

ECHO-ENDOSCOPIE BRONCHIQUE, APPLICATION EN CANCÉROLOGIE

Dr Benjamin HURET
Pneumologue
SPIRAL LILLE



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Conflits d'intérêts

- **Liens d'intérêt :**
- **AstraZeneca, Boehringer Ingelheim, Bristol-Myers Squibb, ELIA Medical, France Oxygène, Lilly Oncology, Philips respironics, RESMED, SOS Oxygène, SYSMED**

Sommaire

- Qu'est ce que l'écho-endoscopie bronchique?
- Cancer thoracique
- Cancer extra thoracique
- Lymphome
- Complications
- Echo-endoscopie radiale

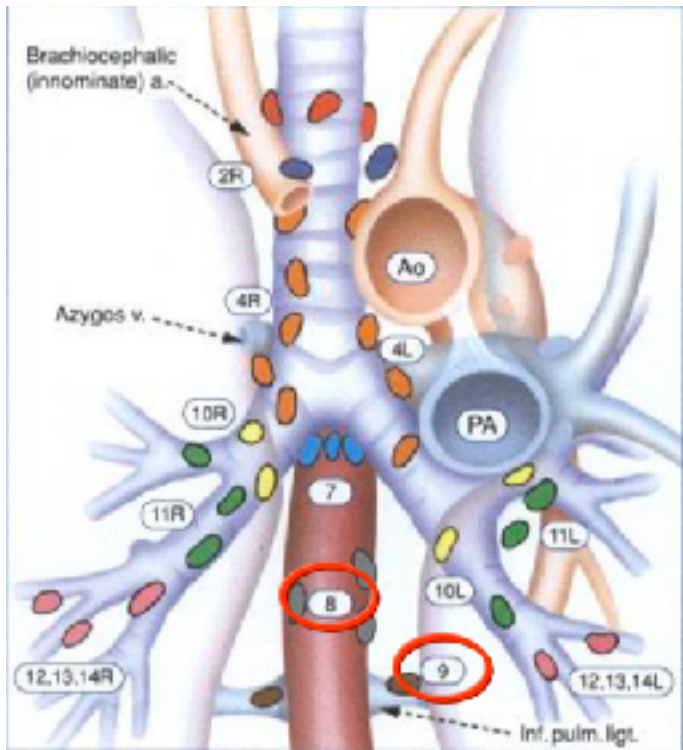
Avant:

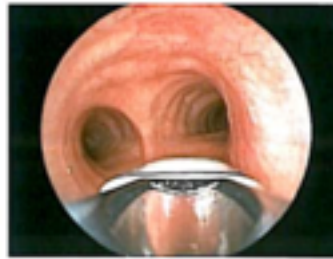
Médiastinoscopie



Qu'est ce que c'est? A quoi ça sert?

- Exploration échographique des bronches segmentaires et donc du médiastin
- Permet de faire un staging médiastinal ou un diagnostic de lésion au contact d'une bronche





Combined endobronchial and oesophageal endosonography for the diagnosis and staging of lung cancer. Vilman P And Col. Eur respir J 2015

