1609 Globus Sensation – An Indicator of Oesophageal Motor Dysfunction

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The globus sensation is often viewed as pointing at the presence of a conversion disorder or other psychogenicity. We studied prospectively 70 female and 22 male patients (age 22–71 years, median 43 years) referred consecutively to a psychosomatic clinic and presenting with the sensation as primary symptom. To evaluate whether morphological or other abnormalities underlay their sensation, all underwent a thorough history taking as well as otolaryngological, videokinematographic, and manometric examinations of pharynx and oesophagus. When indicated by history or findings, 24-hour pH-metry, scintigraphy of oesophageal bolus transport or gastric emptying, oesophagogastrosocopy and other examinations were performed. The investigations revealed that 4 patients had a Zenker diverticulum (1 also oesophageal varices), 1 a velopalatal insufficiency, 1 an only partial opening of the upper oesophageal sphincter, 16 achalasia, 9 "hypochalasia", 1 diffuse oesophageal spasms, 2 nutcracker oesophagus, 30 nonspecific oesophageal motor abnormalities, 17 abnormal gastrooesophageal reflux activity (thereof 10 also oesophagitis), 6 massively delayed gastric emptying, 1 erosive antral gastritis, and 1 dental malocclusion. Of those having nonspecific oesophageal motor abnormalities, 1 patient had also malocclusion, 4 pharyngitis, 1 erosive gastritis and 2 delayed gastric emptying. Eleven patients suffering from one of the above motor disorders had also hyperplastic lingual tonsils, 3 had tonsillitis and 1 a cervical spondylophyte. The psychometric investigations showed no higher mean scores for depression, state and trait anxiety, hysteria and hypochondriasis than in general medical outpatients. Psychiatric interviews with 57 patients showed that 44 met DSM-III-R criteria for psychiatric disorders. However, neither this nor the psychometric findings bore any relationship to the presence, intensity or frequency of the globus sensation or the physical disorders detected. The results suggest that the globus sensation has to be viewed as an indicator of disordered oesophageal and possibly gastric motor activity and may be a precursor of less ambiguous symptoms.

1610 Mianserin Treatment of Idiopathic Abdominal Pain

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In a double blind placebo controlled trial Mianserin was given for 8 weeks to 47 patients with a history of Irritable bowel syndrome or Non-ulcer dyspepsia of more than one year duration. There were no other psychiatric or chronic somatic disorders. All patients had been examined by specialist in gastroenterology.

Daily dosage was 120 mg Mianserin, and pain-response was measured by Visual Analog Scale and Clinical Global Improvement Scale. Other psychopharmacological or analgetic medication was not allowed.

75% of patients on Mianserin experienced major improvement, and 60% complete remission of previous symptoms. Mianserin patients experienced significantly better response than placebo patients with p-value less than 0.0001.

At follow-up 3 months after tapering of the drug, patients still experienced remission of symptoms if induced during treatment period.

Mianserin may be a pharmacological alternative for many patients with Irritable bowel syndrome or Non-ulcer dyspepsia.

1611 Esophageal Strictures Complicating Intravariceal Sclerotherapy with Ethanolamine Oleate 5%

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We have studied the incidence of post-sclerotherapy esophageal stenoses, possible risk factors and stricture management. Ninety one pts, 69 men and 22 women, age range 18–82 years, with liver cirrhosis and history of esophageal variceal bleeding were included in the study. The pts were given intravariceally ethanolamine oleate 5%, 5–40 cc per session. Sclerotherapy was repeated in one week and then every month or immediately after re-bleeding, until eradication of the varices. Nine out of 91 (9.9%) pts developed post-sclerotherapy esophageal stricture (<12 mm). Details of the sclerotherapy sessions and sclerosant amount are given in the following table.

	Sclerotherapy sessions		Sclerosant amount	
	Total	per pt	Total	per session
Stricture N = 9	30	3.3	681	22.7
No- Stricture N = 82	429	5.2	6198	14.4

Six pts undergone one and 3 pts 2–5 dilatations with Savary-Gilliard dilators, up to 15 mm, during a follow up of 6–12 months without any complication. We conclude that approximately 10% of pts develop post-sclerotherapy esophageal strictures which can be managed effectively and safely with Savary-Gilliard dilators. The amount of sclerosant given per session but not the total amount of sclerosant seems to be a risk factor for developing post-sclerotherapy esophageal strictures.

1612 Patients with Diffuse Esophageal Spasm Show an Abnormal Esophago-Cardiac Inhibitory Reflex

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The esophagus may be involved in the genesis of some cardiac arrhythmias, spontaneous (i.e. "swallow syncope") or induced by strummental manipulations, including esophageal balloon dilatation used to reproduce angina-like chest pain. To investigate the mechanisms of these esophago-cardiac reflexes, we recorded in 8 normal subjects (N) and 10 patients with diffuse esophageal spasm (DES), the ECG during an esophageal manometric examination and measured the variations of RR intervals induced by dry swallows, swallows of solid boluses (bread) and intraesophageal balloon inflation at 100 mmHg for 10 sec. The percent variation of the RR interval of ECG from its mean basal value to its highest or lowest value observed after stimulation was calculated in both groups.

Results (%; mean $\pm$ SD):

Group	Dry swallows	Solid swallows °	Intraesophageal balloon inflation and deflation
N	-15 $\pm$ 15 [#]	-8 $\pm$ 4 [#]	+8 $\pm$ 3 [#]
DES	-14 $\pm$ 10	-5 $\pm$ 2 [#]	+16 $\pm$ 7 [#]
		+16 $\pm$ 4 ^{#*}	+29 $\pm$ 8 ^{#*}
			-9 $\pm$ 5 [#]
			-5 $\pm$ 4

* p < 0.05 versus the corresponding value of group N; [#] p < 0.05 versus basal period; ° biphasic response.

Comment. (1) Dry swallows induced a brief increase in heart rate, (2) solid swallows induced an increase in heart rate followed by a decrease, significantly more marked in DES group, (3) balloon inflation induced a decrease in heart rate significantly more intense in DES group, while balloon deflation was followed by a significant increase in heart rate in group N.

In conclusion, the esophageal wall distension, either due to solid bolus or balloon inflation, elicits an inhibitory esophago-cardiac reflex that is more intense in patients with DES and might induce cardiac arrhythmias in predisposed subjects.

1613 Endosonography Can Detect Residual Tumour Infiltration After Medical Treatment of Inoperable Oesophageal Cancer

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The assessment of response to medical treatment of oesophageal carcinoma is based on data provided by endoscopy, histopathology, and computed tomography (CT). The aim of our study was to assess the usefulness of endosonography (ENS) in the surveillance of these patients.

Patients and methods: 28 patients with inoperable oesophageal cancer, treated by combined chemotherapy, radiation therapy and endoscopic therapy, were considered after treatment in endoscopic and histologic remission. ENS was performed with an Olympus EU-M3 echo endoscope (7.5 and 12 MHz). ENS findings were staged according to the new TNM classification. In all patients, computed tomography was carried out. Subsequently, ENS and CT examinations were performed every 2 or 3 months, in order to appreciate the response to treatment or relapse. ENS was systematically carried out when the endoscopic lesions had disappeared, and when biopsies were negative.

Results: The initial evaluation of the 28 patients who were apparently tumour free after combined medical treatment showed: stage I: 2 cases; stage II A: 9 cases; stage II B: 14 cases; stage IV: 3 cases. After therapy, when biopsies were negative, the staging evaluated by ENS was the following: T0N0: 14 cases; T1N1: 2 cases; T2N1: 3 cases; T3N1: 4 cases; T4N0: 1 case; T4N1: 1 case. CT did not show any parietal thickening or lymph node involvement in 3 patients with tumours staged T3N1 and in 2 patients with tumour staged T2N1 by ENS. When no infiltration was detected by ENS, no tumoral evolution was observed within at least eight months (median 14 months; extr:

8–41); when the evaluation by ENS suggested the persistence of tumour infiltration, a recurrence or distant metastase appeared within a few months (9 recurrences within three months).

Conclusion: The interpretation of oesophageal layers may be difficult after chemotherapy and/or radiation therapy. Our experience suggests that ENS is effective in predicting total remission after such treatment. ENS is better than endoscopic biopsies and CT to assess the response of oesophageal carcinoma to medical treatment. Negative biopsies and apparent endoscopic remission may correspond to residual tumour infiltration.

