

Manifestations of gastro-pharyngo-laryngeal reflux disease

Le manifestazioni della malattia da reflusso gastrofaringolareo

F. MOSCA, V. ROSSILLO, C.A. LEONE
ENT Department, "Monaldi" Hospital, Naples, Italy

Key words

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Parole chiave

Reflusso gastroesofageo • Reflusso laringo-faringeo • Sintomi

Summary

In the last few years, gastro-oesophageal reflux disease has received renewed interest from the ENT specialists. The symptomatology can vary on account of the differences between the gastro-oesophageal reflux and the laryngo-pharyngeal reflux as far as concerns both symptomatology and clinical-pathogenic aspects. The symptoms and the clinical laryngoscopic aspects are discussed.

Riassunto

La malattia da reflusso gastroesofageo ha ricevuto negli ultimi anni un rinnovato interesse da parte degli specialisti in ORL. La sintomatologia può essere molto varia anche perché esistono differenze dimostrate tra il reflusso gastroesofageo e quello laringofaringeo sia per la sintomatologia che per gli aspetti clinico-patogenetici. Vengono presentati i sintomi e i quadri clinici laringoscopici con cui queste affezioni si presentano.

Epidemiological notes

It is estimated that one out of 7 adults presents symptoms related to reflux at least once in a week^{1,2} and 40% of these patients have had symptoms for more than 10 years. These data are underestimated since the tendency to self medication limits referral to the physician, the symptoms are often atypical and not all ENT specialists are well informed concerning the recurrence of this disease; moreover, since no correlation has been shown between the clinical and oesophagoscopy findings, diagnosis in asymptomatic patients is often made following oesophagoscopy performed for other purposes.

In a recent investigation by Koufman et al.³ on 113 consecutive laryngeal disorders (not selected) (100%), 78 cases were detected (69%) with indications of reflux (symptoms and/or laryngeal clinical picture) while in 57 cases (50%) pH-metry was pathological.

A personal analysis of the bibliography available on Medline revealed, in the period 1951-1981, 14 papers on the diseases from reflux in ENT reviews vs. 2446 on other not specialized reviews. In the years from 1982 to 2005, the papers in ENT reviews rose to 214 vs. (in the same period) 11342 in non ENT reviews (Figs. 1, 2).

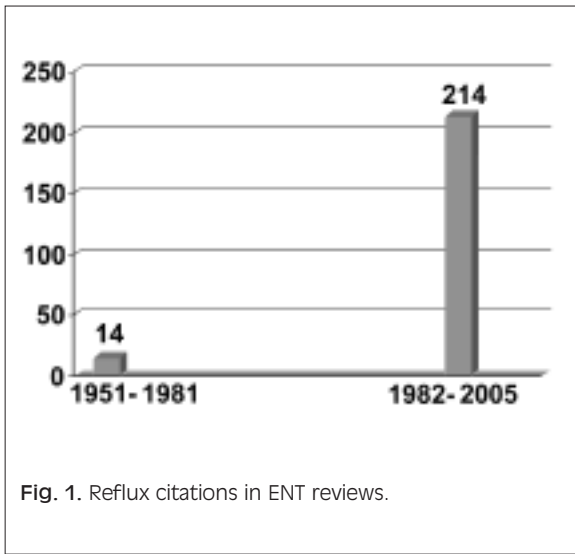
It is not difficult to understand how interest in ENT has risen in the scientific world in the few last years:

nevertheless, while the number of non-ENT papers has risen between the two periods, 4.3-fold, the number of ENT investigations has increased more than 15.28-fold. These data confirm that the ENT specialist only recently discovered and appreciated the specific role played in diagnosis and therapy, of reflux disease.

Definition

Gastro-oesophageal reflux is a the flow of gastric contents into the oesophagus and the upper airways. The term can generate confusion, in fact it has been shown that small quantities of gastric material can be found inside the oesophagus but the oesophageal clearance, the system of motor and secretory activities that induce restoration of the empty conditions and of acid base surface balance, compensates this relative inefficiency of the lower oesophageal sphincter (LES) or of the superior oesophageal sphincter (UES) when the entity, the number of the refluxes are contained within certain limits.

