OUTCOME OF ENDOSCOPIC THERAPEUTIC INTERVENTIONS: ARE THEY DIFFERENT AMONG VARIOUS NON- MALIGNANT ESOPHAGEAL DISEASES

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Background: This study was carried out to evaluate and compare the outcome of various causes of non-malignant lesions of the esophagus after endoscopic therapeutic intervention. **Methods:** A cohort of patients with non-malignant dysphagia presenting at Aga Khan University hospital, a tertiary care setting who underwent endoscopic intervention was studied. Response to treatment was evaluated by improvement in dysphagia score on a scale of 0-4 and weight gain. **Results:** 99 subjects (53 males) were included. Mean age was 48.6±17.2 years. Dysphagia for solids was present in 48%, for liquids in 3% and for both in 49% patients. Significant weight loss (>10% body weight) occurred in 35 (35.3%) patients. Achalasia was diagnosed in 49.5%, peptic stricture in 30.4%, post sclerotherapy stricture in 12.1%, corrosive injury in 4%, post-operative stricture in 4%. In comparative analysis of achalasia and inflammatory groups, good response to dysphagia was seen in 40/49 (82%) and 22/50 (44%) respectively $p < 0.001$. Weight gain was 35/49 (72%) and 22/50 (44%) $p < 0.001$ respectively. Significantly, more endoscopic sessions were required in inflammatory group compare to achalasia; 2.2 and 1.1 respectively; $p < 0.001$ and 16% complications rate in inflammatory group comparing to no complications in achalasia. **Conclusions**: Dysphagia and weight loss were common presentations in non-malignant esophageal diseases. Therapeutic intervention in inflammatory group was associated with high complication than the achalasia group.

Key words: outcome of non-malignant esophageal diseases, Benign esophageal lesions, Achalasia, esophageal strictures.

INTRODUCTION

Dysphagia and weight loss are manifestations of various esophageal diseases. This includes both malignant and non-malignant conditions. Among the malignant lesions, carcinoma of esophagus is the commonest cause[1] and in non-malignant lesions, peptic stricture and achalasia are relatively common causes.[2] Therapeutic approaches and outcome in terms of overall survival are different in non-malignant conditions from the malignant. Moreover, there is a gross variability in response to endoscopic therapeutic intervention in patients even within various non-malignant esophageal lesions. This variability in the response among various non-malignant esophageal diseases was never compared. This study was aimed to evaluate and compare the outcome of the patients with different causes of non-malignant esophageal lesions presented with dysphagia and weight loss after therapeutic endoscopic interventions.

MATERIAL AND METHODS

During the study period from January 1999 till December 2001, patients with dysphagia and weight loss were evaluated. Those who fulfil the criteria were enrolled for intervention and followed up for long-term outcome after therapeutic interventions.

Patients aged more than 18 years with symptoms of dysphagia and weight loss who had benign esophageal lesion on investigations were included. While patients with malignant esophageal or gastric lesions, central neurological causes of dysphagia, systemic illnesses accounting for weight loss e.g. diabetes mellitus, collagen vascular disease etc, extrinsic structural lesions of the neck and chest causing compression, pregnancy and esophageal varices were excluded.Similarly patients who were not fit for endoscopic intervention were also excluded.

Weight loss was considered significant if the loss was more than 10% of body weight in six months prior to presentation. Clinical history and physical examination were done to exclude non-esophageal causes of weight loss. These patients then underwent barium swallow followed by endoscopic procedures. Diagnosis of the non-malignant lesions were based on histology if required, relevant history of corrosive ingestion, sclerotherapy, acid peptic disease etc. Achalasia was diagnosed on barium esophagogram and endoscopic findings. Endoscopic procedure was done in conscious sedation after taking informed consent. Sedation used was midazolam 2-5 mg until the patient was relaxed and fully sedated. Procedures were done under fluoroscopic guidance. For achalasia graded dilatation with pneumatic balloon 30 mm to 35 mm was done for 60-90 seconds. For

inflammatory strictures Savary-gilliard dilator 5-17 mm were used for dilatation. Immediate complications if any were noted.

