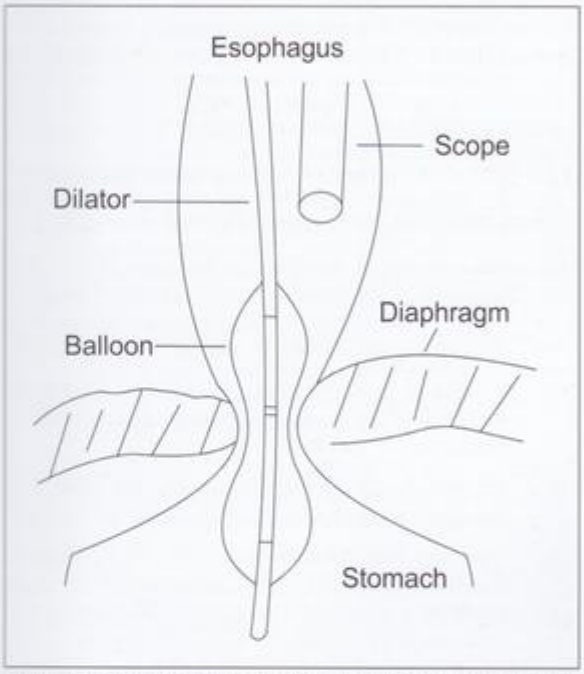

Figure 1: Pneumatic balloon positioned across lower esophageal sphincter under endoscope guidance

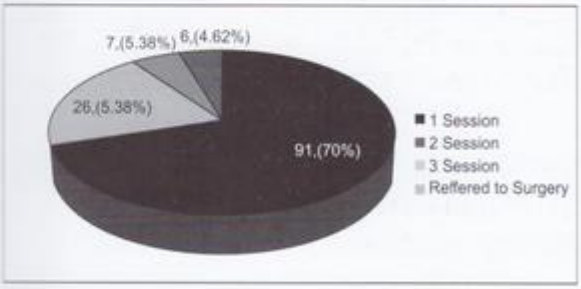

Figure 2: Number of patients along with number of sessions required to be in remission.

DISCUSSION

Achalasia is an incurable disease resulting in impaired emptying of the esophagus along with incomplete or absent relaxation of the lower esophageal sphincter. This disease can occur at any age but is commonly seen in the age range of 30-60 years and similar findings were also noted in our study as well. It has no racial predilection and occurs equally in men and women[22,23]. However in our study we saw male preponderance and the reason for this may be easy and better access to medical facilities by male population in our society as compared to female population who has difficulty in access to these facilities due to social and cultural hindrances.

Achalasia typically presents with dysphagia for solids and liquids accompanied by regurgitation of undigested food[22]. Along with it there may be weight loss, substernal chest pain and heart burn which may be misdiagnosed as GERD some times[24,25]. Other than this patient may also present with hiccups and chronic cough as well. Patients in our study also presented with these typical clinical presentations.

Pneumatic dilatation is considered first line treatment option for treatment of achalasia due to its safety and efficacy with success rate up to 85-90% in different studies[13,14,29-34]. Results of our study also match with these findings. So far there is no consensus on the optimum method of pneumatic dilatation regarding balloon size and rate and amount of inflation pressure. Due to this reason there may be difference in the success of pneumatic dilatation in different studies.

Till now different studies have shown encouraging short and mid-term clinical remission results ranging from 54-91%[11,26,27,28,35-38] which is also seen in our study. Most of these studies were retrospective with some prospective studies as well having a follow up period of 2-4.5 years. Despite such encouraging results for mid-term clinical remission long term studies are required to evaluate the efficacy of endoscope guided pneumatic dilatation in long term.

Currently one dilatation is done per session as a standard protocol with repeated sessions done if symptoms persist or returns. Patients are usually referred for surgical management if three consecutive sessions of dilatation do not provide symptom relief. We also followed the same protocol in our study and only six patients (4.62%) were referred for surgical management of achalasia. Rest of the patients were successfully treated with 1-3 sessions of endoscopy guided pneumatic dilatation.

The most dreaded complication of pneumatic dilatation is esophageal perforation. In different studies it is reported to occur at a rate of 0-3.3% in endoscopy guided pneumatic dilatation[11,26,27,28,38] while in fluoroscopy guided pneumatic dilatation it is said to occur at a rate of about 5%[29,40-45]. This shows the relative safety of endoscopy guided pneumatic dilatation over fluoroscopy guided pneumatic dilatation. In our study one patient had minor esophageal perforation which improved with conservative management and no surgical intervention was needed. It usually occurs during the first session of dilatation just above the cardia on the left side where

there is an anatomic area of weakness. Patient usually present within a few hours of dilatation and finding that raises the suspicion of perforation include tachycardia, fever and chest pain that lasts for more than four hours post procedure[44]. An esophagram is only ordered if the patient experiences these symptoms. Other complications associated with pneumatic dilatation are bleeding, esophageal mucosal tears, diverticula at the gastric cardia and intramural hematomas[29,44,45]. Post procedural fever usually resolves spontaneously without antibiotics. Around 15 percent of patients experience severe post procedural chest pain that improves by itself. In our study this was seen in 20% of the patient and it was self limiting.

Pneumatic balloon dilatation is safe procedure and can be performed easily in experienced hands. There are no specific contraindications to it except for poor cardiopulmonary status and any illness preventing surgery, in case esophageal perforation occurs. In women who are pregnant pneumatic dilatation should be attempted first if needed rather than surgery as it is associated with a much lower risk of complications[39].

CONCLUSION

Endoscopy guided pneumatic dilatation is a safe and effective therapy of achalasia with good short and midterm clinical remission of symptoms. Its additional benefit is that fluoroscopic control is not required and risk of esophageal perforation is low as compared to fluoroscopic guided pneumatic dilatation.

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