Therefore, we would refer to gastro-oesophageal reflux disease (GERD) only when this mechanism becomes a procession of symptoms and/or of comparable signs in patients and, in particular, to laryngo-pharyngeal-reflux (LPR) when the relevance of the



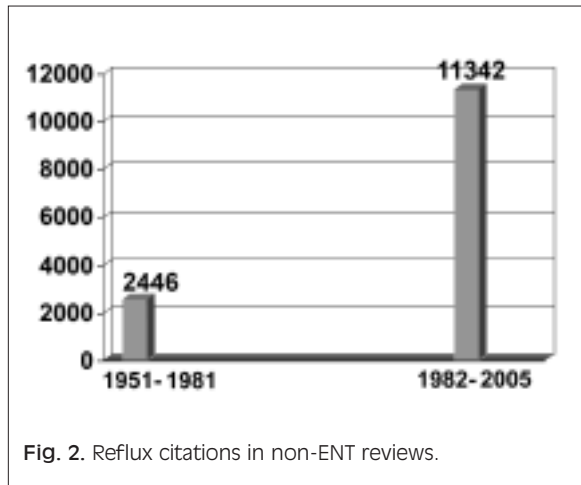
symptomatological procession concerns the symptoms and/or the signs that bring the patient to the ENT specialist (the so-called atypical symptoms). Unfortunately, in the literature, the terminology differs considerably and this can lead to error: gastro-oesophageal reflux, gastro-oesophago-laryngeal reflux, extra-oesophageal reflux. Nevertheless, these are symptomatological aspects emerging from the same mechanism of incontinence of the gastric material with its erosive and/or inflammatory action at different levels of the respiratory and/or digestive tract. Various data have indicated a relative autonomy between GERD and LPR ⁴:

1. low incidence of oesophagitis in patients with atypical symptoms;
2. negligible prevalence of pyrosis and regurgitation in LPR;
3. negative oesophageal biopsy in LPR;
4. pathological pharyngeal pH-metry in LPR;
5. prevalence of symptomatology at night in GERD and during the day in LPR;
6. negligible prevalence of dysphonia in GERD.

Symptomatology

Classically, it is described as typical if it is characterised by the classic digestive symptoms (pyrosis, regurgitation, back breastbone pain) and atypical if the symptoms are in districts close to the oesophagus such as the larynx, the pharynx or other respiratory airways (cough, globe, dysphagia, etc.).

Moreover, this dichotomy does not correspond to a major incidence of one group compared to the other, because “digestive” and “respiratory” symptoms can coexist in an apparently casual fashion



DYSPHAGIA

This symptom has two variants: difficulty in starting deglutition or to continue in the oesophagus the peristaltic pharyngeal-hypopharyngeal action, this last type of dysphagia is defined as the arrest, or slowing down, of the passage of the bolus into the oesophagus. The first kind of dysphagia (also defined as high dysphagia) is sometimes correlated with the LPR but is more often caused by central neurological disorders. The slowing down dysphagia or stopping of the passage of the bolus through the oesophagus is, instead, fairly frequent but delayed (it usually appears some years after onset of the disease) in patients with GERD: these patients, in many cases, indicate with precision the site of the impaired transit, indicating the jugular or a well-defined portion of the sternum. Dysphagia, for both solids and liquids, is an expression of alterations of the oesophageal peristalsis and of the release of LES; these mechanisms guarantee the propulsion and the transit both of the liquids and solids. On the contrary, the increasing difficulty in progression of the bolus, first for solids and then for liquids suggests an organic origin of oesophageal stenosis (neoplasia, post-inflammatory stenosis, caustic lesion, ulcer, etc.).

PAIN ON DEGLUTITION

This is a sensation of pain during the passage of food through the initial digestive tract; it differs from dysphagia due to the presence of the pain that is described as burning: this condition is worsened by a diet with very hot and spicy food.

PHARYNGEAL GLOBUS

This is often mistaken for dysphagia, but, on the contrary, is the sensation of an external body or tumefaction in the throat. Deglutition does not change or emphasize it.

Table I. Clinical pictures and aetiopathogenesis of LPR and GERD.

