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SFORL Guidelines

Guidelines update: Post-treatment follow-up of adult head and neck squamous cell carcinoma: Screening for metastasis and metachronous esophageal and bronchial locations

D. Blanchard[a,*], B. Barry[b], D. De Raucourt[a], O. Choussy[c], B. Dessard-Diana[d], S. Hans[e], D. Lafarge[f], SFORL work-group

[a] Service d'ORL, Centre François-Baclesse, Centre de Lutte Contre le Cancer Basse-Normandie, 3, avenue Général-Harris, BP 5026, 14076 Caen, France
[b] Service d'ORL, Hôpital Bichat, 46, rue Henri-Huchard, 75018 Paris, France
[c] Service d'ORL, CHU de Rouen, 76031 Rouen cedex 1, France
[d] Service d'oncologie, Hôpital Georges-Pompidou, 20, rue Leblanc, 75015 Paris, France
[e] Service d'ORL, Hôpital Georges-Pompidou, 20, rue Leblanc, 75015 Paris, France
[f] Service d'ORL, Centre hospitalier de Périgueux, 80, avenue Georges-Pompidou, 24000 Périgueux, France

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ABSTRACT

Objective: The present article is an update of the guideline of the French Society of Otorhinolaryngology and Head and Neck Surgery (SFORL) on the post-treatment follow-up of adult head and neck squamous cell carcinoma concerning screening for metastasis and metachronous esophageal and bronchial locations.
Methods: A multidisciplinary work-group was entrusted with a review of the literature on the above topic. Guidelines were drawn up, based on the articles retrieved and the work-group members' own experience. These were then reviewed by an editorial group independent of the work-group. A coordination meeting then finalized the guidelines. Guidelines were graded A, B, C or "expert opinion" according to decreasing level of evidence.

1. Head and neck cancer and metachronous bronchopulmonary and esophageal locations

Neoplasia is said to be metachronous with respect to a head and neck tumor when diagnosed at least 6 months after the primary diagnosis; earlier than this, it is said to be synchronous [1,2].

Patients managed for head and neck carcinoma are exposed to a risk of locoregional recurrence and/or onset of second cancer. Two periods can be roughly distinguished:

- the first 2 or 3 years following primary treatment show elevated risk of locoregional recurrence and metastasis;
- thereafter, the risk of second (metachronous) cancer predominates, mainly in the head and neck region but also remotely, notably in the lung or esophagus [1,3].

Risk of second cancer is higher in patients who continue active smoking and/or alcohol abuse after primary treatment [1]. This risk persists to a lesser extent after smoking cessation, with a high rate of persistent high-grade precancerous lesions (severe dysplasia, which in 40–80% of cases progresses toward an invasive lesion or in situ carcinoma) found on bronchoscopy in patients who have given up smoking [4]. The risk is not to be taken into account in those who have never smoked [4].

The risk of metachronous cancer during follow-up of head and neck cancer is well known [1–3,5–7], with an annual rate of 3–7%.

No correlation has been found between primary tumor stage and rate of onset of metachronous cancer.

A laryngeal primary location increases the risk of bronchopulmonary metachronous cancer [1], and oral or pharyngeal location that of esophageal metachronous cancer.

Risk persists over time [6,7].

1.1. Bronchopulmonary metachronous locations

Three histologic types are found, in decreasing order of frequency: squamous cell carcinoma, adenocarcinoma, and small-cell carcinoma [8]. Squamous cell carcinoma accounts for 50–65% of pulmonary metachronous cancers in males and 20–25% in females [9]. Adenocarcinoma is more frequent in females than males [10].

* Corresponding author.
E-mail address: d.blanchard@baclesse.fr (D. Blanchard).

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More than 95% of lung cancers are discovered in the absence of clinical signs [3]. Squamous cell carcinoma is the most frequently symptomatic, due to anatomic location: central, para-hilar, major bronchial axes [9]. This underscores the need for paraclinical examinations in screening for such cancers.

1.1.1. Role of biological markers

There are no validated biological markers in bronchopulmonary cancer screening [11].

1.1.2. Role of cytology

Bronchopulmonary cancer screening by cytological sputum analysis in high-risk populations is not considered contributive [11,12].

1.1.3. Role of lung X-ray

In high-risk populations, the contribution of chest X-ray in bronchopulmonary cancer screening was the focus of several reports, including 2 prospective randomized studies [11,13]. Radiologic screening was found to increase the rate of early-stage detection, feasibility of surgery and overall survival. This gain in survival, however, is dependent on discovery and diagnosis of slowly progressive lesions: no studies have reported reduction in mortality specific to lung cancer.

These studies established that bronchial cancer screening by chest X-ray in high-risk populations is non-contributive [11].

Several studies [7,14,15] focused on chest X-ray follow-up of head and neck cancer patients: none found improved survival in patients screened for second bronchopulmonary cancer.

Head and neck cancer follow-up by routine iterative lung X-ray has not proved contributive.

