



ELSEVIER

respiratoryMEDICINE

LETTER TO THE EDITOR

Mast cell infiltration of airway smooth muscle in asthma

Liesker and colleagues report mast cell numbers in the airway smooth muscle in asthma are not increased compared to normal control subjects.¹ There are methodological concerns with their analysis, and they do not cite several studies which report that mast cell numbers are in fact increased.

Regarding the methodological concerns, the figure the authors show actually demonstrates very few mast cells *within* the airway smooth muscle bundles. In spite of this they are recording very high mast cell counts even in normal subjects, and counts that are much higher for normal subjects than those in previous studies.²⁻⁵ In some normal biopsies they have counted up to 260 mast cells/mm² in the smooth muscle. If this were the case, there would be more mast cells than smooth muscle cells in the bundle. It is evident in the figure provided that the mast cell count *within* the muscle bundles is nowhere near their mean 125 mast cells/mm². Using the scale bar provided in the figure, we estimate that the mast cell count within the bundles shown is approximately 15 mast cells/mm². This suggests that the authors are also counting mast cells in the adjacent mucosa. Since mast cell numbers in the adjacent mucosa are generally similar in both asthma and normal subjects, and present in higher numbers than within the muscle bundles as shown in the figure, this will interfere with their analysis. The authors only count two random high-powered fields rather than the entire airway smooth muscle bundle on a section. It is not transparent how they selected random areas and whether they validated that these areas were representative. This also raises the question of whether they were including mast cells outside the airway smooth muscle bundle. In our own study,² we paid particular attention in making sure that only mast cells *within* the airway smooth muscle bundles were counted. These were

also counted manually, not using an automated system as suggested by Liesker and colleagues. If in their normal biopsies mast cells are present in the airway smooth muscle bundles at a concentration of 125 mast cells/mm², then representative examples should have been shown. Since this work is in contradiction to several studies from independent research groups which have confirmed increased mast cell numbers in the airway smooth muscle from asthmatic subjects compared to normal controls, all of these studies and not just ours should have been cited and discussed.²⁻⁵

References

1. Liesker JJ, Ten Hacken NH, Rutgers SR, Zeinstra-Smith M, Postma DS, et al. Mast cell numbers in airway smooth muscle and PC(20)AMP in asthma and COPD. *Respir Med* 2007;101(5):882-7.
2. Brightling CE, Bradding P, Symon FA, Holgate ST, Wardlaw AJ, et al. Mast cell infiltration of airway smooth muscle in asthma. *N Engl J Med* 2002;346:1699-705.
3. Berger P, Girodet PO, Begueret H, Ousova O, Perng DW, et al. Tryptase-stimulated human airway smooth muscle cells induce cytokine synthesis and mast cell chemotaxis. *FASEB J* 2003;17:2139-41.
4. El-Shazly A, Berger P, Girodet PO, Ousova O, Fayon M, et al. Fraktalkine produced by airway smooth muscle cells contributes to mast cell recruitment in asthma. *J Immunol* 2006;176:1860-8.
5. Amin K, Janson C, Boman G, Venge P. The extracellular deposition of mast cell products is increased in hypertrophic airways smooth muscles in allergic asthma but not in nonallergic asthma. *Allergy* 2005;60:1241-7.

Peter Bradding, Chris Brightling
 Department of Infection, Immunity & Inflammation,
 Institute of Lung Health, University of Leicester,
 Glenfield Hospital, Leicester LE3 9QP, UK
 E-mail address: pbradding@hotmail.com (P. Bradding)