Different clinical tables of a same pathological process	
Laryngo-pharyngeal reflux (LPR)	Gastro-oesophageal reflux (GERD)
SYMPTOMS	
Atypical (extra-digestive)	Typical symptoms (digestive)
OCCURRENCE	
Daytime	Night
MODALITIES	
Erect position	Clinostatic position
MECHANISMS OF MUCOSAL DAMAGE	
UES	LES
COMPENSATION MECHANISMS	
None	Peristalsis, saliva flow
ASSOCIATED CAUSES	
Glottic trauma	Connectivitis, neurological disease

This symptom is caused by the spasm of the cricopharyngeal muscle, in fact, to determine the globus, it is not necessary for the acidity to reach pharynx⁵. This symptom is sometimes the first to be reported by patients with oesophageal reflux even if it is not specific in LPR because it is often found in erethistic patients, often of the female sex. In some studies, it is the most frequent symptom⁶.

HOARSENESS

This is a form of dysphonia which is combined with a burning throat sensation. It is secondary to the chronic local irritation caused by the acid material returning to the hypopharynx.

COUGH

This is caused by the irritation of the airways due to a direct mechanism of contact with the reflux of acid liquid material but also the reflux of irritating gases into the oesophagus. This often occurs at night (or with clinostatism) or after eating.

SIALORRHEA

Not common in LPR, it is an explainable symptom resulting from a reflex vagal activation: it is an important compensatory mechanism, as the alkalinity of the saliva is one of the main mechanisms of oesophageal clearance.

DRY THROAT

It is not yet clear whether it is a symptom caused by the LPR or if it is not, indeed, the contrary.

A disorder of the salivary glands with hyposcaldia should contribute to the genesis of LPR on account of the decreasing of one of the oesophageal clearance mechanisms. Certainly, the chronic xerostomia is associated with prolonged oesophageal exposure to the acid and oesophagitis⁷, even if these data are in contrast with the absence, in patients with GERD, of abnormal impaired salivary function⁸.

PYROSIS

This is certainly a very frequent symptom and is described as the most suggestive of GERD¹: it is referred as backsternal burning, sometimes radiated to the epi-gastric region and sometimes upwards to the throat. It is believed to be caused by exposure of the oesophageal mucosa to acid reflux material from the stomach, nevertheless, the comparison of endoscopic and clinical findings revealed that pyrosis is also common in the absence of macroscopic mucosal lesions. Moreover, it is not always the expression of oesophageal disease and often the symptoms refer to other pathological conditions such as gastric and duodenal ulcer, surgical removal of the gall bladder, reflux gastritis, functional dyspepsia, irritable colon.

REGURGITATION

Regurgitation is the return of material from the stomach to the oesophagus, up to the pharynx. It differs from vomit since it manifests without prodrome symptoms, nausea, wretching, or contractions of the abdominal muscles. It is obviously an expression of incontinence of the LES.

Table II. Symptomatological differences between LPR and GERD.

LPR symptomatology	GERD symptomatology
Pharyngeal globus/dysphagia	Epigastric pain
Cough	Pyrosis
Dysphonia	Hiccup
Sialorrhoea	Acid regurgitation
Odynophagia	Back breastbone pain
Dry throat	Dyspepsia
Laryngospasm	
Halitosis	
Asthma	
Earache	
Lateral cervical pain	
Hemoptysis	
Rhinorrhoea	
Nose obstruction	
Dyspnoea	

CHEST PAIN

Recurrent retrosternal chest pain is present in almost 50% of GERD patients, but often clinicians must exclude a cardiac origin. Nevertheless, in the majority of patients, the oppressive character, radiated to the shoulder and arm, followed by sweating and tachycardia, clearly orientate the clinician. Moreover, the events correlated with the ingestion of abundant food, too cold or too hot, permits research to be appropriately directed and to find, in the oesophagus, the origin of the symptom. In cases of chest pain of oesophageal origin, the symptom was, for a very long time considered to be a typical expression of alterations in oesophageal motility, in effect, this is not always the case since the symptom often accompanies the appearance of acid reflux in the oesophagus without significant motor impairment. In these circumstances, the anti-reflux therapy reduces the intensity of the symptoms and oedema of the inter-arytenoid region.