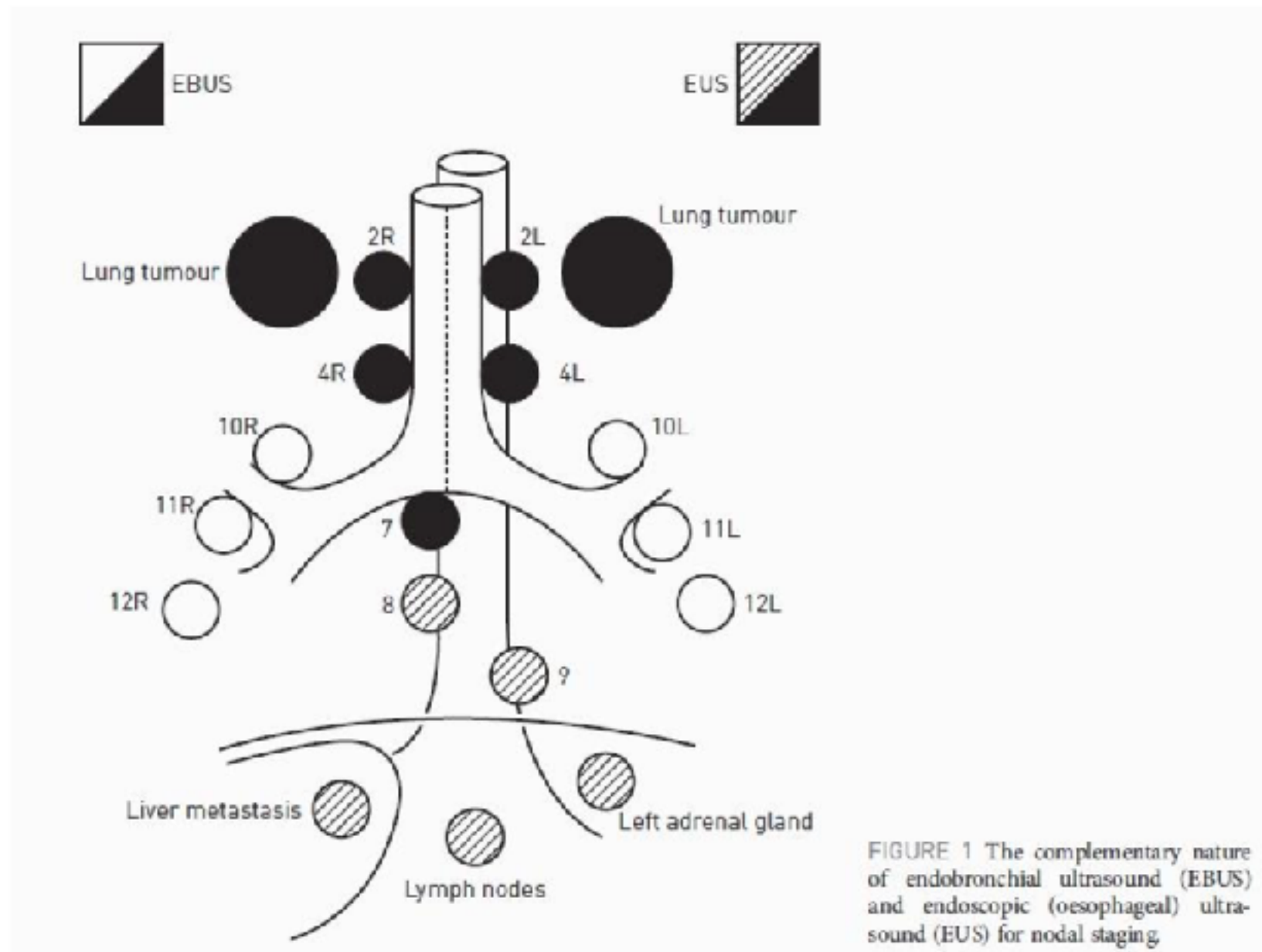


FIGURE 1 The complementary nature of endobronchial ultrasound (EBUS) and endoscopic (oesophageal) ultrasound (EUS) for nodal staging

Staging mediastinal

Comparison of techniques for mediastinal lymph-node staging in non-small-cell lung cancer

Investigation	Sensitivity ^a (%)	Specificity (%)	Advantages	Disadvantages
CT	51	86	Delineates anatomy	Uses 1 cm short-axis diameter cut-off for malignancy 40% of enlarged nodes are benign 20% of normal-sized nodes contain malignancy
PET	74	85	High negative predictive value for stage I disease Accurate systemic staging	25% false-positive rate inaccurate in lymph nodes >1 cm
Transbronchial needle aspiration	78	99	Cost-effective Allows simultaneous airway inspection	Variability in results and utilization Usually limited to enlarged nodes in stations 4 and 7
Medastinoscopy	78	100	Considered gold standard Allows detection of micrometastases and extracapsular extension	Risks of general anesthesia and surgery Lymph nodes in stations 5, 6, 8, 9 and 11 are not accessible to standard technique
Endoscopic ultrasound	84	99.5	High sensitivity in paraesophageal lymph node stations Access to celiac-axis nodes, liver, left adrenal gland Can detect malignancy in normal-sized nodes Minimally invasive and complementary to endobronchial ultrasound	Requires specialized training and equipment Lymph node stations 2r, 4r, 6, 10 and 11 and endobronchial tree cannot be assessed
Endobronchial ultrasound	90	100	High sensitivity for majority of mediastinum Can detect malignancy in normal-sized nodes May be easily repeated Minimally invasive and complementary to endoscopic ultrasound	Requires specialized training and equipment Lymph node stations 5, 6, 8 and 9 cannot be assessed

