Materials and Methods:

37 OME children (28 boys, 9 girls), who underwent ventilation tube insertion due to longevity of effusion for more than 3 months or because of recurrent OME or language developmental disorders, were enrolled in the patient group between November 2015 and December 2016.The patient group were 3 to 15 years of age and OME was diagnosed by otoscopic examination or by a B-tympanogram on impedance audiometry.

In addition we selected 52 children(30 boys,22 girls) aged 2 to 14 years( mean±SD age,6.13±3.24 years) without any previous history or clinical findings of OME. All the subjects in the control group were selected from those who were visited in our clinic in an outpatient setting for reasons other than epistaxis or complaints related to adenotonsillar hypertrophy or tonsillitis during the same time period.

An ENT specialist examined all the children with respect to the permission of their parents. Children with predisposing conditions including head and neck anomalies, cleft palate or Down's syndrome were not included in the study.

Modified ISSAC questionnaire was filled out by the parents of all the children(21). Allergic rhinitis (AR) was established through positive answer to the following core question: have your child ever had a problem with sneezing, or a runny or blocked nose not associated with a cold or the flu? Pale and/or swollen mucosa and turbinates on examination could confirm the diagnosis. None of the children was receiving antihistaminic treatment one week before and at the time of the study. Anterior rhinoscopy was performed and all the children underwent nasal scraping for cytology evaluation. Blood samples from patients and control subjects were analysed for serum IgE concentration and for serum eosinophil counts. All children in the control group were selected from individuals who had sufficient blood taken for IgE level determination after reading complete blood count for another reason. Full explanation of the purpose of the study and a written informed consent of the parents of each child was obtained.

Nasal cytology

During anterior rhinoscopy cells were collected by light brushing of the middle third of the inferior turbinate with a cotton bud. The specimen was then air dried on a glass slide and stained with Geimsa's solution. The samples then were evaluated for the presence of inflammatory cells including eosinophils, neutrophis, basophils and bacteria and spores. At least 10 fields were observed from each slide under magnification of 400X. The count of each cell type was then conveyed as a percentage of the total cells (including mucinous and ciliated cells) and a score was assigned to each cell type according to the table 1(22).

Skin prick test

All children in the patient group and suspicious AR patients with a positive answer to the modified ISAAC questionnaire in the control group were skin prick tested on the forearm using allergenic extracts as listed in table 2. All extracts were purchased from Greer (Greer, NC, USA). Solutions of glycerinated histamine phosphate (5mg/ml) and glycerosaline were used as positive and negative controls, respectively. Wheals which were at least 3 mm wide were considered as positive. Provided there was a history of taking antihistamine medication in the previous 72 hours the prick testing was carried out again later on.