Patients were followed in clinics for one year. Response to treatment was evaluated on 1st post procedure visit after one week by physician not involved in the procedure. Improvement was evaluated by subjective improvement in dysphagia Score 0 - 4; where score 4 meant best response with no dysphagia. Score 3 mild dysphagia for solids, Sscore 2 where patient could only swallow semi solid things, Score 1 liquid only and score 0, complete dysphagia. Patient's weight was also recorded on follow up visits and best weight in six months after procedure was taken. Patients with peptic stricture were continued on proton pump inhibitors after procedure.

RESULTS

Ninety-nine patients (53 males) were eligible for analysis (Table 1 & 2). Mean age was 48.6±17.2 years. Dysphagia for solids was present in 48%, for liquids in 3% and for both in 49% patients. All patients had history of weight loss but 35 (35.5%) of them had significant loss of weight. Total numbers of 161 dilatation session were done in 99 patients. With mean of 1.5 sessions per patient this includes; pneumatic balloon dilatation 35% and Savory Gilliard dilators 65%. In comparative analysis of achalasia and inflammatory groups (table 3), good response to dysphagia (score 4) was seen in 40/49 (82%) and 22/ 50 (44%) respectively $p < 0.001$. Weight gain was 35/49 (71%) and 22/50 (44%) $p < 0.001$ respectively.

These patients were followed-up for mean of 322 days ± 88 days. Number of endoscopic sessions during the follow-up period were more in inflammatory group compared to achalasia group; 2.2 (range 1 – 8) vs. 1.1(range 1 – 2). $P < 0.001$. In inflammatory group, 8/50 (16%) patients had complications comparing to no complications in achalasia. These complications were perforation in 6(12%), bleeding requiring transfusion in one patient and local abscess in another patient. Among the patients who had perforation, 3/6 had underlying post corrosive stricture and in another three patients, underlying pathology was peptic stricture. Four patients with perforation were managed conservatively and improved.

One 50 years old female patient with peptic stricture had perforation underwent surgery for repair and another patient with post corrosive stricture died following perforation due to mediastinitis and sepsis.

Table-1: Patient characteristics (n = 99)

Patient's characteristic	Achalasia (n 49)	Inflammatory (n 50)
Male	28 (57%)	26 (52%)
Female	21 (43%)	24 (48%)
Mean age	45.5 ± 15.3	51.7 ± 18
Dysphagia for solids	26 (53%)	22 (44%)
Dysphagia for liquids	1 (2%)	2 (4%)
Both solids and liquids	22 (45%)	26 (52%)
Significant weight loss (>10 % body weight in 6 months)	16(32. %)	19(38%)
Therapeutic interventions 1. Pneumatic balloon dilatation sessions	49 (100%)	-
2. Savary Gilliard dilatation	-	50 (100%)
Total no of procedures	163	Mean 1.5

DISCUSSION

Achalasia, inflammatory strictures and esophageal webs and schatzki's rings are all different but benign entities. They all present with dysphagia and weight loss and treated with therapeutic endoscopic interventions.[1,2] Successful outcome after therapeutic intervention may be measured by pressure changes in the esophagus, height and width of barium column measured on radiograph and rate of esophageal emptying in these patients. However the mainstay of success is improvement in dysphagia and weight gain,[3-5] same parameters are used in this study. Clinical parameters in this series has shown an overall good response to endoscopic treatment in 64% patients in terms of dysphagia and 57% patients had significant weight gain after therapeutic interventions.