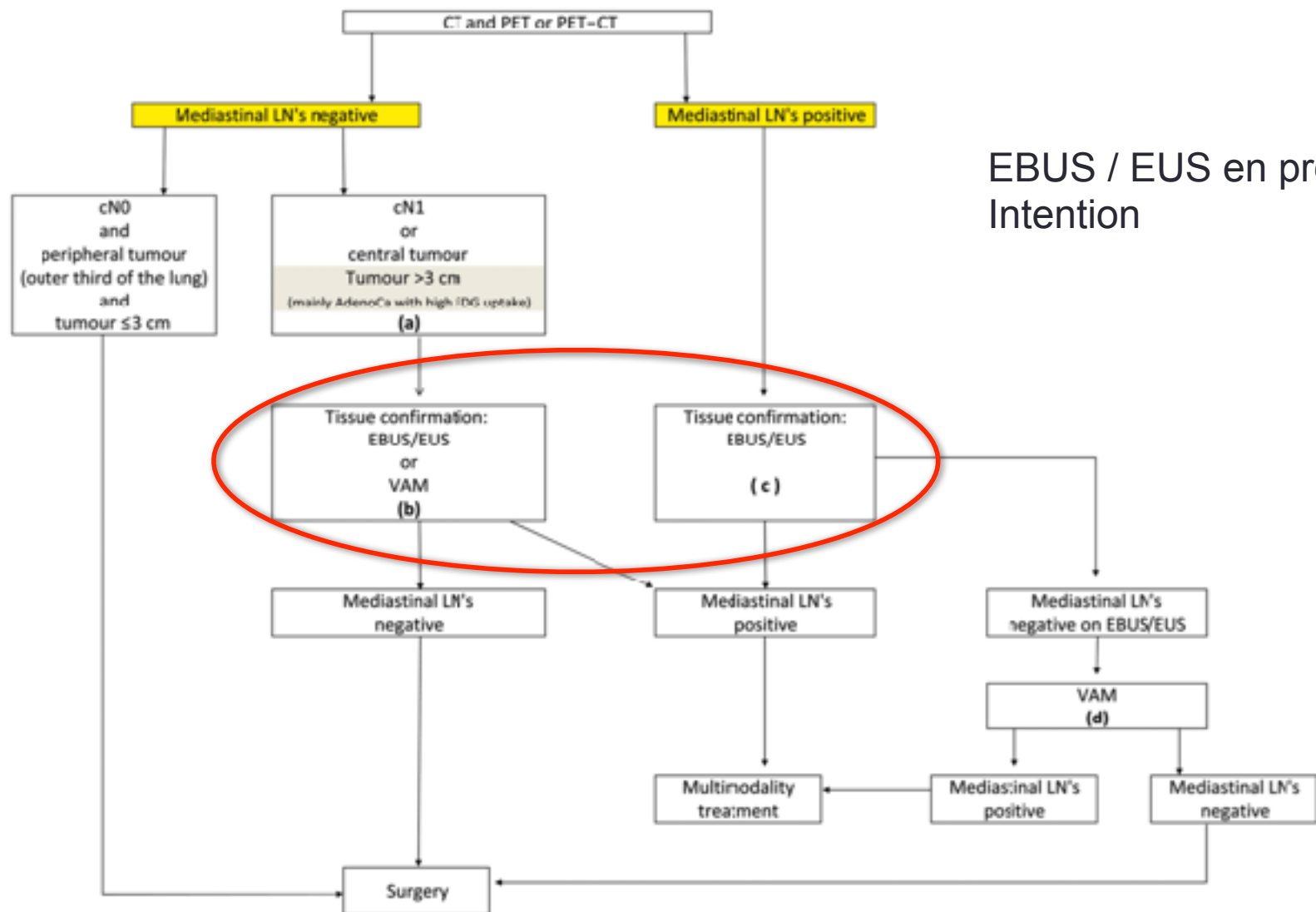
^aValues from American College of Chest Physician Clinical Practice Guidelines.^{3,13} Adapted from Pastis, N. J. & silvestri, G. A. Tissue procurement: bronchoscopic techniques. in *Lung Cancer Principles and Practice* 3rd edn 358–371 (Lippincott Williams & Wilkins, New York, 2003).

