Authors' response to: Epithelial mesenchymal transition (EMT) in small airways of COPD patient

We understand the reservations highlighted by Sohal and Walters in their letter in response to our recent work published.[1]

In their letter, Sohal and Walters argue that E-cadherin and ZO-1 are absent in our immunohistochemistry analysis of small bronchi of smokers and COPD patients, and that if disappeared completely epithelium would fall apart.[1] In our study, we detected downregulation of E-cadherin and ZO-1 as well as a change of intercellular and apical distribution to diffuse cytoplasmic redistribution (figure 3B; in our work published in *Thorax* on 7 January 2013),[2] but not complete absence. Accordingly, previous observations in bronchial epithelium from asthmatics, smokers and smokers with COPD also showed absence of ZO-1 and decrease of E-cadherin with no detached epithelium,[3–5] which was attributed as part of the epithelial mesenchymal transition (EMT) process in large airways from asthmatics,[3] and small airways in smokers with or without COPD. In this regard, it is known that there are a large number of proteins (not only E-cadherin and ZO-1), which form the junctional complex, composed of tight and adherent junctions that are differentially downregulated in small airway epithelium,[4] and that although dysregulated, altogether would prevent the epithelium from falling apart.

We agree with Sohal and Walters with respect to the importance of the reticular basement membrane (Rbm) fragmentation as a key process of mesenchymal cell migration from the airway epithelium to submucosa. In fact, we would like to recognise the presence of Rbm fragmentation in figure 3 of our recent paper.[2] However, Rbm fragmentation appears to be more evident and important in large airways, where basement membrane is thicker, than in small airways where basement membrane is sometimes difficult to observe under light microscopy (×1000).

In their recent paper, Sohal and Walters showed double-stain for cytokeratin-(s) and the 'EMT marker' S100A4 in large airway epithelium and Rbm that may indicate EMT,[6] although some pictures showed seem saturated.[7] Although immunohistochemical analysis is an appropriate technique to study protein distribution, this is not always reliable for quantitative purposes. In our view, it is mandatory to perform a multiple technical approach to provide consistent results such as immunohistochemistry, immunofluorescence, real-time RT–PCR and protein array techniques used in our study.[2]

Taken together, we agree with Sohal and Walters that EMT is an important remodelling process in COPD and that we must consider this process in large and small airways for a better understanding of the disease process.

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