Bronchogenic carcinoma in idiopathic pulmonary fibrosis patients after lung transplantation

Hendriks LEL[1], Drent M[2,3], van Haren EHJ[1], Verschakelen JA[3,4], Verleden GM[5]

[1]Dept of Respiratory Medicine, Atrium Medical Centre, Heerlen, [2]Dept of Respiratory Medicine, [3]ild care team, Maastricht University Medical Centre+, Maastricht, The Nethertands, [4]Dept of Radiology, University Hospitals, [5]Dept of Lung Transplantation, University Hospital Gasthuisberg, Leuven, Belgium

Introduction

Lung transplantation (Ltx) is an accepted therapy for patients with end-stage lung disease. The most important indications are chronic obstructive pulmonary disease (COPD) and idiopathic pulmonary fibrosis (IPF).[1] The incidence of lung cancer after Ltx is 20-25 times higher than in the general population, but diagnosis is often difficult.[2] We describe three Ltx patients suffering primarily from IPF.

Cases

Patient A presented 7 years after single Ltx with malaise. He was renovating his house. A HRCT of the chest showed an increasing opacity in the native lung replacing the fibrotic lesions (Figure 1). The differential diagnosis consisted of fungus infection, rejection and malignancy. Eventually he was diagnosed with a bronchogenic carcinoma, he died shortly after.

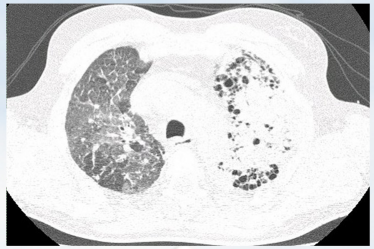
Patient B underwent a bilateral Ltx. In the explanted right lung a T2N2 carcinoma was found. Two years after radical chemo-radiotherapy progression appeared, shortly after he died.

Patient C complained of left pretibial pain before Ltx. ^{18}FDG-PET showed uptake in both lungs and the left tibia. The first was interpreted as compatible with her IPF, the latter was suggestive for Pierre Marie Bamberger. At the time of Ltx, however, she was diagnosed with an adenocarcinoma in both lungs. She died shortly after, see also Table 1.

Table 1: Summary of the clinical data of the presented cases.

	Patient A, male	Patient B, male	Patient C, female
Age diagnosis IPF / Ltx resp.	46 / 48 years	53 / 57 years	47 / 53 years
Histology	UIP	UIP	NSIP, fibrotic type
Smoking status	ex, 30 packyears	ex, 26 packyears	never
Treatment IPF (all acetylcysteine/prednisone)	cyclophosfamide	azathioprine	azathioprine
Single or bilateral Ltx	single (right)	single (left), after rejection bilateral	bilateral
Histology explanted lung	UIP, no malignancy	left: UIP, right: squamous cell carcinoma	massive bilateral adenocarcinoma
Time Ltx - carcinoma	8 years	in explanted lung	in explanted lung
Stage and treatment	IV: none, poor performance	T2N2M0 (IIIA): chemo- radiotherapy, progression: chemo	cT4N2M1b (IV): palliative radiotherapy
Time carcinoma - death	3 months	22 months	3 months

Figure 1: HRCT patient A.



HRCT of patient A showing an increasing opacity in the native lung replacing the fibrotic lesions, also ground glass areas in the transplant lung.

Discussion

After Ltx the incidence of bronchogenic carcinoma is increased. Risk factors are IPF *per se*, immunosuppressive drugs, single versus bilateral Ltx, smoking, increasing age and male gender.[3]

In 6.9% of single Ltx a bronchogenic carcinoma arises in the native lung as we found in patient A. This is rarely accounted when a bilateral Ltx is performed.[3] Moreover, nowadays most bilateral Ltx are done in Leuven. In 2% of patients a bronchogenic carcinoma is unexpectedly found in the explanted lung, as we found in patient B and C.[1]

Symptoms are usually aspecific or mimic an infection or rejection as in patient A.[4] Adenocarcinoma and squamous cell carcinoma represent the most frequent pathological types, followed by small cell carcinoma.[4] Although disease is often diagnosed in an early stage, the prognosis remains extremely poor.[3]

Conclusions

Transplanted IPF patients are at risk for developing primary bronchogenic carcinoma. Symptoms are often aspecific, diagnosis is difficult and prognosis is extremely poor. These cases stress the importance of actively searching for bronchogenic carcinoma before as well after lung transplantation in patients with IPF.

References

1. Mathew J, et al. Lung cancer and lung transplantation: a review. *J Thorac Oncol* 2009;4:753-60
2. Bellil Y, et al. Bronchogenic carcinoma in solid organ transplant recipients. *Curr Tr Opt Onc* 2006:6:77-81
3. Dickson R, et al. High frequency of bronchogenic carcinoma after single-lung transplantation. *J Heart Lung Transplant* 2006;25:1297-301
4. Minai O, et al. Bronchogenic carcinoma after lung transplantation: characteristics and outcomes. *JTO* 2008;3:1404-9

e-mail: lizzahendriks@hotmail.com
website: www.ildcare.eu

ild care foundation

Maastricht UMC+ | atrium | UZ LEUVEN