Endobronchial Ultrasound versus Mediastinoscopy for Mediastinal Nodal Staging of Non-Small-Cell Lung Cancer

Sang-Won Um, MD, PhD, Hong Kwan Kim, MD, PhD,† Sin-Ho Jung, PhD,‡ Joungho Han, MD, PhD,§ Kyung Jong Lee, MD,* Hye Yun Park, MD, PhD,* Yong Soo Choi, MD, PhD,† Young Mog Shim, MD, PhD,† Myung-Ju Ahn, MD, PhD,|| Keunchil Park, MD, PhD,|| Yong Chan Ahn, MD, PhD,¶ Joon Young Choi, MD, PhD,# Kyung Soo Lee, MD, PhD,** Gee Young Suh, MD, PhD,* Man Pyo Chung, MD, PhD,* O Jung Kwon, MD, PhD,* Jhngook Kim, MD, PhD,† and Hojoong Kim, MD, PhD**

Results: In total, 138 patients underwent EBUS-TBNA and 127 completed both EBUS-TBNA and mediastinoscopy. N2/N3 disease was confirmed in 59.1% of the patients. The diagnostic sensitivity, specificity, accuracy, positive predictive value, and negative predictive value (NPV) of EBUS-TBNA on a per-person analysis were 88.0%, 100%, 92.9%, 100%, and 85.2%, respectively. The diagnostic sensitivity, specificity, accuracy, positive predictive value, and NPV of mediastinoscopy on a per-person analysis were 81.3%, 100%, 89.0%, 100%, and 78.8%, respectively. Significant differences in the sensitivity, accuracy, and NPV were evident between EBUS-TBNA and mediastinoscopy ($p < 0.005$).

Conclusions: EBUS-TBNA was superior to mediastinoscopy in terms of its diagnostic performance for mediastinal staging of cN1–3 NSCLC. Because EBUS-TBNA is both less invasive and affords superior diagnostic sensitivity, it should be the first-line procedure performed in patients with NSCLC.



EBUS / EUS en première Intention

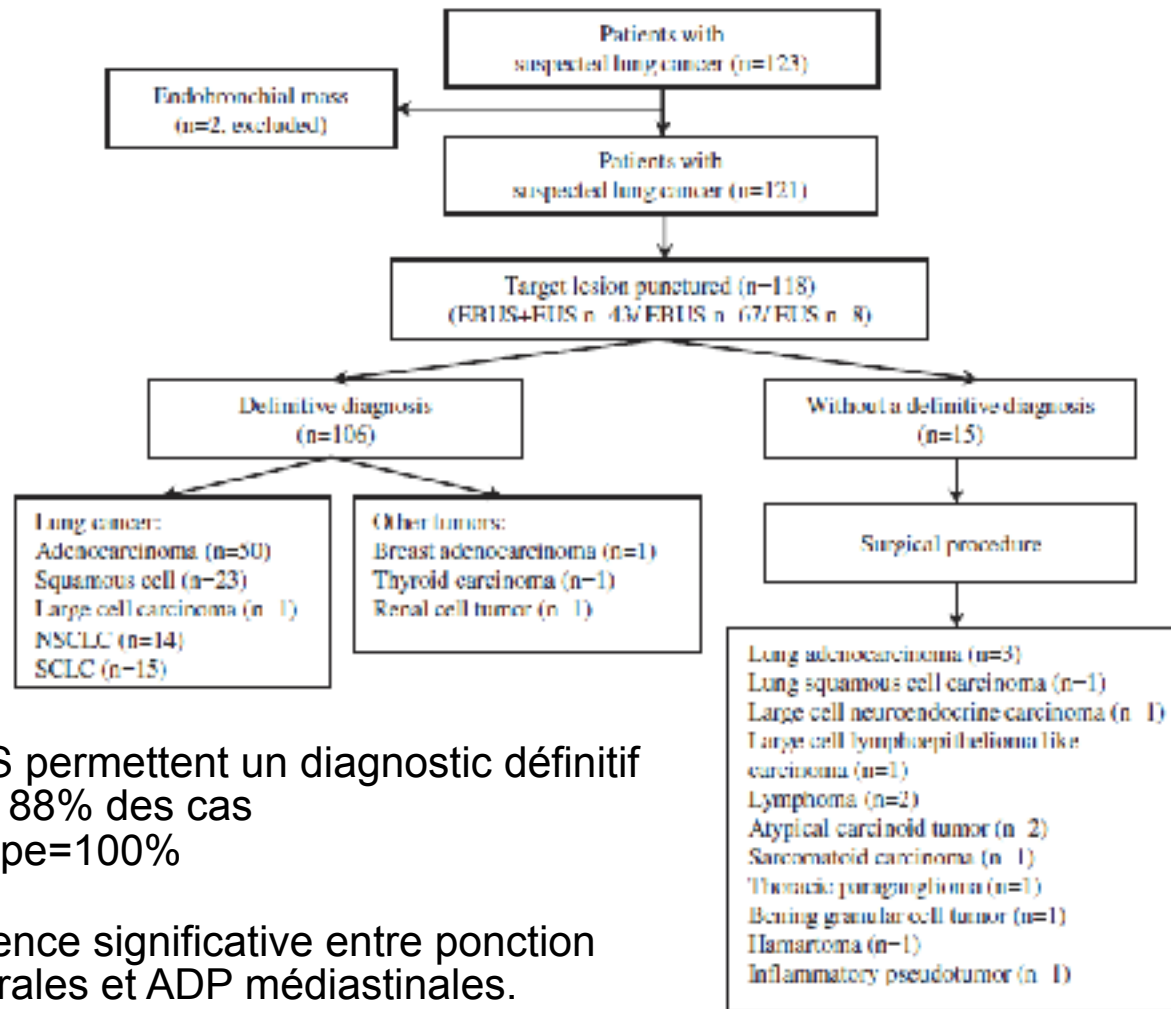
(a): In tumours > 3 cm (mainly in adenocarcinoma with high FDG uptake) invasive staging should be considered

