DYSPHAGIA AND DYSPHONIA IN PATIENTS WITH THYROID GOITER BEFORE AND AFTER THYROIDECTOMY: POSSIBLY RELATED TO THE PHARYNGO-ESOPHAGEAL REFLUX LARYNGITIS? VIDEOFLUOROGRAPHIC EVALUATION

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ABSTRACT

Purpose: The aim of our study was to investigate the presence of pharyngo-oesophageal reflux laryngitis in patients with nodular goiter and local symptoms, before and after non complicated total thyroidectomy (TT), to assess whether its presence could have a role in the origin of swallowing problems and voice and throat discomfort.

Materials and methods: During a 6 months period 144 patients with non-toxic nodular goiter, were selected to be subjected to intervention of total thyroidectomy. Before surgery, these patients underwent a optic-fiber video-laryngoscopy (VLS), and a videofluorographic study of swallowing (VFFS).

Results: Was not found a statistically significant difference between the pre-and post-operative.

Conclusions: Our results suggest that in the presence of local symptoms, initially attributed to thyroid disease, physicians should investigate further before thyroidectomy, in order to identify the possible association of these symptoms with a pharyngo-oesophageal reflux laryngitis

Key words: Thyroid goiter, thyroidectomy, pharyngo-laryngitis, videofluorografia.

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Introduction

Non-toxic nodular goiter is a condition present in endemic areas, in 25-33% of the population and local-regional symptoms are included in a range that goes from 13 to 50% of patients undergoing surgery for benign nodular disease. Swallowing disorders, voice and throat discomfort are usually reported by patients with solitary thyroid nodules or multinodular thyroid disease. Recently a highly significant correlation between symptoms and the “pharyngolaryngitis reflux” (LPR), a term that refers to the rise of gastric juice at pharyngolaryngeal, has been proved.

Purpose

The aim of our study was to investigate the presence of pharyngo-laryngitis reflux in patients with nodular goiter and local symptoms, before and after non complicated total thyroidectomy (TT), to assess whether its presence could have a role in the origin of swallowing problems and voice and throat discomfort.

Materials and methods

During a 6 months period 144 patients with non-toxic nodular goiter, were selected to be subjected to intervention of total thyroidectomy.

The diagnostic workup included medical history, clinical examination, ultrasound, thyroid scan, fine needle aspiration biopsy with cytological sampling (FNAB) and the dosage of thyroid hormones.

The main indications for total thyroidectomy, always provided by an endocrinological-surgical physicians team, were: an increase in the size of nodular goiter during treatment with L-thyroxine with TSH suppression; an increase in the volume of one or more nodules, even without treatment; a...
cytological suspicion of malignancy.

During the interview, 50 patients (34.7%) complained of swallowing disorders, voice, or sore throat, but only of them (23.6%) gave their informed consent to participate in the study.

Before surgery, these 34 patients underwent to optic-fiber video-laryngoscopy (VLS), and a video-fluorographic study of swallowing (VFFS). Follow-up, within 4 months after surgery, included another clinical interview -anamnestic, and at least 3 VLS and VFSS. Only 25 patients (17.3%) completed the follow-up and were recruited for the study.

In order to carry out a more relevant, to the purpose of the study, local-regional symptoms were, classified into three different groups:
- swallowing disorders or dysphagia;
- voice disorders;
- pharyngeal discomfort.

VFSS examinations\(^{(7,8)}\) were performed with a remote-controlled device with digital C-arm (Remote Controlled Multifunctional Eurocolumbus TR3D, Milan, Italy) equipped with 16-inch image intensifier, focal spot of 0.6 to 1.2 mm and a maximum potential difference of 150 in writing and 120 PKV in fluoroscopy. For the study of esophageal motility digital cineradiographic sequences were acquired, with 12 images/second frequency and 1024x1024 matrix. Images were captured both with the patient in the upright position (with dynamic sequences in LL and AP) and in the prone position with abdominal compression, and in the supine position for the evaluation of any signs of gastro-oesophageal reflux with Water siphon test (WST)\(^{(9,10)}\).

All examinations were performed with at least two consistencies of barium sulphate (HD Prontobario 250% weight-volume and Prontobario 60% weight-volume, Bracco, Milan, Italy). The parameters considered to assess the alterations of swallowing were:
- Elevation of the hyoid bone and epiglottal tilting (abnormal laryngeal movement);
- Stasis of the bolus in the pharynx, in valleculae and/or pyriform sinuses.

The VFFS was considered positive even if only one of the two conditions was present. Cricopharyngeal muscle contraction and the presence of any gastroesophageal reflux until the proximal third of the esophagus, the latter appreciably with the “water siphon test” (WST), were also evaluated\(^{(11,12)}\).

### Results

Before surgery: Each of the 25 patients complained at least one group of local symptoms; 80% of patients (n 20) at least two; 56% (n 14) three. The pharyngeal discomfort was the most frequent symptom (80% of patients), followed by swallowing and voice disorders. Although already altered the elevation of the hyoid bone, the tilting epiglottal and stasis of the bolus in the pharynx, which were present in approximately 50% of patients, the VFFS has been highly successful in identifying swallowing problems, in patients who complained of a single group of symptoms, two or three, respectively, in a percentage of 88%, 90% and 86%. The VLS was positive for signs of pharyngo-laryngitis less frequently than VFFS, with positive rates of 68% in patients who complained of a group of symptoms and of 65% and 57% for those who had complained two or three groups of symptoms.

After surgery: a statistically significant difference between the pre-and post-operative was not found, both considering each group of symptoms separately and combining two of the three. Excluding the symptoms appeared ‘de novo’, VLS and VFSS persist positive after surgery.

### Conclusion

Our results suggest that in the presence of local symptoms, initially attributed to thyroid disease, physicians should investigate further before thyroidectomy, in order to identify the possible association of these symptoms with a pharyngo-oesophageal reflux laryngitis. When, instead, the need for surgery can not be delayed, patients should be informed of the possibility that some symptoms may persist even after removal of the thyroid and subsequently require treatment with PPI. This is the first study that correlates the local symptoms with the pharyngo-laryngitis reflux in patients with nodular non-toxic goiter, proposing a new hypothesis for the justification of an unclear correlation between these symptoms and the total thyroidectomy, nevertheless, further studies involving larger cohorts of patients and for longer periods of follow-up are needed in order to confirm these results.
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References


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