

# Endoscopic and Scannographic Comparison in Epidermoid Carcinomas of the Larynx

Sefrioui Taha Ismail\*, Ait Taleb Hajar, Amraoui Oussama, Nitassi Sophia, Bencheikh Razika, Oujilal Abdelilah, Benbouzid Mohamed Anas, Essakalli Leila

Department of Otorhinolaryngology and Head and Neck Surgery, Specialities Hospital, Faculty of medicine, Mohammed V University, Rabat, Morocco

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\*Corresponding author: Sefrioui Taha Ismail

## Abstract

Surgery of the larynx not only allows reshaping the tumor but also to preserve maximally the laryngeal function. This is why the imaging gives an exact definition of the extent as well as the volume of the tumor. This is a retrospective study involving 58 patients performed at the ENT-head and neck surgery specialties hospital of CHU Rabat from January 2019 to December 2019. All patients with epidermoid carcinoma received cervical CT with axial and coronal slices and endoscopic (direct laryngoscopy) assessment. The realization of a computed tomography is used nowadays in common practice to review the loco regional extension of laryngeal cancers. It is an integral part of the staging with a crucial role in the mostly conservative therapeutic decision and monitoring [1, 2]. The exam should be performed remotely from biopsies, especially for small tumors. Indeed, the post-biopsy inflammatory reaction could falsely increase the tumor description. The decision of a suitable therapeutic attitude for each case of laryngeal cancer depends indeed on the sensitivity of endoscopic and scannographic examinations.

**Keywords:** epidermoid carcinoma; larynx; scan; endoscopy.

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## INTRODUCTION

Surgery of the larynx not only allows to reshape the tumor but also to preserve maximally the laryngeal function. This is why the imaging gives an exact definition of the extent as well as the volume of the tumor. Computed tomography is imaging that offers cross-sectional scanning to have the fundamental data to complete the pre-operative assessment. The MRI offers a better tissue characterization but its use in current practice remains reserved for certain patients given the lack in terms of resources. The aim of our work is to determine the reliability of the scanner by comparing scan data with the endoscopy data according to the initial location as well as the tumor stage.

## MATERIALS AND METHODS

This is a retrospective study involving 58 patients performed at the ENT-head and neck surgery specialties hospital of CHU Rabat from January 2019 to December 2019. All patients with epidermoid

carcinoma received cervical CT with axial and coronal slices and endoscopic (direct laryngoscopy) assessment.

Demographic data (age, sex, origin, risk factors) clinical parameters (seat, extension and cord mobility) as well as scannographics (seat, stage and size) were studied. A comparison of endoscopic and scannographic data was made to investigate the interest of these explorations in the larynx cancer assessment. The results were classified in terms of sensitivity, specificity, for each anatomical location.

## RESULTS

The average age of our patients was 67+/-8 years, with male predominance (28 men: 28 women: 2). Smoking was reported by 28 patients. The tumour was glotto-supraglottic: 25% of glotto-subglottic cases: 30% of glottic cases: 3% of cases and supraglottic-subglottic at 42%.

|                            | sensitivity | specificity |
|----------------------------|-------------|-------------|
| <b>Glottic tumor:</b>      | 91.2%       | 56%         |
| Endoscopy                  | 92%         | 28.9%       |
| Ct-scann                   |             |             |
| <b>Sub-glottic tumor:</b>  | 48.5%       | 98%         |
| Endoscopy                  | 65%         | 54.3%       |
| Ct-scann                   |             |             |
| <b>Lymphadenopathy:</b>    | 63%         | 86%         |
| CT scann                   |             |             |
| <b>Anterior comissure:</b> | 95.6%       | 57.7%       |
| Endoscopy                  | 80.9%       | 50.2%       |
| Ct-scann                   |             |             |
| <b>Thyroid cartilage:</b>  | 90.6%       | 45%         |
| CT-scann                   |             |             |

Computed tomography has a good sensitivity to study tumor invasion in 92% glottic space, 65% subglottic and 80.9% pre-glottic epi space. However endoscopy has better sensitivity in scanning ventricular bands 95.6%.

For the glottic tumor: the sensitivity of endoscopy was 91.2% and specificity was 56%. CT sensitivity was 92% and specificity was 28.9%.

For sub-glottic tumor: the sensitivity of endoscopy was 48.5%, specificity was 98%. CT sensitivity was 65% and specificity 54.3%.

For paraglottic space, the computed tomography sensitivity was 97.3% and specificity was 51.3%.

## DISCUSSION

The realization of a computed tomography is used nowadays in common practice to review the locoregional extension of laryngeal cancers. It is an integral part of the staging with a crucial role in the mostly conservative therapeutic decision and monitoring [1, 2]. The exam should be performed remotely from biopsies, especially for small tumors. Indeed, the post-biopsy inflammatory reaction could falsely increase the tumor description.

The interest of CT lies in the study of certain pharyngeal-laryngeal regions that are not explored by endoscopy and that their achievement is decisive in the therapeutic attitude.

The advantage of the TdM is to study the extension in depth. Towards the front, a tumour of the piriform sinus may present an intralaryngeal extension, more particularly to the posterior part of the paraglottic space and the vocal cord. An extension to the HTE lodge, thyroid cartilage and prevertebral soft parts should also be sought.

The effectiveness of endoscopic CT-scan in the classification of pharyngo-laryngeal tumours ranges from 73% to 83% depending on the series, compared to endoscopic examination alone ranging from 55% to 64% [3-6].

The major interest of computed tomography lays in the study of the in-depth extension of tumors, in particular the analysis of anatomical locations that constitute important surgical markers: the anterior corner, the sub-glottis, the HTE box, para glottic space, cartilage and extra laryngeal soft parts [7, 8].

In our series, the scanner is more sensitive than endoscopy for sub-glottic lesions (65% versus 48%), but it is less specific (28% versus 77%). The literature reports higher sensitivity figures ranging from 80% to 100% [9, 10].

At the end of this analysis, the direct laryngoscopy has the same sensitivity as the CT for the study of the glottic stage (CV and CA) and better explores the glottic stage (VT and BV), but it remains insufficient for the evaluation of the sub-glottic extension.

The data from our series and the literature show that the TdM is an integral part of the preoperative assessment of pharyngeal-laryngeal cancers. It specifies the tumor extension in depth to the fatty spaces, cartilages and extralaryngeal tissues. It also studies lymph node extension in all territories, some of which are less accessible to palpation [11].

## CONCLUSION

The decision of a suitable therapeutic attitude for each case of laryngeal cancer depends indeed on the sensitivity of endoscopic and scannographic examinations. The scanner has a good sensitivity to determine tumor invasion in the pre-epiglottic space, glottis and sub-glottis, while its sensitivity is medium for the study of laryngeal cartilages. On the other hand, it was less sensitive to determine tumor invasion of

extra-laryngeal tissues, BV and VT. For these last two locations the endoscopy has a better sensitivity [11].

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