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CT scan Interest in the Follow-Up of Treated Laryngeal Cancer: About 31 Cases

V. Ndayishimiye[1*], H. Belgadir[1], Z. Zerouali Boukhal[1], A. F. Achta[1], A. Merzem[1], O. Amriss[1], N. Moussali[1], N. El Benna[1]

[1]Department of Radiology, Radiology Service of August 20, 1953 Hospital, Ibn Rochd University Hospital Center of Casablanca, Morocco, Hassan II University of Casablanca, Morocco

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***Corresponding author:** V. Ndayishimiye
Department of Radiology, Radiology Service of August 20, 1953 Hospital, Ibn Rochd University Hospital Center of Casablanca, Morocco, Hassan II University of Casablanca, Morocco

Abstract **Original Research Article**

Exploration of the larynx treated for malignant neoplasia (by surgery or radiochemotherapy) is a fairly common indication for cervical CT scan to assess the therapeutic response and to look for local or regional recurrence. We carried out a retroprospective study over a period of one year, from July 01, 2019 to June 30, 2020, from the files of patients referred to our department for CT examination as part of follow-up after treatment for laryngeal cancer. Forty-eight patients (48) were recruited. Seventeen of them were excluded from our study due to the lack of important information in their files. Thirty-one (31) patients were included in our study. The male gender was predominant with 30 cases (96.7%). The average age was 59.7 years, with extremes of 47 and 82 years. The histological type of laryngeal cancer was squamous cell carcinoma for all patients (100% of cases). Total laryngectomy was the more used therapeutic procedure in 74% of cases. The were no signs of recurrence in 25 patients (80.7% of cases) and were present in 6 patients (19.3% of cases). CT scan has proven to be the most accurate imaging method for exploring the larynx in the follow-up of patients treated for laryngeal cancer and participates in the evaluation of the therapeutic response and makes it possible to detect signs of recurrence.

Keywords: Larengeal, Cancer, treatment, follow-up, CT scan.

INTRODUCTION

Exploration of the larynx treated for malignant neoplasia (by surgery or radiochemotherapy) is a fairly common indication for cervical CT scan to assess the therapeutic response and to look for local or regional recurrence.

The knowledge of laryngeal radioanatomy and the various therapeutic procedures, essentially surgical occupy an important place for a good interpretation of a CT scan of a treated larynx.

The aim of our study is to show the interest of CT scan in the follow-up of patients treated for laryngeal cancer.

MATERIALS AND METHODS

We carried out a retroprospective study over a period of one year, from July 01, 2019 to June 30, 2020, from the files of patients referred to our department for CT examination as part of follow-up after treatment for laryngeal cancer.

Inclusion Criteria

- Be followed-up for histologically documented laryngeal cancer
- Knowledge of the type of treatment received

Exclusion Criteria

- Incomplete files

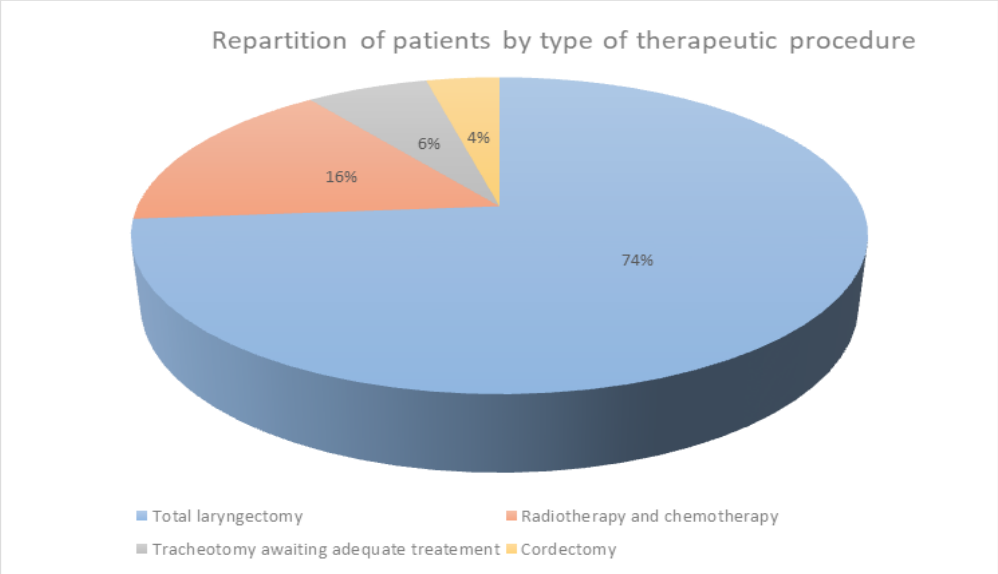
RESULTS

Forty-eight patients (48) were recruited. Seventeen of them were excluded from our study due to the lack of important information in their files.