1614 Is the Manometric Finding of a Defective Lower Esophageal Sphincter Clinically Useful?

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Gastroesophageal Reflux Disease (GERD) is a multifactorial disease, in which a defective Lower Esophageal Sphincter (LES) is often involved. In order to assess the clinical relevance of this finding, we evaluated 46 patients affected by GERD (21 females and 25 males; median age 54 years, range 17–81). Inclusion criterium for the study was an abnormal esophageal exposure to acid, as assessed by 24-hour pH-monitoring. The patient's symptoms were scored according to severity and frequency (maximum score: 20). The patients also underwent upper endoscopy (esophagitis was graded 0–4 according to Savary-Miller) and stationary esophageal manometry (pressure, overall and abdominal length, area under the curve and vector volume of the LES were calculated by means of dedicated software). A defective LES was defined when one or more of these parameters fell below the 5th percentile of the control group, represented by 15 healthy volunteers. When a defective sphincter was found, a surgical option was advised: 13 patients accepted the operation and underwent a Nissen-Rossetti procedure (Group A), whereas 12 preferred to continue the medical treatment with H₂-blockers, antacids and dietary measures (Group B). The same medical treatment was also performed in the 21 patients with a normal LES (Group C). The patients were clinically re-evaluated, with the same scoring questionnaire, 6 to 24 months later.

Results: At the entry into the study, the symptom score was similar in the three groups (10.6 ± 3, 13 ± 3 and 10.5 ± 4 in Group A, B and C, respectively). Esophagitis distribution (grade 0–1 vs grade 2 or more) was similar in groups A and B, whereas in Group C mild esophagitis was more prevalent. All groups showed a significative decrease in the mean symptom score with treatment. However, this decrease was more evident in Group A and in Group C (2.6 ± 3 and 3.6 ± 4, respectively) than in Group B patients (7 ± 4, $p < 0.01$). Further, all but one of the operated patients (Group A) were off medications (92%) and, in Group C, 9 out of the 21 patients (43%) were able to discontinue all medications and were symptom free. In Group B, symptoms recurred in all patients when medical therapy was stopped.

Conclusions: In patients in whom the anatomical gastro-esophageal barrier is lacking, medical treatment is less effective than in patients with a normal LES, and symptom recurrence is the rule when therapy is discontinued. In these patients, surgical restoration of the gastro-esophageal barrier only provides persistent control of the disease. Thus, manometric evaluation of the LES is useful in identifying patients in whom a surgical treatment of GERD is indicated.

1615 Self-Expanding Metal Stents for Malignant Dysphagia

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Since the majority of patients with oesophageal carcinoma present with incurable disease, there is a continuing need for improving the methods of palliating malignant dysphagia. Newly developed self-expanding metal mesh endoprostheses represent an interesting treatment option.

Patients and Methods: Between July 1992 and November 1993 insertion of expansile metal stents (ULTRAFLEX, Microvasive) was performed under endoscopic and fluoroscopic monitoring in 13 patients (8 men and 5 women), aged 33–85 years, with either inoperable or unresectable carcinoma of the oesophagus or oesophagogastric junction. The outer diameter of the delivery system is 8 mm and the stents expand to 20 mm when released. Nine patients had squamous cell carcinoma, 4 had adenocarcinoma. Twelve patients required prior dilatation with balloons, bougies or laser. Seven cm stents were used in 2 patients, 10 cm in 8, and 15 cm in 3.

Results: Stenting succeeded in 12 patients but failed in one, due to an inappropriate design of the distal stabilizer tip in the first prototype used. One patient had transient melaena 2 days after the procedure. All 12 patients experienced significant improvement in swallowing after stent placement. One terminally ill patient died in hospital one week afterwards. Three patients were lost to follow-up after discharge. The remaining 8 were still swallowing satisfactorily when last seen, two of them more than 5 months after stenting.

Conclusions: After correction of the design of an essential detail in the delivery system, the ULTRAFLEX stent was easily inserted in our series without any major complications, giving good palliation of dysphagia to all patients.

1616 Morphological Examinations of Gastric and Esophageal Mucosa in Children with Gastroesophageal Reflux Disease

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The aim of this study was to investigate the coincidence *Helicobacter pylori* and lesions of gastric and esophageal mucosa in GERD. Seventy-eight children aged 6–18 years with gastroesophageal reflux disease (GERD) were assessed. GERD has been diagnosed by anamnesis, panendoscopy and 24 hour intraesophageal pH-metry. *Helicobacter pylori* has been detected by urease test and identified by serological and microbiological methods. Endoscopic examination has been performed and at least two bioptic specimens have been taken from esophagus (3 cm above gastroesophageal junction) and from antrum, body and fundus of gastric mucosa. Tissue samples processed with paraffin method and stained with hematoxylin and eosin were assessed. *Helicobacter pylori* in gastric mucosa has been demonstrated with Giemsa method. Endoscopic diagnosis GERD in 90% of cases has been confirmed by microscopic examination. Barrett's esophagus has been recognized in 30% of children. *Helicobacter pylori* has been identified in gastric mucosa of 47.6% cases. There were no significant correlations between pathological changes of gastric and esophageal mucosa in GERD.

1617 Benign Tracheo-Esophageal Fistula

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Tracheoesophageal fistula (TOF) irrespective of underlying pathology, is a serious situation requiring prompt management. Ischaemia due to cuff pressure in patients with tracheal intubation is a major cause of such benign fistulae.

Between the years 1986–93 we got involved in the management of seven patients suffering TOF. There were six males (age range 14–77 years) and a 19 years young female. Five had prolonged mechanical ventilation due to severe head injury. They were still unconscious on the ventilator at the time of the diagnosis. Two males were also on the ventilator because of respiratory failure due to chronic obstructive airway disease.

Fistulae were mainly confirmed by endoscopy. A severe episode of aspiration resulted in cardiac arrest in one of the patients the night before surgery. The rest were submitted to neck exploration through a collar incision. Trachea and esophagus were dissected free and repaired with interrupted polyglycolic acid sutures 3.0. Sternomastoid muscle was mobilised and interposed between esophagus and the trachea finally.

All patients had an uneventful recovery. One patient died on day 4, due to coronary thrombosis. We failed to wean off the ventilator another patient, who died four months later. The remaining four patients did very well, recovering also from the head injury.

Development of benign tracheoesophageal fistula is always a possibility in ICU patients with prolonged intubation. This complication should be avoided, but if present should be recognised, diagnosed and corrected promptly.

1618 Use of Oesophageal Cytology (OC) in the Diagnosis of Gastro Oesophageal Reflux (GOR)

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In cases of clinical GOR, oesogastroscopy (OGD), oesophageal biopsies and 24 hour pHmetry may all be normal. Does cytological examination of lower oesophageal brushings contribute more information?

Patients and methods. 91 patients (39 men, 52 women with a mean age of 48.8 years) were examined using OGD and OC. 30 had no clinical evidence of GOR (group I). 61 presented typical symptoms of GOR (group II). According to OGD, group II was divided into a sub groups. Group IIA ($n = 28$), normal OGD; group IIB ($n = 26$), junctional anomaly (hiatus hernia, round junction); group IIC ($n = 7$), erosive oesophagitis. The patients of group II were investigated using 24 hour pHmetry and manometry. 5 cytological parameters were studied: cytoplasmic acidophilia (A), cellular lysis (B), presence of altered polynucleates (C), presence of gastric cells (D), and existence of signs of epithelial regeneration (E). The percentage of total time at pH < 4 was noted during pHmetry (%TTPH < 4). The pressure of the lower oesophageal sphincter (PSIO in kPa) was noted during manometry.

Results:

	I	IIA	IIB	IIC		IIA	IIB	IIC
A	13.3%	75.0%	76.9%	100%				
B	6.7	60.7	80.8	100	%TTPH < 4	2.85	5.9*	14.15**
C	13.3	75.0	84.6	100	PSIO	1.78	1.62	0.74
D	0	10.7	26.9	48.9				
E	0	10.7	13.8	28.6				

*p < 0.01 vs IIA; **p < 0.001 vs IIA.