Objective findings

Diagnosis is usually based upon videolaryngoscopic findings. The most frequent lesions are: oedema or erythema in different districts of the larynx, granulomas, polyps. The most frequently involved laryngeal region is obviously the interarytenoid region.

In some cases, dyskeratosis or leukoplasic lesions have been observed, even if Hill et al.⁹ warn that pachydermia, as an isolated finding, is unreliable in the diagnosis of LPR. Also recurrent papillomatosis in a child has been demonstrated to represent a significant link with extra-oesophageal acid reflux¹⁰. The pseudosulcus alone is not a reliable sign of LPR,

but if it is associated with signs and symptoms of LPR, the probability of reflux rises to 70%¹¹.

Some papers in the literature have reported many unexpected signs due to reflux; as is the case of idiopathic subglottic stenosis which in 71% of cases accounted for a pathological pH-metry¹². A positive correlation has also been confirmed between severe hypertrophy of the base of the tongue, in the adult, and GERD¹³.

Even in those disorders commonly observed in the physician's office, such as nodules of the vocal cords, a high prevalence of pharyngeal acid reflux was present¹⁴.

Controversy still exists concerning the relationship between reflux and cancer. The reader will find a review in the Chapter dedicated to this topic.

In another Chapter, the ENT extra-laryngeal manifestations of reflux are described.

Symptomatological correlations

Many experimental investigations have correlated symptoms in a surprisingly and often contradictory way with the instrumental data, mainly those of the pH-metry: Fannin et al.¹⁵ showed that the distribution of symptoms (typical and atypical) does not correlate statistically to the values of reflux nor at the pressures of LES and UES. On the other hand, it was demonstrated that in a population affected by different ENT diseases (including laryngeal cancer, laryngeal and tracheal stenosis and also others) the incidence of reflux patients was greater in affected cases than in the controls and that the group with the greater proximal acid exposure was that comprising the malignant laryngeal neoplasia cases¹⁶. The cor-

relations, in some papers, seem to be surprising: Poelmans et al.¹⁷, in a large oesophago-gastric study on 405 patients with ENT symptoms of GERD and 545 cases with typical gastro-intestinal symptoms, revealed that the major prevalence of erosive oesophagitis and of peptic ulcer was present in the first group (52% vs. 38%), with a close correlation with the cough symptom.

Ahmad and Batch¹⁸, in a group of 303 patients with ENT symptoms who performed oesophago-gastroscopy showed 98% of cases with abnormal oesophagoscopy vs. 13% with posterior laryngeal lesions. Surprisingly the same study revealed that globus and dysphonia symptoms were predictable of a positive response to the proton pump inhibitors.

Remacle¹⁹ observed that the "symptoms felt to be most related to reflux ($\geq 95\%$) are throat clearing, persistent cough, heartburn/dyspepsia, globus sensation (lump in the throat) and change in voice quality, while physical examination findings include ($\geq 95\%$)

arytenoid erythema, vocal-cord erythema and oedema, posterior commissure hypertrophy, and arytenoid oedema".

Park et al.²⁰ attempted to assess the validity of reflux finding score (RFS), reflux symptom index (RSI), and symptom checklist-90-revision (SCL-90-R) as diagnostic methods for LFR. Authors found that RFS and RSI are less valid as diagnostic tools for LFR when used independently.

The remarkable difference that emerges between the entity of ENT symptoms and the condition of the oesophageal mucosa and/or the typical digestive symptoms may be due to the variable recurrence of the reflux episodes: for example, they can verify just brief episodes of reflux in the week that combined with other predisposing factors (voice abuse, smoking etc.) may justify the symptoms without alterations at pH-metry, performed in a moment of relative continence of the sphincters or of adequate compensatory capacity of the oesophageal clearance.

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■ Address for correspondence: Dr. F. Mosca, Divisione di Otorinolaringoiatria, A.O. "Monaldi", via Leonardi Bianchi, 80100 Napoli, Italy. Fax +39 081 7064270. E-mail: francesco.mosca@ospedalemonaldi.it