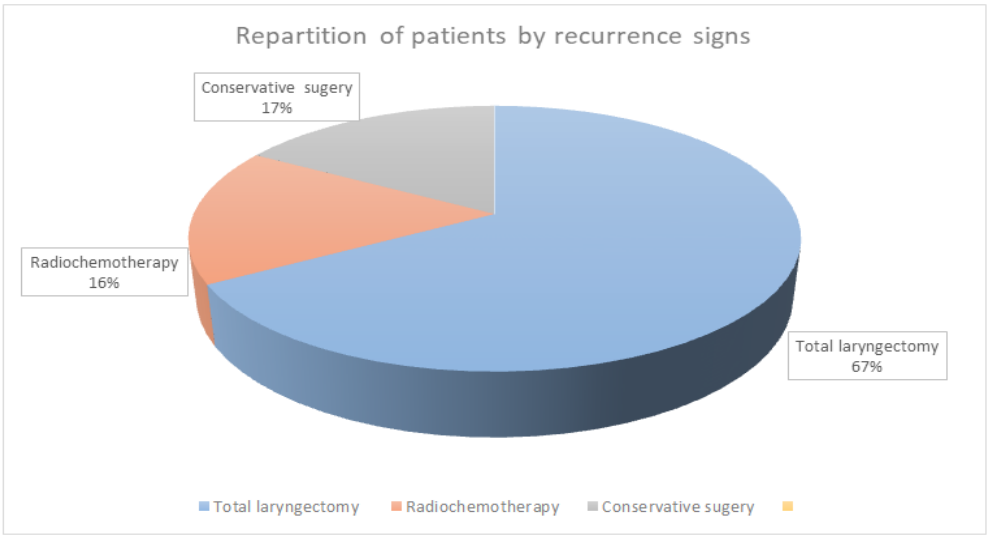
Thirty-one (31) patients were included in our study with the following characteristics:

- Gender: 30 male (96.7%) and 1 female.
- Age: The average age was 59.7 years, with extremes of 47 and 82 years.
- The histological type of laryngeal cancer is squamous cell carcinoma for all patients (100% of cases).

Type of therapeutic procedures



Signs of recurrence on CT scan n=6



Absence of signs of tumor recurrence n=25

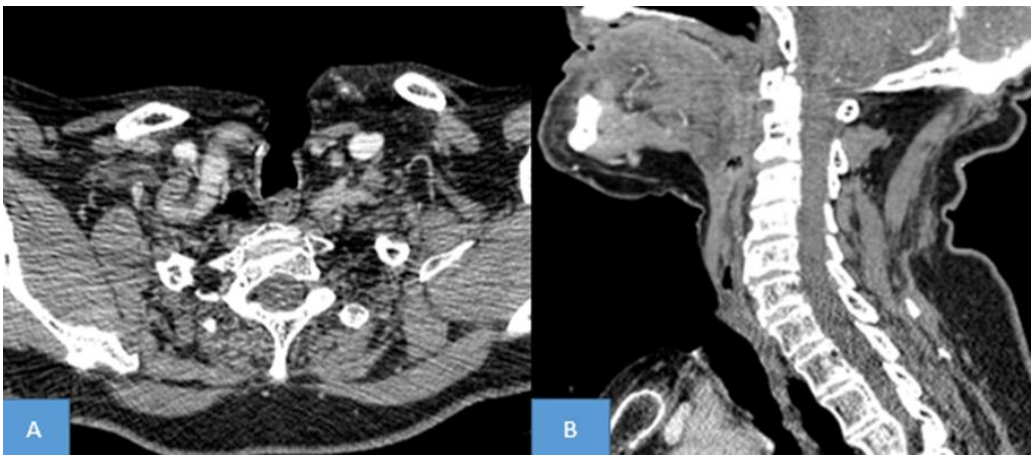


Figure 1: Cervical CT scan, axial (A) and sagittal (B) sections after injection of contrast product: Absence of abnormal density or contrast enhancement of the soft tissues of the neopharyx in a 72-year-old patient operated for squamous cell carcinoma of the larynx