The total of cytological anomalies is significantly different between group I and group IIA (p < 0.0001, Mann-Whitney test). Parameters A, B and C are significantly different between groups I and IIA (p < 0.001).

Conclusions: It is possible to construct an individual cytologicaloesophagitis table, which will enable the diagnosis of GOR to be established on objective bases, particularly in the case of normal OGD and normal 24 hour pHmetry.

1619 Esophageal Cancer Following Sclerotherapy for Esophageal Varices: A Casual Association?

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The relationship between sclerotherapy for esophageal varices (EV) and the development of an esophageal cancer and/or a reflux esophagitis (RE) is not clear in the literature.

Aim of the study: to determine, in a retrospective study, the risk of esophageal cancer and/or reflux esophagitis after sclerotherapy.

Patients and methods: Between January 1963 and December 1992, we diagnosed endoscopically EV in 1016 adults: 313 stage I, 304 stage II, 282 stage III, 52 stage IV (according to the Paquet's classification). 65 EV were not classified because of insufficient data. Sclerotherapy was performed with polidocanol. The mean number of sclerotherapy sessions was 4 (1-18).

Results:

	Non sclerosed EV	Sclerosed EV
Patients (M/F)	604 (438 M/166 F)	412 (307 M/105 F)
Age (yrs)	69 (18-85)	58 (24-85)
Follow-up (>1 year)	3 (1-9)	2.5 (1-10)
Prevalence of cancer	11/604 (1.8%)	4/412 (0.9%)
Incidence of cancer	0	0
Prevalence of RE*	59 (9.7%)	24 (5.8%)
Incidence of RE	5 (1/240)**	34 (1/21)**

*Savary-Miller's classification. ** Case/person-years.

Conclusions: (1) Esophageal cancer following sclerotherapy for EV is a casual association. (2) The main risk after sclerotherapy is the development of a reflux esophagitis.

1620 Treatment of Achalasia. Dilation or Operation?

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Between 1981-1992 we treated 137 consecutive patients for achalasia. At all patients esophageal manometry, X-ray examination and esophago-gastroscopy were performed. If achalasia was proven, the first treatment was the pneumatic dilation using a Rüsch controllable balloon at 250 Hgmm pressure for 2 minutes 5 times on every second day. At 8 patient the balloon could not have been placed correctly because of dolicho-mega-esophagus.

The patients were controlled 3 and 6 month after the treatment. If recurrence or swallowing complaints was present, one more series of dilation was performed. 72 out of the 129 patient are complaint-free following one or two series. These patients are followed. The average follow-up time is 3.6 years. 57 patients underwent surgical treatment following at least 2 series of dilation treatment. The lack of effectiveness of the dilation method shows a good correlation with the age of the patient. Under 45 Years of age, i.e. younger patients the dilatation technique has little chance, and there is a high recurrence rate of the complaints. The average age of patients who needed surgical intervention was 38.3 years, on the other hand the patients with successful dilation treatment were 57.2 years of age in average.

In our opinion under 40 years of age the dilation technique can be done, but the patient should know that most probably he will need surgery. Surgical treatment as the first choice can be indicated only in the cases of dolicho-mega-esophagus at elderly patients.

1621 Clinical Presentation and Therapeutic Results are Similar in Vigorous and Non-Vigorous Achalasia

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Achalasia of the oesophagus is characterized by aperistalsis. According to the amplitude of oesophageal contractions it is usual to distinguish vigorous (VA) and non vigorous (NVA) achalasia. The former is said to develop in younger patients and to be less responsive to pneumatic dilatation than NVA. In this study we retrospectively compared the clinical presentations and therapeutic results in a large series of patients with VA and NVA.

Patients and methods. The clinical record and oesophageal manometric results of 94 consecutive patients (48 men, mean age 52 ± 19 yrs) with primary achalasia (total aperistalsis and no etiology found) were reviewed. VA was defined by an amplitude of oesophageal contractions (mean of 10 wet swallows) higher than 40 cm H₂O. A standardised questionnaire was administered to all patients immediately prior to each oesophageal manometry. Outcome after treatment was determined by follow-up visits and a questionnaire mailed to patients in February 1993 (84% answers; mean follow-up: 33 months).

Results. Thirty three patients presented with NVA and 61 with VA. With regard to age, sex and symptom presentation, there was no significant difference between NVA and VA (e.g. dysphagia: 94% vs 87%, loss of weight: 39% vs 29%, thoracic pain: 54% vs 41%, cough: 42% vs 31%, respiratory complications: 15% vs 10%, regurgitations: 61% vs 77% respectively for NVA and VA). At barium meal examination, oesophagus was more frequently dilated in NVA than in VA (81% vs 56%, p < 0.05). After pneumatic dilatations, a favorable outcome was observed in 71% of NVA (n = 17) vs 70% of VA patients (n = 23). Similarly, after surgical myotomy, the results were good or excellent in 66% of NVA (n = 12) vs 83% for VA (n = 18) (no significant difference).

Conclusion. VA and NVA do not seem to represent distinct clinical entities. Although our analysis was done retrospectively, our results do not support a different therapeutic approach in NVA and VA.

1622 Why are Reflux Episodes Perceived or not in Gastro-Oesophageal Reflux Disease?

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In gastrooesophageal reflux disease, 24-hour pH metric studies have shown that only a minority of reflux episodes are perceived. The mechanisms whereby symptoms arise are not well known. The aim of this study was to look for relationships between the extent of acid exposure into the oesophagus and the occurrence of symptoms.

Methods. Symptoms and reflux episodes recorded during 42 consecutive 24-hour dual pH metry (distal probe 5 cm above lower oesophageal sphincter (ES), proximal 2 cm below upper ES) were analyzed. All recordings fulfilled the two following requirements: at least one reflux episode detected at the upper recording site and at least one reflux-related symptom (during or within 2 min after a reflux episode). The predominant symptoms were digestive (21/42), respiratory (11/42), ENT (8/42) or non cardiac chest pain (2/42). In addition to the use of the event marker, patients were asked to complete a diary card indicating the time and the nature of symptoms occurring during the recording period.

Results. 255 of 1471 reflux episodes (17.3%) reached the proximal oesophagus (PE(+ve)); 163 of 495 symptomatic events (32.9%) were reflux-related. No patient reported chest pain. PE(+ve) reflux episodes were associated more frequently with symptoms (19%) than PE(-ve) reflux episodes (9%, P < 0.01). Associations with symptoms are indicated in the table.

	Nb of reflux	Heartburn	Regurgitation	Belch	Respiratory
PE(+ve)	255	27 (10.6%)	10 (3.9%)	10 (3.9%)	2 (0.8%)
PE(-ve)	1216	23 (1.9%)*	15 (1.2%)*	60 (4.9%)	16 (1.3%)

PPE(+ve) vs PE(-ve) (x² test): ** P = 0.0001, * P < 0.01.

PE(+ve) reflux resulted in longer distal acid exposure than PE(-ve) (2.9 ± 0.4 vs 1.4 ± 0.1 min, p = 0.0001), but the mean pH level of reflux episodes was not different. Heartburn was associated with longer reflux episodes (4.0 ± 0.8 min, measured in the distal oesophagus) than asymptomatic (1.6 ± 0.1 min) and belch-associated reflux episodes (1.0 ± 0.1 min).

Conclusions. This study confirms that few reflux episodes are associated with symptom perception. Duration of reflux episodes as well as the extent of oesophageal acid exposure are important determinant factors of oesophageal perception.