Several options are available for treatment of achalasia. Pneumatic balloon dilatation is effective and economical method with low complications[1] rates. Graded dilatation was proved safer if procedure begins with 30 mm balloon, good to excellent response was seen up to 77% patients, moderate response in 12% patients in long-term follow-up for 3-12 years.[4] In another study good to excellent response to pneumatic dilatation and Heller's myotomy was found comparable i.e. 88% vs. 89 % if skilled operators were available.[11] In the present series of 49 achalasia patients, good response to dysphagia was seen in 40(82%) patients and 35(72%) patients gained significant weight after dilatation procedures. Only one patient required Heller's myotomy because of poor response to pneumatic balloon dilatation. In literature incidence of esophageal rupture with pneumatic balloon dilatation is reported between 0-12 percent and none of the patient in this series had this complication.[10, 11]

Table-2: Pathological Diagnosis and complications

Pathology	n (%)	Perforation	Bleeding *	Local abscess
Achalasia	49 (49.5%)	-	-	-
Peptic stricture	30 (30.45%)	3		
Post sclerotherapy stricture	12 (12.1%)	-	1 *	-
Post surgical stricture	4 (4%)	-	-	1
Post corrosive ingestion	4 (4%)	3	-	-

* Significant bleeding requiring transfusion.

Table-3: Response and complications in Achalasia and inflammatory groups.

Characteristics	Achalasia group (n = 49) (n).	(%)	95 % C. I	Inflammatory group n = 50 (n)	(%)	95 % C.I	P. Value
Good response.	40	(82)	70-92	22	(44)	27 – 60	< 0.001
Mild to moderate response.	8	(16)	6 - 26	18	(36)	19 – 51	
Poor response.	1	(2)	0 - 6	10	(20)	7 – 34	
Significant weight gain.	35	(72)	75 - 95	22	(44)	27 – 60	< 0.001
Average no. of sessions	1.1±0.3*	-	0.59-1.57°	2.2±1.7*	-	0.59-1.57°	< 0.001
Complications.	0	--	--	8	(16)	--	

n = number; % = percentage; C.I = confidence interval;* = mean with standard deviation;
° = 95 % C.I of difference of means.

In an average of 1.1 ± 0.3 sessions were required for achalasia patients in the present series which is comparable to other published series.[1-6]

Benign esophageal stricture is a serious complication of gastroesophageal reflux disease [12, 13.] Response to treatment depends upon the size and nature of the stricture and patient selection. These patients require 1-9 dilatation sessions in a year and these sessions can be reduced by concomitant use of omeprazol [14, 15]. If these patients do not respond to dilatation procedures then surgical option are considered. [14, 15]. Fluoroscopic guided balloon dilatation is accepted standard treatment of esophageal stricture dilatation. mortality and morbidity was less in dilatation with bougies than surgery [16, 17.] Incidence of esophageal rupture has been reported between 12-32 % by dilatation with balloon or bougies [18,19,20].In a study 153 patients who underwent 1043 dilatation procedure without fluoroscopy with Savary Gilliard, bougies and endoscopically oriented balloon. Good response was seen in 65.5% patients, perforation rate was 2.8% and mortality was 0.7 %[24]. In our series of 50 patients with inflammatory strictures who underwent dilatation procedure under fluoroscopic guidance with Savary Gilliard dilators (5-17 mm), good response was seen in 22 (44%) patients. An average of 2.2± 1.7 session range from 1-8 were required to achieve the response during the follow-up period. In the inflammatory group six (12%) patients had perforations following endoscopic dilatation. Four of them improved on conservative management and one patient with peptic stricture required surgery for repair of perforation. Another patient with post corrosive stricture died following perforation due to mediastinitis and sepsis. Among the patients who had complications, 3/6 patients had underlying post corrosive stricture and in other three patients, peptic stricture was the underlying etiology.

Comparison of achalasia and inflammatory stricture in term of response to endoscopic dilatations and complications revealed that although both groups were similar in manifestation and are non-malignant conditions but response to treatment was significantly better in achalasia than in inflammatory strictures because of apparent difference in the underlying diseases. Moreover the number of therapeutic endoscopic session during the follow-up period were significantly more in inflammatory sub-group compared to achalasia group; 2.2 and 1.1 respectively $p<0.001$.

In conclusion, dysphagia and weight loss were common symptoms in non-malignant esophageal lesions. Majority of patients showed significant improvement following endoscopic intervention. Response to endoscopic intervention, number of therapeutic endoscopic sessions and frequency of complication in achalasia patients were significantly better than inflammatory stricture.

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