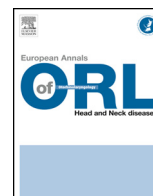




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Original article

Incidental cervical metastases from thyroid carcinoma during neck dissection

S. Périé^{a,*}, F. Torti^a, M. Lefevre^b, N. Chabbert-Buffet^c, A. Jafari^a, J. Lacau St Guily^a

^a Department of otolaryngology-head and neck surgery, university Pierre-et-Marie-Curie-Paris VI, hospital Tenon, Assistance publique-Hôpitaux de Paris, 4, rue de la Chine, 75020 Paris, France

^b Department of pathology, university Pierre-et-Marie-Curie-Paris VI, hospital Tenon, Assistance publique-Hôpitaux de Paris, 4, rue de la Chine, 75020 Paris, France

^c Department of obstetrics, gynecology and reproductive medicine – section endocrinology, university Pierre-et-Marie-Curie-Paris VI, hospital Tenon, Assistance publique-Hôpitaux de Paris, 4, rue de la Chine, 75020 Paris, France

ARTICLE INFO

Keywords:

Cervical lymph node metastasis of thyroid carcinoma
Head and neck squamous cell carcinoma
Papillary thyroid carcinoma
Neck dissection

ABSTRACT

Objectives: To quantify and discuss the prevalence of unsuspected thyroid lymph node metastases discovered in specimens from neck dissection for head and neck squamous cell carcinoma (HNSCC) and discuss the impact on patient management.

Study design: Retrospective study between May 2004 and January 2007.

Setting: University hospital.

Methods: Pathological analysis of cervical lymph node dissection performed during surgery for HNSCC in a total of 349 neck dissections in 266 consecutive patients.

Results: Twenty-one patients showed metastatic lymph nodes from thyroid cancer (prevalence 7.9%): 13 cases were metastatic from a papillary thyroid carcinoma and 8 cases from a follicular carcinoma. In 5 of the 21 patients, classical dissection was associated to recurrent nerve dissection and unilateral lobectomy; no thyroid carcinoma was found. Thirteen patients received radiotherapy for HNSCC. Follow-up comprised annual ultrasonographic examination of the neck and thyroid in these 21 patients. Total thyroidectomy was decided on in 5, with discovery of 3 micro-papillary thyroid carcinomas, in a single patient (complementary ¹³¹I treatment). No thyroid carcinomas were found for the other 4 patients. No patients died from thyroid carcinoma during follow-up (mean: 41 months).

Conclusion: The prevalence of lymph node metastasis from thyroid carcinoma in cervical lymph node dissection during treatment of HNSCC seems higher (7.9%) than rates reported in the literature (0.3 to 1.6%). This may be due to the histopathological methods employed. Management of patients should be discussed in the light of thyroid ultrasonography and prognosis of HNSCC.

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1. Introduction

Occult or sub-clinical thyroid carcinomas are not uncommon. Metastasis from thyroid carcinoma may be found incidentally during neck dissection for head and neck squamous cell carcinoma (HNSCC). Prevalence of thyroid metastasis has been estimated at 0.3% to 1.6% [1–4].

Therapeutic implications remain poorly defined because of the frequently severe prognosis of HNSCC.

The objectives of the current study were to quantify the prevalence of unsuspected thyroid metastasis in cervical lymph

nodes found on analysis of neck dissection specimens in patients with HNSCC compared to previous studies, and to analyze the histopathological methods used. In addition, the therapeutic implications of such histological discovery are discussed over follow-up.

2. Patients and methods

A retrospective study listed histological findings from neck dissection specimens in our hospital. The population included 266 patients (220 males, 46 females) consecutively receiving neck dissection during treatment of HNSCC from May 2004 to December 2007. Average age was 54 years with a range from 29 to 84. Radical, modified radical or selective neck dissection was performed, from level I to VI on Robbins' terminology, depending on the localization of the HNSCC [5]. A total of 349 neck dissections were performed

* Corresponding author.

E-mail address: sophie.perie@aphp.fr (S. Périé).

(183 unilateral, 83 bilateral). No patients had history of thyroid carcinoma or thyroidectomy. None had undergone cervical irradiation during childhood or subsequently.

2.1. Histological examination

A single pathologist performed the histopathological study. All cervical lymph nodes from all levels of the neck dissection were analyzed. Each cervical lymph node was totally sectioned every 3 mm and sections of 3 μ m were stained by Hematoxylin Erythrosine Saffron (HES) for analysis by light microscopy. Thyroid lobectomy, when performed during level VI (recurrent) dissection, was also taken into consideration. No immunohistochemistry (anti-TTF1 antibodies, thyroid transcription factor 1 and anti-thyroglobulin antibodies) was used, as the histological appearance was obvious in all cases. Sections were reviewed and confirmed by the pathologist when thyroid cervical lymph nodes were observed.

Histopathological findings were scored as pathological for the presence of thyroid cervical lymph node involvement (N+) or thyroid tumor (T+) or non-pathological: no thyroid cervical lymph node involvement (N–), or no thyroid tumor (T–). In cases of positive cervical lymph node N+, the amount of thyroid metastatic tissue was expressed as a percentage of the entire lymph node. Involvement of the lymph node capsule was also determined.