1623 Predicting the Response to Pneumatic Dilation in Patients with Achalasia

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The aim of this prospective study was to find out predictors of the effect of pneumatic dilation in patients with achalasia. **Methods:** During 9 years, 161 consecutive patients with achalasia (85 men, 76 women; median age 50 yr, range 6–90 yr) have been treated with a Witzel dilator. Clinical, manometric and radiographic data collected before dilation were considered as possible predictors. Clinical status of the patients was evaluated before and after dilation (one month and then yearly), and classified into four stages (0–III). Therapy was considered effective when the patient remained in clinical stage 0 or I for, at least, one year. A new dilation was indicated when clinical stage was II–III. Twelve patients were lost of follow-up and 27 were in clinical remission but still < 1 year. Finally, 122 patients have been evaluated. Two types of analysis have been performed. First, after uni- and multivariate analysis, eight variables were selected to construct a database. A prognosis of the outcome, in terms of probability of ineffective dilation (Pr), was calculated for each patient by comparing his/her data with the database, using one-left-out method and Bayes' theorem. The values of Pr were compared with the actual outcome of the patients. Second, the 5 most discriminant variables were found and used to make a prognosis with a simplified model, which considered the number of variables predicting an ineffective therapy present in each patient. **Results:** (1) Dilation was effective in 97 patients (80%). (2) Young age was the only factor significantly associated with ineffective therapy. (3) Depending on values of Pr, patients were classified in 3 groups which showed a different rate of ineffective therapy. (4) In the simplified model, age = <20 yr, gender: male, esophageal body diameter = <3 cm, esophageal body basal pressure >15 mmHg and pressure of the lower esophageal sphincter >30 mmHg were predictors of ineffective dilation. The actual rate of failed therapy was higher in patients with two or more predictors than in those with less than two predictors. **Conclusions:** (1) Pneumatic dilation is an effective therapy for achalasia. (2) Poor response to dilation is significantly associated with a younger age. (3) A prognostic rule was useful to classify the patients in groups with a different risk for ineffective dilation. (4) A simplified model with 5 variables could be used to predict the response to dilation.

1624 Quality of Life Assessments in the Evaluation of Treatment for Reflux Disease

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Assessment of medical as well as surgical treatment regimens for reflux disease have traditionally been based on safety and efficacy. Recently cost-benefit and effects on Quality of Life (QoL) has been suggested to be added to these evaluations.

We have evaluated QoL in patients with upper gastrointestinal disease (reflux esophagitis, peptic ulcer gastritis etc) by using two well established and validated questionnaires. Psychological General Well Being (PGWB) and Gastrointestinal Symptom Rating Scale (GSRS). PGWB which has been used several decades gives a general base of patients well being. The score ranges from 22 to 132, normal value is 101 for females and 103 for men. Gastrointestinal Symptom Rating Scale (GSRS) aims more on gastrointestinal complaints in 5 subgroups (syndromes) diarrhoea, indigestion, obstipation, reflux and pain.

We have investigated reflux patients before endoscopy and treatment, during treatment with potent acid inhibition and after open or laparoscopic antireflux surgery. Before diagnosis patients with (at endoscopy found) reflux esophagitis had values of a bad QoL the PGWB score was low 84 (lower than patients with severe angina pectoris, score 88) During treatment with potent acid inhibition PGWB was found normal, 102 and in 109 patients operated with an antireflux procedure (evaluated at least 6 months after surgery) the average score was 105. See table.

treatment	medical		open surgery			laparoscopic surgery	
	untreated	acid inhib	nissen	rosetti	toupet	rosetti	
n=	192	20	33	29	7	40	
PGWB score	84	102	104	102	109	106	

In GSRS medically and surgically treated patients had good values in all subgroups, especially for abdominal pain and reflux syndrome. Operated patients had significantly better values regarding reflux syndrome compared to medically treated patients.

In conclusion: (a) patients with reflux esophagitis have low QoL as compared to several other conditions. (b) Patients treated with potent acid inhibition have normal values as do patients after open or laparoscopic antireflux procedure. (c) QoL evaluations seems sensitive enough to discriminate between different treatments. (d) QoL is suggested to be incorporated in future clinical evaluations and trials of reflux treatment regimens.

1625 Esophageal Papilloma Associated with Verruca Vulgaris Mastication

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A 60 yr. old previously healthy caucasian female presented with a 1 yr. history of odynophagia, dysphagia to solids, morning nausea, and epigastric burning. Multiple palmar keratotic papules on her distal fingertips clinically consistent with verrucae vulgaris (VV) were also noted. No oral mucosal, genitourinary, or cervical papillomatous lesions nor plantar warts were evident. The patient admitted to intermittent biting of these warts frequently precipitating local bleeding during the past 5 yrs. Daily oral-digital contact secondary to adjustment of her dental prosthesis was also disclosed.

Initial radiographic examination of the upper gastrointestinal (GI) tract revealed only a benign congenital mid esophageal narrowing (Schatzki's Ring), a narrow esophagogastric junction (EGJ), and a moderate hiatal hernia. Upper endoscopy demonstrated a bulky, white exophytic growth partially obstructing the EGJ. Pathologic examination demonstrated acanthotic squamous mucosa with highly vacuolated ballooned cytoplasm (koilocytosis), suggestive of human papilloma virus (HPV) infection. Esophageal tissue harvested by endoscopic snare electrocautery and a tangentially excised palmar VV were both found to contain identical HPV 18-like DNA sequences.

The molecular epidemiology of the novel HPV 18-like type in the palmar and esophageal areas infers transmission from the digits to the GI mucosa. Microabrasions and macerations secondary to denture friction may increase the rates of viremia and possible hematogenous or descending GI tract dissemination. This report suggests that mastication of palmar VV may increase the potential for development of HPV-induced esophageal papillomatosis (EP).

Although HPV 18 has been associated with high malignant potential in oral, genital, and laryngeal lesions, the patient is without macroscopic evidence of recurrence 7 mo. post treatment. Non-endoscopic mesh balloon cytology with Papanicolaou smear surveillance for esophageal dysplasia may be warranted in patients with esophageal papillomatosis.

1626 Gastroesophageal Reflux and Esophageal Mucosal Injury

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The factors contributing to the esophageal mucosal damage in gastroesophageal reflux (GER) are still unclear. The role of non acid gastroesophageal reflux in the pathogenesis of reflux esophagitis is controversial. In this study we evaluated the importance of different types of reflux (acid, mixed and alkaline) in the development of esophagitis. Two hundred and twenty-five patients with typical GER symptoms, with endoscopically documented esophagitis and never submitted to gastric surgery, underwent 24 hr two channel esophagogastric pH recording. Gastric and esophageal pH tracing were evaluated simultaneously and three types of esophageal reflux were considered: acid (pH < 4), mixed (4 > pH > 7) and alkaline (pH > 7). Percentage time (TT%) of GER was calculated in the three groups and the results were compared to the values obtained in a group of 12 healthy subjects (HS) (7 M, 5 F, 40.5 yrs). **Results.** Sixty-three pts (36 M, 27 F, 46.3 yrs) had grade 1 esophagitis (1E), 126 pts (82 M, 44 F, 48.7 yrs) had grade 2 esophagitis (2E) and 36 pts (24 M, 12 F, 53.2 yrs) had grade 3 esophagitis (3E). 68.3% of patients showed only abnormal acid GER; 22.7% had both acid and non acid (mixed and alkaline) GER, while pure alkaline refluxes were observed only in 3% of patients.

	HS	1E	2E	3E
TT% Acid GER	3.4	9.5	15.6	31.4
TT% Mixed GER	0.35	0.65	0.93	0.96
TT% Alkaline GER	0	0.4	0.6	0.8

Acid GER: HS vs 1E p < 0.001; 1E vs 2E p < 0.01, 2E vs 3E p < 0.001 Mixed GER HS vs 1E p < 0.05 There were no others significant differences between groups.

Conclusion. We found that the reflux of pure alkaline material into the esophagus was a rare event in patients with esophagitis, whereas mixed refluxes were more common in both normal subjects and esophagitis patients. In our patients, acid reflux appears to be the most important factor in reflux esophagitis development.

1627 Pyloric Dilatation for Intrathoracic Stomach

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The need for a drainage procedure in vagotomised intrathoracic stomach is controversial. We have evaluated the role of pyloric dilatation in intrathoracic stomach.

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Thirty patients underwent esophagectomy (20) or esophageal bypass (10) with esophagogastric anastomosis in the neck for carcinoma esophagus between June 1990 and December 1993. Pylorus was dilated with Hegar's dilators up to 18 size.

Pyloric dilatation did not add to the operating time and was not associated with any intraoperative complications. Six patients had anastomotic leak; three died. One patient had gastric outlet obstruction (dilated intrathoracic stomach with fluid level on chest X-ray) in the immediate postoperative period which resolved spontaneously. Nine patients died with a mean survival of 5 (1–11) months, seven have been operated in the last 6 months, and 11 are alive at 17 (7–42) months. One patient had symptoms of duodenogastric reflux at 3 months which were controlled with change of posture. Gastric emptying studies in seven patients at 4 (2–9) months were normal in six patients ($T_{1/2}$ mean 56 min; range 36–105 min) and delayed in one. Isotope studies at 3.4 (1–5) months revealed mild duodenogastric reflux in three out of five patients.