(b): Depending on local expertise to adhere to minimal requirements for staging

(c): Endoscopic techniques are minimally invasive and are the first choice if local expertise with EBUS/EUS needle aspiration is available

(d): Due to its higher NPV, in case of PET positive or CT enlarged mediastinal LN's, videoassisted mediastinoscopy (VAM) with nodal dissection or biopsy remain indicated when endoscopic staging is negative. Nodal dissection has an increased accuracy over biopsy

Diagnostic des cancers broncho-pulmonaires



EUS et EBUS permettent un diagnostic définitif dans près de 88% des cas
Se=89,8%, Spe=100%

Pas de différence significative entre ponction tumeurs centrales et ADP médiastinales.

Recherche de mutations activatrices

Feasibility of assessing EGFR mutation and others using samples obtained by EBUS transbronchial needle aspiration

Boulanger S *et al.* Rev Mal Respir 2013

82 examens, recherche mutations EGFR et KRAS possible dans 97,6% et 95,1% des cas

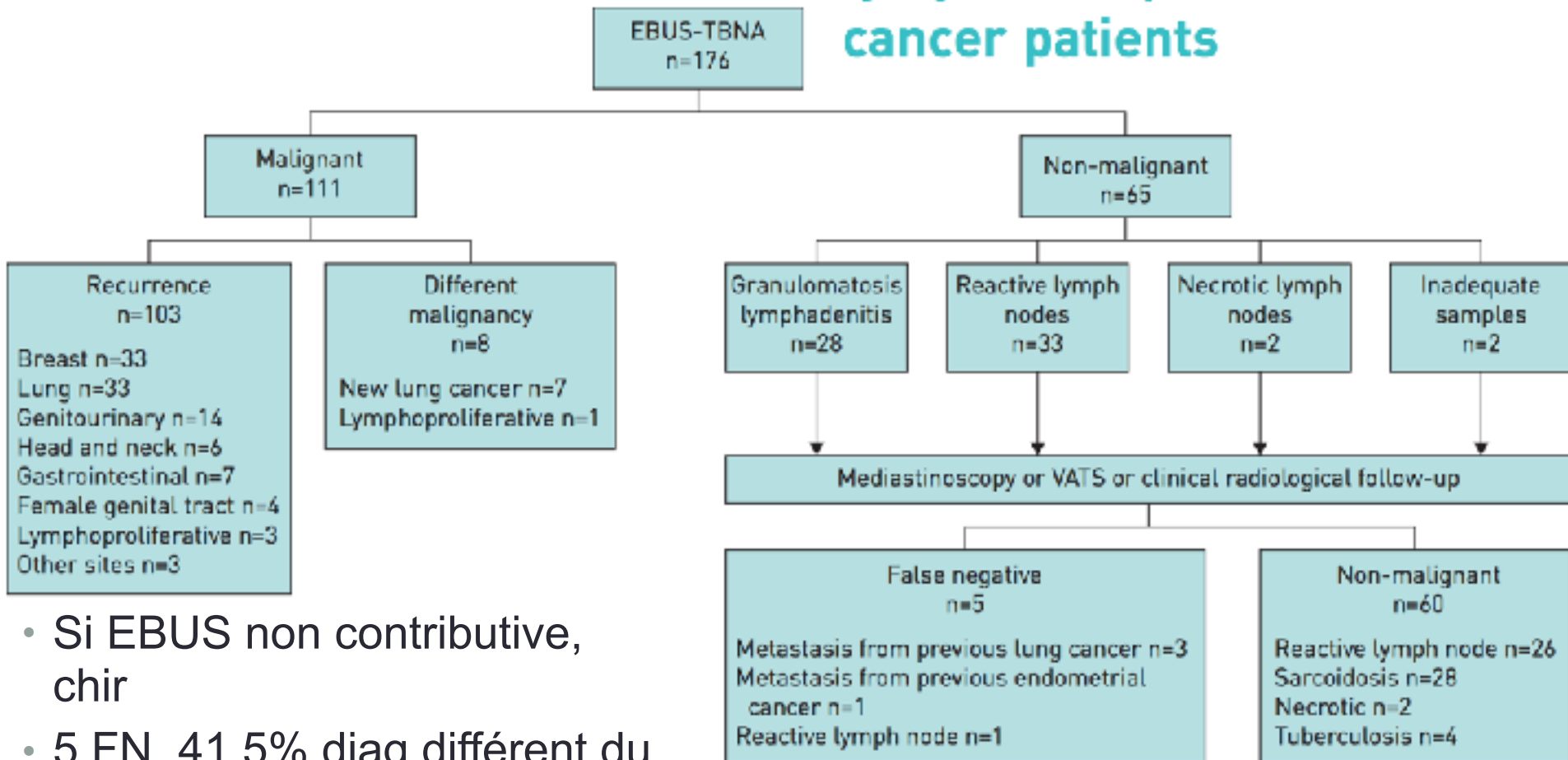
Feasibility of EBUS-TBNA Cytology Specimens for Next Generation Sequencing in NSCLC

Stoy SP *et al.* Clin Lung Cancer 2017 Dec

54 examens, recherche NGS possible dans 95,3% des cas

Utile aussi dans le suivi des cancers pour diagnostiquer la récurrence

EBUS-TBNA in PET-positive lymphadenopathies in treated cancer patients



- Si EBUS non contributive, chir