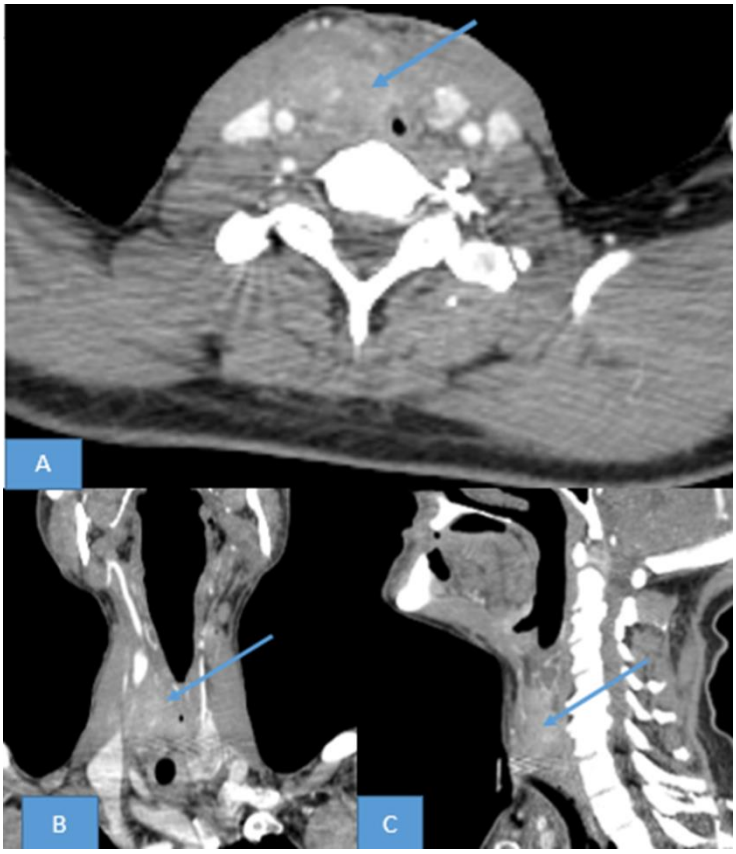


Figure 2: Cervical CT scan, axial (A), coronal (B) and sagittal (C) sections after injection of contrast agent: Tumor process centered on the neopharynx, lateralized on the right, heterogeneously enhanced, encompassing the right common carotid artery and invading the anterior cervical soft tissue (blue arrows), related to tumor recurrence in a 57-year-old patient operated for squamous cell carcinoma of the larynx

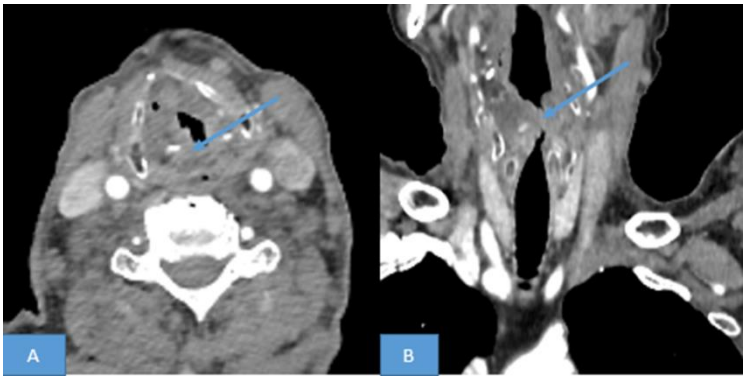


Figure 3: Cervical CT scan, axial (A) and sagittal (B) sections after injection of contrast product: Tumor process centered on glottic and subglottic, lateralized on the right, discreetly enhanced (blue arrows), related to tumor recurrence in a patient 70-year-old man treated by radiotherapy for squamous cell carcinoma of the larynx

DISCUSSION

The management of squamous cell carcinoma of the larynx is particularly challenging, due to the substantial functional morbidity and psychosocial effects associated with laryngectomy, and thus, the need to balance optimal tumor control while preserving organs function as possible [1].

The mainstay treatment for early-stage laryngeal squamous cell carcinoma is radiation therapy or laryngeal-sparing surgery, both of which provide good rates of local control [2].

Until the early 1990s, total laryngectomy was the mainstay of treatment for locally advanced laryngeal cancer. However, the Department of Veterans Affairs (VA) landmark laryngeal study changed the treatment paradigm by evaluating the role of sequential induction chemotherapy followed by radiation therapy versus standard initial laryngectomy followed by postoperative radiation therapy in stage III/IV laryngeal squamous cell carcinoma. There was no significant difference in survival outcomes and a larynx preservation rate of 64% in the non-surgical group [3].

In our study, almost all of the patients were male, 96.7%, and the average age was 59.7 years. The other authors have found results stackable to ours: Mimica *et al*., [4] in their study of 241 patients, 211 or 88% were male, with an average age of 65 years. In the study by Adeel *et al*., [5] having focused on 249 patients, 92.1% were men while in the study by Mucha-Malecka *et al*., [6], 95% of patients were male, with an average age of 60 years.

In our study, 23 patients had undergone total laryngectomy and 4 of them showed signs of recurrence. In the study by Adeel *et al*., [5], of the 26 patients treated by total laryngectomy, 4 presented signs of recurrence against 14 who did not and deplored 8 deaths.

The evolution after treatment depends on the age at diagnosis, the level affected and the extension as well as the method of treatment used. The 5-year survival was 86.3% and 88.8% in young patients, compared to 53.8% and 67.6% in the older group ($p < 0.0001$) in the study by Li *et al*., [7].

CONCLUSION

CT scan has proven to be the most accurate imaging method for exploring the larynx in the follow-up of patients treated for laryngeal cancer and participates in the evaluation of the therapeutic response and makes it possible to detect signs of recurrence.

Competing interests: The authors declare no conflict of interest.

Contributions from authors

All the authors contributed to the conduct of this work. They also state that they have read and approved the final version of the manuscript.

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