Pyloric dilatation is a safe and effective option to prevent both gastric outlet obstruction and duodenogastric reflux in the vagotomised intrathoracic stomach.

1628 Oesophageal Disorders and Cardiac Diseases May Coincide in Patients with Substernal Chest Pain

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Pts. with substernal chest pain show frequently pathological gastroesophageal reflux (GOR) and oesophageal motility disorders (OMD) after exclusion of cardiac disease. However, the coincidence of oesophageal and cardiac disease in non-selected pts. with chest pain is not yet clear. We, therefore, evaluated 37 pts. with suspected coronary artery disease (CAD) presenting with substernal chest pain occurring partly at rest. **Methods:** All pts. underwent upper GI-endoscopy, perfusion manometry of the oesophagus, and longterm ambulatory oesophageal manometry and pH-metrie. During ambulatory oesophageal monitoring coronary angiography with i.v. ergonovine (0.3 mg) or PTCA was performed. Edrophonium (80 µg/kg i.v.) was given at the end of the motility study. 24 pts. underwent oesophageal balloon distension in order to provoke their typical pain. The longterm-motility studies were analysed during standardized periods with wet swallows. **Results:** The pts. were divided into 3 groups according to the outcome of the coronary angiography: 1. Variant angina pectoris defined as spasm of $\geq 75\%$ lumen reduction in one coronary vessel following ergonovine coinciding with chest pain and ST segment depression in ECG (VAP, n = 10). 2. Noncardiac chest pain (NCCP, n = 18). 3. CAD with following PTCA (n = 9). Oesophageal disorders were detected as follows: VAP: 4 pts. with OMD (2 nutcracker, 1 spasm, 1 unspecific), 3 in combination with GOR. One pt. had GOR only. NCCP: 4 pts. with OMD (2 nutcracker, 1 spasm, 1 unspecific), 4 pts. had GOR only. CAD: no pt. with OMD, 4 pts. with GOR. Balloon positive were 1 pt. with VAP + OMD, 1 pt. with CAD + GOR, 1 pt. with NCCP + GOR, and 2 pts with CAD only. The mean amplitudes of contractions (mmHg) 10 cm above LOS during ambulatory manometry are shown in the table ($\bar{x} \pm SD$, * p < 0.05 vs control).

	control	ergonovine	edrophonium	ischemia (PTCA)
VAP	80 ± 36	86 ± 39	108 ± 25*	–
NCCP	58 ± 20	64 ± 22	87 ± 43*	–
CAD	45 ± 19	–	–	63 ± 20

Conclusions: 1. OMD and GOR are frequently detected in pts. with NCCP (44%), but also in pts. with VAP (50%) and CAD (44%, only GOR). 2. Provocation of the typical pain by an oesophageal balloon may occur in CAD without OMD or GOR. 3. Edrophonium is more effective than ergonovine in increasing oesophageal contractile amplitudes in NCCP and VAP. 4. VAP pts. show a tendency towards higher amplitudes of oesophageal contractions than the other pts. with chest pain. The frequent detection of OMD in VAP suggest a generalized smooth muscle disorder. In summary, oesophageal and cardiac disease may coincide and should both be evaluated in pts. with substernal chest pain.

1629 Flexible Endoscopic Treatment of Zenker's Diverticulum; Pilot Experiences

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A Zenker's diverticulum is a posterior herniation of the hypopharyngeal mucosa between the cricopharyngeal sphincter and the inferior constrictor muscles. Serious oropharyngeal dysphagia may develop, usually progressive over a period of years.

The treatment of Zenker's diverticulum consist of transcervical diverticulectomy or rigid endoscopic therapy. Principle of endoscopic treatment is to

divide the tissue-bridge between oesophagus and Zenker's diverticulum; an overflow from diverticulum to oesophagus will be achieved.

In our pilot study we started to treat patients with flexible endoscopy. Six patients, 3 female and 3 male, with a mean age of 76 yrs; range 68–82 yrs, have been treated in this study. After introduction of a flexible gastroscope a nasogastric tube was positioned with the help of a guidewire. With guiding of the nasogastric tube the tissue-bridge of the Zenker's diverticulum was divided through hotbiopsy coagulation (MTW, Valley Lab cut/coag 50/30 Watts) with the flexible gastroscope. All patients received prophylactic antibiotics. Average number of treatments was 3 with a minimum of 2 and a maximum of 12. The depth of the Zenker's diverticula varied between small, 2 cm and large, 12 cm.

The results of our pilot study are promising, however it took 12 procedures to treat the patient with the very large Zenker. All 6 patients were very satisfied with the results obtained. Symptoms of dysphagia were gone after treatment. No complications were recognized.

We conclude that the treatment of Zenker's diverticulum with a flexible gastroscope is a relative easy method. An very important advantage of endoscopic treatment is that it can be carried out in patients whose general health is poor. By using a flexible gastroscope our technique seems possible in every intervention endoscopy unit.

1630 Endoscopic Palliation of Oesophageal Cancer: Experience with a Novel Expandable (Microvasive) Metal Prosthesis

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The optimal palliation of malignant dysphagia has not been established. Furthermore, the role of expandable metal stents remains unclear. We report our preliminary results using a novel metal mesh prosthesis.

Patients and Methods: Fourteen patients (30–85 yrs, male:female 6:6) with inoperable oesophageal cancer had a mean dysphagia score of 2.5 (Mellor & Pinkas). The lesions ranged from 4–10 cms in length and tumour margins ranged from 18 cms (proximal) to below the GOJ. Seven patients had prior unsuccessful attempts at laser palliation. An expandable mesh stent (Microvasive Ultraflex, 7–17 cms in length) was inserted across the lesion endoscopically under fluoroscopic control without complication.

Results: Within 48 hours the stent was fully expanded and all patients were swallowing normally. Chest pain requiring NSAID or opiate occurred in 4 patients while 4 patients had severe reflux symptoms responsive to Omeprazole. After short term follow-up (median 10 weeks, range 2–22), 9 patients (75%) had normal swallowing score (0) while 3 patients had recurrent dysphagia from tumour ingrowth which responded to laser therapy.

Conclusion: Our preliminary results suggest that the microvasive expandable metal prosthesis provides rapid and effective palliation for malignant dysphagia although tumour ingrowth may necessitate adjunct therapy.

1631 Maintenance Treatment of Severely Complicated Reflux Oesophagitis (RE) with Low Dose of Omeprazole (OM)

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To present, data are not enough to establish an effective scheme of maintenance treatment with a low dose of OM, in severely complicated RE.

The AIM of the present study was to evaluate the effectiveness and safety of a long term administration of 20 mg/48 h of OM in preventing RE relapses, in patients with GERD, already complicated with stricture.

Patients – Methods: Eighteen patients (12 male, range of age: 22–88 yrs, mean age: 64 ± 20 SD yrs) presented with severe RE, resistant to ranitidine treatment (150 mg b.i.d.) and complicated with peptic stricture, which was managed by repeated dilatations. Operation was contraindicated in all cases, for various reasons. The therapeutic protocol involved stricture dilatation and administration of 40 mg of OM for 4–8 weeks. After healing of RE (endoscopy), maintenance treatment with 20 mg/48 h of OM was given for 6 months (15 patients), which was followed by replacement of OM by 150 mg b.i.d. of ranitidine and 10 mg t.i.d. of cisapride. Clinical evaluation and endoscopy were carried out every three months. The follow-up period ranged from 4 to 26 months (mean: 12 ± 9 SD months).

Results: At the end of the maintenance treatment none of the 15 patients had endoscopic evidence of esophagitis. Reflux symptoms reported by two patients, responded satisfactorily to transient increase of the OM dosage. Replacement of OM by ranitidine and cisapride resulted in symptomatic and endoscopic relapse of RE in 80 percent of the cases, within three months. In seven of these patients new dilatations were performed because of stricture recurrence. While on OM maintenance treatment, no stricture dilatation was needed. OM was discontinued in one case because of severe anorexia.