1.1.4. Role of CT

CT screening for bronchopulmonary cancer in high-risk patients shows high sensitivity but poor specificity. It enables early-stage diagnosis, increases surgical feasibility, and increases survival in patients screened for bronchopulmonary cancer by 20% at 5 years [16,17].

The rate of bronchopulmonary cancer found on screening is 0.7% for chest X-ray and 2.7% for low-dose spiral CT [18].

A 2011 randomized trial including 53,454 smokers aged 55-74 years with > 30 pack-years compared 3 years' annual bronchopulmonary cancer screening by chest X-ray versus low-dose CT without contrast enhancement [19]; there was a significant 20% reduction in death from bronchopulmonary cancer (95% CI: 6.86–26.7; $P = 0.004$) and overall mortality (6.7%; 95% CI: 1.2–13.6; $P = 0.020$) in the CT group. This was the first study to show a survival impact of bronchopulmonary cancer screening in high-risk patients.

A 2014 meta-analysis of 9 randomized studies confirmed these findings [20].

These results led several international learned societies to recommend individual screening of bronchopulmonary cancer in high-risk subjects alongside anti-smoking campaigns [21–23].

All publications on low-dose CT bronchopulmonary cancer screening report false positives in the form of non-cancerous nodules. In case of nodule discovered on chest CT, the work-group recommends the attitude shown on Figs. 1 and 2, following the guidelines of the French-Language Thoracic Oncology Intergroup, Society of Thoracic Imaging and French-Language Oncology Group [24].

1.1.5. Role of autofluorescence bronchoscopy

Screening and treatment of precancerous bronchial lesions by autofluorescence bronchoscopy has been the focus of several studies in high-risk subjects [25–28], with discordant findings.

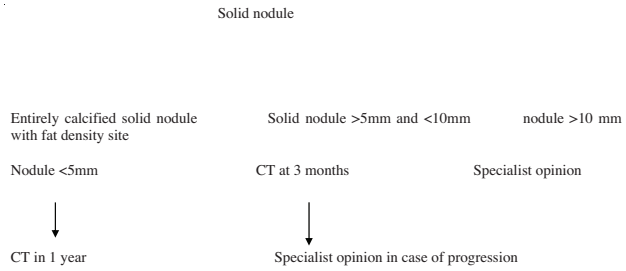

Fig. 1. Decision tree in case of isolated solid pulmonary nodule on CT.

Autofluorescence improved detection and follow-up of precancerous and in situ lesions, but the impact on specific mortality is not known. The examination is not widely available, and in the present state of knowledge is reserved to controlled assessment protocols.

1.2. Esophageal metachronous locations

The severity of esophageal metachronous cancer mainly implicates frequently late diagnosis [2], whence in principle the interest of early screening, if possible at an asymptomatic stage [1,29,30] when relatively non-invasive curative treatments are feasible: phototherapy, CO_2 laser, endoscopic resection [30].

1.2.1. Epidemiology

Mean annual incidence is 2.3% (range, 0.6–4.7%) [31,32]. The variation in reported incidence is due to differences in sample size and follow-up time and variable risk factors according to primary location.

The risk of esophageal cancer after treatment for head and neck cancer is 15–20-fold greater than in the general population [30].

Time to onset ranges between 1 and 5 years in 58% of cases, 6 and 10 years in 25% and more than 10 years in 17% [1].

The mid-third of the esophagus is the most frequent location [31], but several others are not exceptional (27.3%) [33].

The predominant 50–60-year age bracket corresponds to the mean age at onset of head and neck cancer plus mean time to onset of esophageal metachronous cancer.

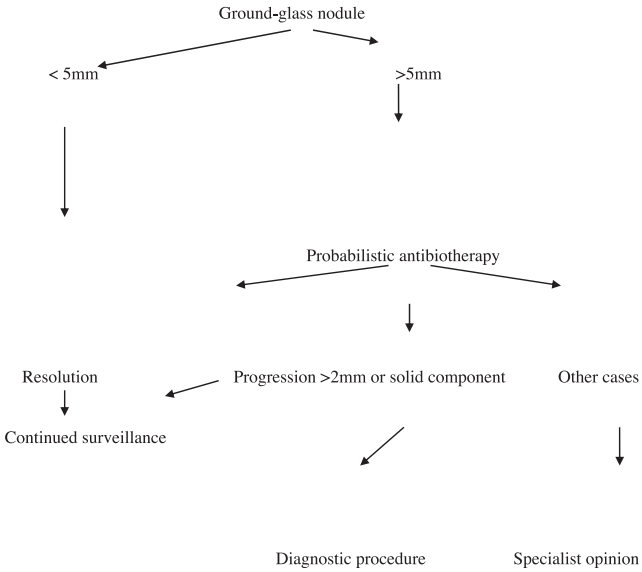

Fig. 2. Decision tree in case of ground-glass pulmonary nodule on CT.