Ultrastructural changes in secretory otitis media both induced by platelet activating factor and eustachian tube obstruction

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The present work was conducted to study the local effectof platelet activating factor on the middle ear of experimentalanimals and to compare this effect with that induced byEustachian tube obstruction. The study was conducted on 30albino non lined rats 10 of which served as control and theother 20 animals were divided into two groups. In the first andsecond groups, platelet activating factor in a dose of 16 ~ wasinjected in the right hypotympanic bullae while the Eustachiantube was obstructed on the left side. The electron-microscopicchanges of the mucoperiosteal lining of the first group werestudied after 2 days and that of the second group were studiedafter 2 weeks.All the animals injected with platelet activating factor intheir middle ear developed otitis media with effusion after 2days. The middle ear mucosa exhibited subepithelialhaemorrhagic focci hyperaemia, oedema and leucocyticinfilteration and beginning of osteogenesis was observed. Adegree of inflammation was elicited in all operated ears.Two days after Eustachian tube obstruction, theepithelium showed nearly the same changes following plateletactivating factor injection but the epithelium remained flat. Noinflammatory cellular infilteration was seen and signs offibrosis could not be detected.Two weeks of platelet activating factor injection, thesame changes seen after 2 days were also seen but were mild.Marked presence of some megakaryocytes was evident. Thepresence of nee-osteogenesis was detected by the presence ofmodified fibroblasts in their way to be changed intoosteoblasts and osteocytes. The later change was clear 2 weeksafter Eustachian tube obstruction. Stratification andhyperplasia of the epitehlium were clearly seen 2 weeks afterEustachian tube obstruction. However the infilteration withmacrophages, plasma cells and PNL were not clearly seenfollowing Eustachian tube obstruction and whenever seen theywere not to the same extent described in cases of plateletactivating factor injection.Therefore it could be suggested that the pathogenesis ofotitis media with effusion involves a complex interaction ofmany factors and it seems that the release of various mediatorsmay follow Eustachian tube obstruction, allergy and infection.1- It could be concluded that rats are excellent models to study thevarious aspects of pathogenesis of otitis media with effusion.2- Platelet activating factor plays an important role in thepathogenesis of otitis media with effusion.3- Platelet activating factor in a dose of 16 J1g can induce otitis mediawith effusion by direct injection in the middle ear of experimentalanimals, The effect of platelet activating

factor is marked aftera few days and can last for 14 days but the effect becomes lessmarked.4- The histologic changes in ME mucosa following (PAF) injectionare remarkably similar to those induced by Eustachian tubeobstruction but not all signs of jnflammation accompaningplatelet activating factor injection could be seen in casesfollowing Eustachian tube obstruction.