Conclusions: Low dose of OM (20 mg every 48 h) can be considered as an effective and safe maintenance treatment of the severe GERD, complicated by peptic stricture, because it prevents relapses and reduces the necessity in maintenance dilatations.

1632 Influence of the Patient's Compliance on the Results of the Ambulatory 24-Hour Esophageal pH-Metry

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Although ambulatory 24 hour pHmetry has high sensitivity and specificity rates in the diagnosis of gastroesophageal reflux disease (GERD), a poor correlation between reflux episodes and reflux symptoms is commonly observed.

The AIM of the present study was to investigate any possible correlation between the patient's compliance to the technique of the ambulatory 24 hour esophageal pHmetry and the results obtained by this examination.

Patients – Methods: Thirty five consecutive patients (26 males, mean age: 38 yrs) had ambulatory 24 hour esophageal pHmetry for typical (19/35) or atypical (16/35) reflux symptoms without though, endoscopic evidence of reflux esophagitis. Tolerance of the electrode, sufficient completion of the diary and number of symptomatic episodes during the examination were recorded and analyzed. These parameters were correlated to the social status of the patients (education, place of residence) and the results of the examination (total score, symptomatic index).

Results: Tolerance of the electrode was good in 66.7% of the patients and significantly better in Athens residents than those of rural areas ($p < 0.01$). Diary was more sufficiently completed by patients of higher educational standards. The predicted compliance of the patients to the method by an independent physician was proven to be correct in only 40% of the cases, as estimated after the completion of the test. None or significantly less than the usual symptoms were reported in the 86% of the cases ($p < 0.005$). Worse tolerance was associated with significantly less symptomatic episodes ($p < 0.05$), significantly lower or even nil symptomatic index ($p < 0.01$) and normal total score ($p < 0.05$). This association was stronger in patients with atypical reflux symptoms.

Conclusions: The poor tolerance of the ambulatory 24 hour esophageal pHmetry is associated with decreased compliance to the method. This results in reduction of symptomatic episodes, symptom index, and total exposure time of the esophagus to acid.

1633 Three Year Follow-Up of Reflux Oesophagitis: Do Patients Still Require Acid Suppression Therapy?

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Aims: To study the changes in grade of oesophagitis, ambulatory oesophageal pH profile (amb. pH), symptoms and treatment 3 years after initial diagnosis of reflux oesophagitis (RO).

Method: Ten patients (7 male) with mean age 52 yrs (range 24–73) in whom grade II-III oesophagitis was diagnosed in one centre were followed-up after a mean of 35.6 months (range 34–37) with repeat OGD, amb. pH (off acid suppression), and symptomatic questionnaire.

Results: Two patients refused repeat investigations because they were relatively asymptomatic (1 on no treatment, 1 on antacids at least monthly). The remainder had heartburn at least monthly and/or were on maintenance acid suppression.

Repeat endoscopy (8 patients) showed that 1 patient had developed Barrett's oesophagus in spite of maintenance treatment with a proton pump inhibitor (PPI). Three patients still had grade II RO (none of whom were on a PPI) and 4 patients had a normal OGD (2 of whom were on a PPI, 1 on an H-2 receptor antagonist (H-2RA)).

Initial amb. pH 3 years ago was abnormal in all but 1 patient. The mean amb. pH score of % time pH < 4 in the 2 patients refusing follow-up was 5.1 (range 4.3 to 5.9), and the score for those still symptomatic and/or requiring acid suppression (8 patients) was 18.0 (range 4.1 to 48.7). Repeat amb. pH was performed in 6 patients of which 2 had changed to normal, 3 had improved and 1 had deteriorated (from normal to abnormal). After repeat investigations, 4 patients remained on a PPI, 1 changed from an H2RA to a PPI, and 3 required commencement of acid suppression (in the form of a PPI).

Conclusions: In this study most patients (80%) still required acid suppression therapy in the form of a PPI three years after initial diagnosis of RO. Ambulatory pH monitoring may help to predict which patients will require long term acid suppression but larger follow-up studies are required.

1634 Synthesis of Leukotrienes in Patients with Gastro-Esophageal Reflux Disease

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It is well known that leukotrienes (LTs) are lipid mediators involved in inflammatory process in different tissues.

The aim of the present study to what extent LTs formation in esophageal mucosa (EM) is linked to values of inflammations.

Endoscopic multiple biopsies were taken from EM of 12 patients with gastro-esophageal reflux disease (GERD). Normal EM samples from 5 healthy subjects served as controls. Separate biopsy specimens in both groups were used for determination of myeloperoxidase activity (MPO-A) by spectrophotometric method. Based on MPO-A values the infiltration of EM by inflammatory cells was graded as none, mild, and severe. Frozen biopsies from EM were thawed, homogenized in 50 mM Tris-HCl buffer (pH 7.3) and then extracted using Sep-Pac C₁₈-cartridges and measured by RIA. The results were expressed in ng eicosanoids/mg protein.

Infiltration	LTB ₄	LTC ₄	LT(C ₄ + D ₄ + E ₄)
None (1)	0.09 ± 0.03	0.16 ± 0.04	0.28 ± 0.04
Mild (2)	0.21 ± 0.04*	0.39 ± 0.05*	0.61 ± 0.06*
Severe (3)	0.37 ± 0.06**	0.77 ± 0.07**	0.96 ± 0.07**

* $p < 0.05$ comparison between 1 and 2 or 3 groups; + $p < 0.05$ comparison between 2 and 3 group.

Conclusions: (1) The EM levels of LTs were correlated with the grade of inflammation

(2) It is possible that LTs may have a role in the pathogenesis of GERD.

1635 Erythromycin Decreases Postprandial Reflux in Patients With Reflux Esophagitis

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Erythromycin (Ery) has been shown to increase the lower esophageal sphincter pressure and to accelerate gastric emptying. In healthy subjects Ery decreases postprandial gastroesophageal reflux induced by the intake of white wine together with a meal. The aim of the present study was to investigate the effect of Ery on postprandial reflux in patients with reflux esophagitis.

Methods: In 17 patients with reflux disease (endoscopically proven esophagitis, abnormal esophageal 24h-pH-metry) pH-metry was performed on two consecutive days for three postprandial hours each. On the second day 3 mg/kg Ery were administered intravenously within 10 minutes just before lunch. The fraction time esophageal pH < 4 (FT), the reflux frequency (RF), and the mean reflux duration (RD) were compared during the first (1 h) and the three postprandial hours (3 h).

Results: Wilcoxon test for paired data; median (range)

	FT (%)	RD (min)	RF (n)
1 h – Ery	16.2 (2.6–100)	1.0 (0.2–60.0)	6 (1–31)
1 h + Ery	4.4 (0–66.1)*	0.3 (0–1.6)*	7 (0–31)
3 h – Ery	17.9 (4.6–74.6)	1.1 (0.4–13.4)	25 (4–79)
3 h + Ery	9.5 (0–31.8)*	0.7 (0–2.1)*	19 (0–59)*

* $p < 0.05$; + $p < 0.01$.

Conclusion: Erythromycin decreases postprandial gastroesophageal reflux in patients with reflux esophagitis. This decrease is mainly due to a shortened reflux duration.

1636 Smoking and Gastroesophageal Reflux (GER)

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Data on the effects of smoking on GER are controversial. An increase in reflux episodes (RE) and fraction time pH < 4 (FT) or no change in RE and FT during smoking was seen in esophageal pH-measurement. The aim of the present study was to reexamine the influence of smoking on GER.

Methods: 24h-pH-measurements were performed in 280 patients over a three year period because of various indications. 75 of these patients were smokers; during the investigation period only 43 patients actually smoked (median 7 cigarettes, range 1–31). The patients were classified into three groups: (1) non-smokers; (2) smokers who actually smoked; and (3) smokers who refrained from smoking (indications similar distributed; Friedman test). Normal values were obtained from 35 asymptomatic non-smoking volunteers. Study A: The three groups were compared with regard to their frequency of RE and their FT (%) values in 24h-pH-metry (Mann-Whitney-U test) and with regard to the percentage of patients with abnormal pH-metry (% abnormal pH; Friedman test). Study B: The RE and FT of consecutive 10 minute periods before, during and after smoking were compared (Wilcoxon test for paired data).