- 5 FN, 41,5% diag différent du primitif (4,6% néo)

Cancer extra thoracique

[Surgical Endoscopy](#)

July 2017, Volume 31, [Issue 7](#), pp 2829–2836 | [Cite as](#)

The role of endobronchial ultrasonography for mediastinal lymphadenopathy in cases with extrathoracic malignancy

Authors

[Authors and affiliations](#)

Kemal Can Tertemiz , Aylin Ozgen Alpaydin, Volkan Karacam

MATERIALS AND METHODS: Patients who had been previously diagnosed as extrapulmonary solid organ malignancy and in whom mediastinal or hilar lymphadenopathy developed during their follow-up and EBUS-TBNA was applied for diagnostic purposes were retrospectively included in this study.

RESULTS: A total of 91 patients consisting of 35 females (38.5 %) and 56 males (61.5 %) were included in the study. The mean age of the patients was 60.5 (± 11.4). Malignancy was not observed in 54 (59.3 %) patients; primary malignancy metastasis was detected in 33 (36.3 %) patients, and primary lung cancer was detected in 4 (4.4 %) patients with EBUS-TBNA. The sensitivity of EBUS-TBNA in extrathoracic malignancies was determined as 90.2 %; its specificity was determined as 100 %, its negative predictive value as 92.5 %, its positive predictive value as 100 %, and its diagnostic accuracy as 95.6 %. The highest rate was determined in the left lower paratracheal lymph node when they were examined in terms of malignancy detection rate in lymph node stations.

