Aims Allergic bronchopulmonary aspergillosis (ABPA) and Severe asthma with fungal sensitivitiy (SAFS) are well recognised in the severe asthma population. Sensitisation to other moulds has also been described. Defined radiologically, immunological, and physiological features are associated with these conditions. We describe these features within a severe asthma population, identifying radiological, airway obstruction and immunological markers.

Methods Retrospective database analysis of referrals to a severe/difficult asthma service with comparison of radiological, immunological and physiological features in patients with severe refractory asthma (SRA), with and without fungal sensitivity (FS).

Results (table1) 141 patients with SRA, defined according to ATS criteria, were identified. 67 patients (47.5%) had an abnormal CT scan; the most common abnormalities being bronchial wall thickening (38.8%), bronchiectasis (28.3%) and mucus plugging (2.9%). 35 patients (24.8%) demonstrated fungal sensitisation (FS), 30 to Aspergillus fumigatus and 5 to “mould mix”. All patients, regardless of fungal sensitivity (FS) demonstrated a strongly eosinophilic phenotype with IgE, ENO and blood eosinophil levels of 1450.03 kU/L, 47.36 ppb and 0.95 x10⁹/L, for those with FS and 387.88 kU/L, 59.96 ppb and 0.8x10⁹/L, for those without FS. Consistent with a diagnosis of SRA obstructive spirometry was seen across both groups with post bronchodilator FEV1:FVC ratios of 0.57 (FS) vs 0.62 (SRA) CT appearances most commonly associated with fungal sensitisation were bronchial wall thickening (22.9%) and bronchiectasis (34.3%). In the presence of bronchiectasis and fungal sensitisation equal incidence of proximal and distal disease distribution was observed. Division of those with fungal sensitivity into ABPA, allergic bronchopulmonary mycosis (ABPM), defined according to criteria by Agrawal et al, SAFS and severe asthma without fungal sensitisation also demonstrated further differences (figure 1). Bronchiectasis was seen most frequently in those with SAFS and of the patients with ABPA and ABPM all patients had a serological diagnosis apart from 2 where peripheral bronchiectasis was demonstrated.

Conclusions In this population SRA is characterised by a strongly positive eosinophilic phenotype, airflow obstruction and a high prevalence of radiological abnormalities regardless of FS. FS is associated with bronchiectasis even when diagnostic criteria for ABPA are not met.