Results:

A:	non-smokers	smokers	refraining smokers	
patients	205	43	32	
RE upright	37 (0-488)	38 (1-514)	41 (2-335)	ns
RE supine	9 (0-357)	11 (0-168)	7 (0-99)	ns
FT upright	5.3 (0-62.2)	5.7 (0-56.5)	5.1 (0-23.7)	ns
FT supine	1.2 (0-38.4)	1.7 (0-85.3)	1.2 (0-26.1)	ns
% abnorm. pH	50%	54%	53%	ns

B:	before	during	after smoking	
RE (n/10 min)	1.0 (0-8.4)	1.0 (0-13)	0.8 (0-8.2)	ns
FT (%)	5.5 (0-64.1)	3.5 (0-62.5)	2.1 (0-74.4)	ns

RE and FT shown as medians (ranges). ns = non significant.

Conclusion: The occurrence of GER is similar in smokers and non-smokers. In smokers actual smoking does not modify the results of pH-metry.

1637 Gastro-Oesophageal Reflux Disease and Symptom Occurrence

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Acid regurgitation and heartburn are considered the most specific complaints of gastro-oesophageal reflux disease (GORD). The aim of the present investigation is to reveal the association between the occurrence of these two major complaints and some characteristics of gastro-oesophageal acid reflux (GER) which may play role in perception of acid refluxes.

Forty-three patients with reflux oesophagitis (RE) and 7 controls entered the study: group A of 13 patients with RE III-IV stages (according to Savary-Miller scale), and group B of 30 patients with I-II stages of RE. Twenty-four oesophageal pH monitoring was applied in all patients and controls. Symptomatic and asymptomatic reflux episodes subdivided into two groups – longer and less than 5 min were registered. False "reflux" sensations the percentage of acid oesophageal exposure under pH 4 also were measured. The latter was 20.57% in group A, 6.33% in group B, and 0.02% in controls. The patients in group A detected 54.13% of reflux episodes > 5 min, and 37.06% of episodes < 5 min; for group B – 36.07% and 28.34% resp. False reflux sensations were an average 1.76 per person in group A, 2.16 in group B, and 0.4 in controls for the time of recording.

We conclude that detected long lasting acid reflux episodes were more in patients with severe RE than in cases with mild oesophagitis. Obviously, increased sensitivity of the damaged mucosa is responsible for more frequent occurrence of symptoms, but still the ratio of detected and undetected refluxes is low.

1638 Metal Stents for Palliative Treatment of Malignant Esophageal Strictures

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Since 1991 we use metal stents for palliative treatment of dysphagia in patients with unresectable malignant neoplasms (esophageal tumor or extraneous compression of the esophageal lumen). The self-expanding stents are knitted of a single strand of a flexible alloy, forming a tubular shape 18 mm in diameter and up to 15 cm in length (Ultraflex TM; Microvasive, USA). For endoscopically guided and fluoroscopically confirmed placement the stent diameter is reduced by elongation allowing an atraumatic over-the-wire insertion with an 8 mm delivery system.

Our experience in 46 cases shows substantial advantages compared with plastic stents: The reduced diameter during implantation and the mesh configuration are associated with lower risks of perforation and migration. Placement is also possible in a curved stenotic anatomy. Improvement of dysphagia is dramatic. – Some cases showed a tumor in-growth during follow-up, best treated by argon gas coagulation; tumor overgrowth is easily managed by placement of a second stent overlapping the first. We did not see severe stent related complications during follow-up periods up to 78 weeks.

The Ultraflex TM esophageal prosthesis can not be used in patients with tracheo-esophageal fistulas and should not be placed in an esophagojejunostomy. But in other indications the metal stent is an effective and safe treatment for malignant esophageal obstructions.

1639 Passive Smoking is a Risk Factor for Esophagitis in Children

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Passive inhalation of cigarette smoke is a known health hazard for children. However, previous studies have not correlated the effects of smoking on the development of esophagitis in the pediatric age group. Therefore, we conducted a case-controlled study to determine if esophagitis in children was

correlated with exposure to cigarette smoke. Over a five year period, 278 children (11.9 years $\pm$ 7.2 yrs; 125 F, 153 M), has an esophageal biopsy taken during diagnostic upper endoscopy. Histologic evidence of esophagitis (study group) was present in 127 (9.8 yrs $\pm$ 6.3 yrs, 75 F, 52 M) whereas 151 children (10.4 $\pm$ 7.2; 66 F, 85 M) had normal esophageal histology (control group). Parents were contacted to complete a standard questionnaire; response was 86.6% and 78.8% in the study and control groups respectively. At least one parent smoked in 77 (79%) of the 97 families in the study group 28 (29%) mothers 21 (22%) and fathers compared to 42 (38.9%) families in the control group 13 (12%) mothers and 18 (17%) fathers. If both parents smoked, the risk of the child having esophagitis was increased 7 fold (relative risk 7.1, 05% C.I. 3.8–13.10; $p < .0001$) while if one parent smoked, the risk of developing esophagitis was 6 fold (relative risk 6.1 95% C.I., 3.12–11.85; $p < 0.001$) compared to non-smoking families. These results indicate that passive smoking is a risk factor for the development of esophagitis in children. No statistical significant risk of developing esophagitis was observed between single parent smokers vs. both parents in the smoking group ($p = 0.259$).

1640 Prevention of Recurrence of Oesophageal Stricture a Comparative Study of Lansoprazole and High Dose Ranitidine

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Introduction: Lansoprazole 30 mg OD (L30) has been shown to be effective in healing oesophagitis. We assessed its role in preventing the recurrence of oesophageal strictures caused by reflux oesophagitis. After initial dilatation to 42-58FG patients were randomly allocated to receive L30 or high dose ranitidine 300 mg BD (R600) for 12 months. Endoscopy was performed at 6 and 12 months and additionally at apparent symptomatic relapse. Redilatation was performed as required. Dysphagia was assessed subjectively every 3 months. **Results:** 158 patients were enrolled in 19 centres: 78 received L30 and 80 received R600. The proportion of patients requiring redilatation during the 12 month period were 32% (25/78) in the L30 group and 45% (36/80) in the R600 group. The time to first dilatation was longer in the L30 group and the probability of no dilatation was higher; this difference was of borderline significance (all patients randomised, life-table analysis $p = 0.055$).

Proportion of patients with no dysphagia

	L30	R600
Month 6	47/61 (77%)	32/58 (55%)
Month 12	49/57 (86%)	38/53 (72%)

A significant difference was detected between the groups at six months with regard to the distribution of dysphagia grades (Wilcoxon, stratified for baseline $p = 0.0086$). The difference between the groups at month 12 did not achieve statistical significance $p = 0.074$. A greater proportion of patients in the R600 (27 (35%)) group withdrew prematurely compared with the L30 (21 (28%)) group. The most frequent reasons for premature withdrawal were suspected adverse reactions and protocol violation. The safety profiles of the 2 groups were similar. **Conclusions:** L30 was superior to R600 in relieving the symptoms of dysphagia and at least as effective in reducing the need for redilatation in patients with oesophageal stricture.

1641 Pain Syndrome in Esophageal Achalasia

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Aim of the Study was to determine the role of esophageal body dysmotility [EBD], morphological changes and psychological disturbances in pain manifestations of esophageal achalasia [EA].

Materials and Methods. Overall 280 patients with EA were examined with the help of radiography, esophagoscopy with histological examination, esophageal pressure measurement, psychological tests. Hereditary markers were studied through the immunological polymorphism of blood groups ABO and Rh-factor, biochemical polymorphism of serum proteins (haptoglobin, transferrin, C-3 complement component, group specific component).

Results. Positive correlation was found between the degree of EBD and pain descriptions, as well as between EBD forms and characteristics of pain (S). No correlation was observed between the degree of inflammatory changes and pain intensity. There were no differences in figures of immunological and biochemical polymorphism [FIBP] between examined groups and total population. Independence of FIBP variation, absence of FIBP-markers linkage with each other and clinical manifestations of EA were revealed.

Differentiative approach to EBD treatment was elaborated. High efficacy of nitrates and Ca-antagonists (>70% of positive results) in the treatment of hypermotility and the method of endoelectrostimulation, designed by the author, – in the treatment of hypomotility was shown.