CONCLUSION: EBUS-TBNA is a minimally invasive method with quite a low complication rate that does not require general anesthesia. It should be the first step method to be used in the diagnosis of mediastinal and hilar lymphadenopathies seen in extrathoracic malignancies since it has high diagnostic accuracy, sensitivity, and specificity. EBUS-TBNA significantly reduces the need for surgical

Lymphome

Diagnosis and Subtyping of De Novo and Relapsed Mediastinal Lymphomas by Endobronchial Ultrasound Needle Aspiration

Mufaddal T. Moonim¹, Ronan Breen², Paul A. Fields³, and George Santis⁴ AJRCCM, 2013

- 100 cas de suspicion de lymphome ou de suspicion de récurrence
- Diagnostic de récurrence fait dans 100% des cas
- Diagnostic de novo fait dans 88% des cas
- 28 comparaisons entre EBUS et histo autre : 26 concordances (2 cas où le diagnostic EBUS était douteux)
- Se=89%, Spe=97%, VPP=98%, VPN=83%
- EBUS-TBNA suffisant pour la prise en charge thérapeutique de 84% des patients
- Présence d'un préparateur et d'un anapath avec traitement et tri en temps réel des prélèvements...

Complications

Tuberc Respir Dis (Seoul). 2017 Jan;80(1):45-51. doi: 10.4046/trd.2017.80.1.45. Epub 2016 Dec 30.

Incidence of Fever Following Endobronchial Ultrasound-Guided Transbronchial Needle Aspiration.

Kim SY¹, Lee JW², Park YS², Lee CH², Lee SM², Yim JJ², Kim YW², Han SK², Yoo CG².

Author Information

Abstract

BACKGROUND: Endobronchial ultrasound-guided transbronchial needle aspiration (EBUS-TBNA) is a minimally invasive diagnostic method for mediastinal and hilar lymphadenopathy. This study aimed to investigate the incidence of fever following EBUS-TBNA.

METHODS: A total of 684 patients who underwent EBUS-TBNA from May 2010 to July 2012 at Seoul National University Hospital were retrospectively reviewed. The patients were evaluated for fever by a physician every 6-8 hours during the first 24 hours following EBUS-TBNA. Fever was defined as an increase in axillary body temperature over 37.8°C.

RESULTS: Fever after EBUS-TBNA developed in 110 of 552 patients (20%). The median onset time and duration of fever was 7 hours (range, 0.5-32 hours) after EBUS-TBNA and 7 hours (range, 1-52 hours), respectively, and the median peak body temperature was 38.3°C (range, 37.8-39.9°C). In most patients, fever subsided within 24 hours; however, six cases (1.1%) developed fever lasting longer than 24 hours. Infectious complications developed in three cases (0.54%) (pneumonia, 2; mediastinal abscess, 1), and all three patients had diabetes mellitus. The number or location of sampled lymph nodes and necrosis of lymph node were not associated with fever after EBUS-TBNA. Multiple logistic regression analysis did not reveal any risk factors for developing fever after EBUS-TBNA.

CONCLUSION: Fever is relatively common after EBUS-TBNA, but is transient in most patients. However, clinicians should be aware of the possibility of infectious complications among patients with diabetes mellitus.

552 patients  110 ont eu fièvre  7H après EBUS  en moy 38,3°C

RESEARCH

Open Access

Complications associated with endobronchial ultrasound-guided transbronchial needle aspiration: a nationwide survey by the Japan Society for Respiratory Endoscopy

Fumihiko Asano^{1,2*}, Motoi Aoe¹, Yoshinobu Ohsaki¹, Yoshinori Okada¹, Shinji Sasada¹, Shigeki Sato¹, Eiichi Suzuki¹, Hiroshi Semba¹, Kazuya Fukuoka¹, Shozo Fujino¹ and Kazumitsu Ohmori¹

PENSER A LA MEDIASTINITE SI FIEVRE DANS LES JOURS SUIVANTS

- Sur 7345 procédures dans 210 établissements entre Jan 2011 et Juin 2012.
- Pour le patient : 1,23% dont hémorragie (50 cas), médiastinite (7 cas), pneumopathie (4 cas), péricardite (1 cas), pneumothorax (2 cas), 1 décès (AVC), hospit prolongée dans 14 cas.
- Pour le matériel : 98 pannes=1,54% => 71 perforations canal opérateur, 15 atteintes fibre optique, 7 pannes sonde, 15 aiguilles cassés (?? où?)

Echo-endoscopie bronchique radiale

- 57 études, 7872 lésions
- Diagnostic yield 70,6%
- Plus élevé si
 - Bronchus sign
 - > 2 cm
- Overall complication 2,8%