2.2. Global analysis

The histopathological results were expressed at patient level considering the presence of thyroid neck metastases in the neck dissections (N+) and/or the presence of a thyroid carcinoma (T+). The decisions based on these histopathological findings and the therapeutic impact were studied during follow-up.

2.3. Ethical consideration

According to the French legislation (Public Health Code modified by the law no. 2004-806, August 9, 2004 and the Huriet-Sérusclat Act 88-1138, December 20, 1988) and since this study only involved data extracted from medical records, no informed consent from patients was collected. Data remained strictly anonymous.

3. Results

3.1. Histopathological examination

Incidental intranodal thyroid tissue (Fig. 1) was found in 21 of our 266 patients, indicating a prevalence of 7.9% in this group (Table 1). Clinical and pathological features of patients with intranodal thyroid tissue are summarized in Table 1. The lymph node capsule was intact in all cases. Intranodal thyroid tissue was usually small, with low percentage invasion. In only one case was the cervical node involved by both the HNSCC and thyroid tissue.

In 13 patients, the histological study was conclusive for lymph node metastasis from a papillary thyroid carcinoma (N+). In all cases, the metastatic tissue was found in the lateral cervical lymph nodes (levels II and IV). In 2 of these cases, metastatic lymph nodes were found at more than one level (IIA and III).

In 8 patients, the histological study reported well-differentiated thyroid tissue lacking the nuclear atypia of papillary carcinoma and concluded in favor of metastatic lymph nodes from a follicular thyroid carcinoma.

Among the 21 patients, 5 thyroid lobectomies were performed to enable dissection of the VIth level lymph nodes because of the localization of the primary HNSCC (piriform sinus). Histopathological findings demonstrated no thyroid carcinoma in the thyroid lobectomy (T–) or VIth level lymph node dissection.

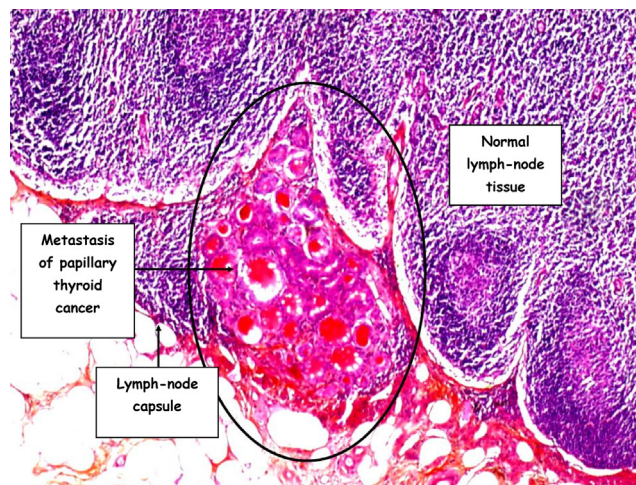


Fig. 1. Lymph node metastasis of a papillary carcinoma of the thyroid. HES staining, $\times 200$.

Postoperative radiotherapy was required for the HNSCC in 13 of the 21 patients.

3.2. Implications

The 21 patients with thyroid cervical lymph node metastasis underwent cervical and thyroid ultrasonography (US) at least 2 months following the end of the treatment for HNSCC, repeated once a year for 5 years.

Blood TSH and T4/T3 were also assayed to treat potential hypothyroidism.

3.3. Follow-up and impact on patient management

Fifteen of the 21 patients with thyroid cervical node metastases were alive 51.6 months after diagnosis (range: 27 to 72 months). Two patients died from their HNSCC (patient 10) or a second HNSCC (patient 16); two died from bone metastasis of their HNSCC (patients 7 and 15); one died from lung cancer (patient 8); and one patient died from pancreatic carcinoma (patient 20). Thirteen of the 15 patients alive at the time of writing showed no progression of the treated HNSCC and no other cancer. One of the other two surviving patients was treated successfully for a second HNSCC (patient 3) and the other exhibited cervical lymph node recurrence of HNSCC, which was treated surgically (patient 19). The mean follow-up was 41.1 months (ranging from 6 to 72 months) for the whole population.

On initial US at least one thyroid nodule was present in three patients, for which fine-needle aspiration was not indicated in this context. Total thyroidectomy associated to level VI neck dissection was performed in two patients (patients 1 and 2) and thyroid lobectomy with level VI neck dissection was performed in the third (patient 19); no thyroid carcinoma or lymph node metastasis was present at histopathological examination (T– and N–).

Although no thyroid nodule was present on US in one patient (patient 3), total thyroidectomy was nevertheless performed; no carcinoma was observed on histopathologic examination (T–).

A thyroid micro-nodule was discovered on the third US in one patient (patient 15), 29 months following treatment of HNSCC. Fine-needle aspiration cytology found cells suggestive of papillary thyroid carcinoma. Total thyroidectomy with level VI neck dissection was performed; three papillary thyroid micro-carcinomas (T+) with bilateral lymph node metastasis along the inferior laryngeal nerve chain (N+) were found on histopathology. Complementary ¹³¹I treatment was then performed.

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