Conclusion. To obtain good results one should combine forceful dilatation, pharmacological agents and endoelectrostimulation of esophagus. EBD plays a leading role in pain syndrome formation. Hereditary factors, probably, have no influence on EA development.

1642 Multicenter Study on Five Long-Term Treatments for Reflux Oesophagitis

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Many patients with oesophagitis frequently relapse after stopping therapy; then a maintenance treatment may be necessary but the results do not give a definitive answer.

We compared the effects of five long-term treatments on the recurrence of oesophagitis lesions and symptoms in patients with healed oesophagitis obtained by Omeprazole (O) 40 mg o.m. for 4–12 weeks.

175 outpatients (M/F 117/58, median age 45 yrs, range 19–81 yrs), were randomized into five single-blind Groups (G) of treatment. G1: Cisapride (C) 10 mg tid.; G2: Ranitidine (R) 150 mg tid; G3 O 20 mg o.m.; G4: R 150 mg tid + C 10 mg tid; G5: O 20 mg o.m. + C 10 mg tid. The patients underwent OEGDS and lab tests at entry, at the 6th and the 12th months of treatment; they were checked monthly for assessment of symptoms. Oesophagitis was classified according to Savary & Miller. The frequency and the severity of symptoms (heartburn, pain, regurgitation) were evaluated as grade 0 to 3. The score for each symptom and the total score of symptomatology were evaluated. The most suitable statistical analysis was performed.

The relapse rates were: G1: 38.7%; G2: 43.3%; G3: 15.1%; G4: 25.8% and G5: 8.8%. A statistical significant difference was observed in: G1 vs G3 ($p < 0.03$); G1 vs G5 ($p < 0.004$); G2 vs G3 ($p < 0.008$); G2 vs G5 ($p < 0.001$). Heartburn score is less in G3 and G5 than in G1 and G2 ($p < 0.003$). Pain score is less in G3 and G5 than in G2 ($p < 0.02$). Total score on symptomatology is less in G3 than in G2 and in G5 than in G1 and G2 ($p < 0.001$). There is a strong association between presence of symptoms and relapse ($p < 0.001$). Symptomatic subjects have an increased risk (22.6) to relapse and this one decreases from G1 to G5.

Conclusions: The treatment with O alone and associated with C is the most effective in preventing oesophagitis lesions and symptoms. C and R have equivalent efficacy; adding C to R a benefit is obtained over R alone in preventing relapse of lesions and symptoms. Finally, C improves the results obtained with single antisecretive drugs.

1643 Prospective Follow Up Study for the Long Term Treatment of Gastroesophageal Reflux Disease (GERD)

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Since the wide variety of drugs – coating agents, prokinetics, H₂ receptor antagonists (H₂RA), proton pump inhibitors (PPI) – is available for the treatment of GERD, the relief of acute symptoms can easily be achieved in the most cases. In contrary, the therapeutic strategy for the long term treatment is still controversial.

Our **objective** was to evaluate the long term effectiveness of different therapeutic approaches for GERD on the basis of a prospective therapeutic protocol.

Patient, methods: Thirty eight patients were enrolled to the study. The therapeutic protocol was designed to achieve the minimal but effective anti-reflux therapy in each patient. The mean follow-up time was 8.9 months, (range 6 wks.–12 months). The diagnosis of GERD was established after a complex clinical evaluation, including UGI endoscopy with biopsy, Ba-swallowing, Esophageal scintigraphy, manometry, and 24 h pH monitoring in all cases. The initial therapy was chosen according to the severity of GERD at the time of the primary evaluation. Follow-up UGI endoscopy (+biopsy) and 24 h pH monitoring was performed between the 6th and 12th week and then after the 6th and 12th month of the treatment. The 24 h pH monitoring was performed by the Demeester's criteria.

Results: After the initial evaluation 16% of the patients were put on coating agents (Sucralfate) in combination with prokinetics. H₂RA (Ranitidine) was given in 52%. PPI (Omeprazole) administration was necessary in 32% of the cases. In the end of the follow-up period these percentages were 10% - 24% - 66% respectively. The initial therapy was effective in only 55% including 2 patients in whom we were able to return to milder drugs. In contrary, in 45% we needed to change the initial therapy to a more powerful treatment during the follow-up period.

Conclusion: 1. In spite of the complex clinical evaluation the primary treatment was not able to prevent the pathologic acid reflux in about half of the cases. 2. The long term follow-up of the patients seems to be necessary to find the most appropriate treatment in GERD.

1644 The Long Term Management of Gastroesophageal Reflux Disease (GERD). The Role of 24 h PH Monitoring and Endoscopy

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It is well documented, that the prevention of relapses and complications of GERD requires a long term management of the disease. It is controversial, whether the long term control of subjective complaints is enough or not to follow the course of GERD.

Aims: 1. To evaluate the role of the two most valuable diagnostic methods (24 h pH monitoring and endoscopy) in the short- and long term treatment of GERD. 2. To compare the improvement of clinical symptoms and the results of 24 h pH-metry and endoscopy.

Patients, methods: Thirty eight patients underwent complex clinical examinations for GERD. Diagnosis was established on the results of esophageal 24 h pH monitoring, endoscopy, manometry, scintigraphy and Ba-swallowing. Depending on the stage of esophagitis, different treatment was introduced (sucralfate + prokinetic agent, or ranitidine, or omeprazole). The mean follow-up time was 8.9 months (range 6 wks.–12 months). The efficacy of the treatment was controlled by the estimation of symptoms, by 24 h pH monitoring (Total Reflux Time and DeMeester Score) and by endoscopy and histology (in both methods severity of esophagitis was graded from 0 to 4). Follow-up examinations were carried out on the 6th-12th week, on the 6th and on the 12th months of the treatment. According to the results of these we modified the previous therapy, if needed.

Results: In the above mentioned 3 control periods 79%-73%-70% of the patients became asymptomatic or had a significant relief of the complaints. At the same time normal findings were detected by pH monitoring in 69%-77%-89% of the patients. The macroscopic signs of esophagitis was cured in 45-69-80% of the cases on endoscopy. The recovery of the microscopic picture was less pronounced, than the endoscopic healing.

Conclusion: 1. During the long term follow-up of GERD a correlation was not seen between the relief of clinical symptoms and the results of the 24 h pH monitoring, endoscopy or histology. 2. Our data show that a long term treatment with close clinical control is required to achieve a complete remission in GERD.

1645 Comparing Prepulsid with Ranitidine in Erosive Reflux Esophagitis in Patients with Ulcer Disease

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Aim: To compare the efficiency H₂-bloker Zantac (ranitidine) vs Zantac + prokinetic agent prepulsid (cisapride) in the short-term treatment of erosive reflux esophagitis in patients (pts) with duodenal ulcer (DU).

Patients and methods: Adult pts (n = 62) with endoscopic signs of DU and erosive reflux esophagitis were randomly allocated to two groups received for six weeks: Group A (n = 30) Zantac 150 mg b.i.d., group B (n = 32) Zantac 150 mg b.i.d. + prepulsid 10 mg t.i.d. Patients were instructed to record the number of daily heartburn, chest and epigastric pain episodes on diary cards beginning with the first day of baseline and continuing until study completion. The severe of endoscopic features were evaluated at the start of the study after 4 and 6 weeks of the treatment. Healing of erosive esophagitis was defined as the disappearance of erosions (grade 1 or 0). Statistical analysis was performed by repeated measures of analysis of variance.

Results: Both treatment regimes reduce the frequency of heartburn, chest and epigastric pain episodes within 3 days of treatment and this reduction is maintained throughout the course of therapy with no significant difference between the groups. After 4 weeks disappearance of erosions in the groups A and B was observed in 43.3% (13/30) and 56.3% (18/32) ($p > 0.05$) respectively. Group A showed DU healing in 73.3% (22/30), group B – in 78.1% (25/32) ($p > 0.05$). After 6 weeks healing of erosive esophagitis in groups A and B were: 70% (21/30) and 93.8% (30/32) ($p < 0.05$) respectively. Group A showed DU healing in 93.3% (28/30), group B – 93.8% (30/32) ($p > 0.05$).

Conclusion: Both treatment regimes are equally effective in relieving the symptoms of disease and in healing DU, but treatment of erosive reflux esophagitis with ranitidine 150 mg b.i.d. + prepulsid 10 mg t.i.d. is more effective.