● 사람의 접합상피의 치주 염증시 변화에 관한 전자현미경적 연구

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1. 정상 치은의 접합상피는 탈회된 법랑질 공간에 놓여 있으며 그 첨단은 백악-법랑 경계부에 있었다. 결합조직과의 경계는 직선적이며 3~4층의 세포가 치면에 평행하게 배열되어 있었다.
2. 염증 치은 접합상피는 백악질 상에 있었으며 결합조직과의 경계부는 손가락 모양의 돌기 상태로 돌출되어 있었고 입방형의 기저층 세포와 여러층의 비교적 납작한 기저상층 세포로 이루어져 있었다.
3. 정상 치은의 전자현미경적 관찰에서 법랑질 공간에 놓여 있는 치면부착 부위는 기저판과 반교소체로 이루어져 있었으며, 결합조직과의 경계를 이루는 기저층 세포도 기저판과 반교소체로 연결되어 있었고 중간부의 세포들은 교소체에 의해 연결되어 있었다. 세포돌기가 잘 발달되어 있었으며 세포질 내에는 다수의 사립체와 Golgi기관이 관찰되었다. 세포막 근처에는 작은 소포들이 다수 관찰되었다.
4. 염증 치은의 전자현미경 관찰에서 기저층의 세포는 길이가 긴 입방상피로써 결합조직과 기저판으로 연결되어 있었으며 부분적으로 끊어지거나 형태가 불분명한 곳도 관찰되었다.
5. 중간부의 세포는 세포돌기가 많이 나와 있었으며 인접세포와 교소체로 연결되어 있었으나 정상군에 비하여 그 수가 현저히 감소되어 있었다.
6. 접합상피의 치면 부착 부위는 기저판과 반교소체로 이루어져 있었으며 기저판의 연속성이 끊어지거나 비후되어 있는 곳도 관찰되었다.

● 치은조직내의 Aspartate aminotransferase, lactate dehydrogenase 및 β-glucuronidase의 활성도에 관한 생화학적 연구

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치주질환으로 경희대학교 치과병원 치주과에 내원한 11세에서 62세 사이의 환자 43명을 대상으로 Page and Schröeder의 분류법에 따라 치주질환을 분류하고, 치은열구출혈지수, 치주낭 깊이를 검사하여 치은조직을 채취하였다. 치은 조직내의 aspartate aminotransferase, lactate dehydrogenase, β-glucuronidase의 효소활성을 Sigma 측정법으로 spectrophotometer를 이용하여 비색법으로 측정하여 다음과 같은 결과를 얻었다.

1. aspartate aminotransferase 활성도는 급속진행형 치주염군이 정상군과 유년형 치주염군보다 높았으며($p<0.05$), 치은열구출혈지수 4인 부위가 가장 높았다($p<0.05$).
2. β-glucuronidase 활성도는 유년형 치주염군과 급속진행형 치주염군이 정상군과 치은염군보다 높았으며($p<0.05$), 염증의 심도에 따라 증가 경향을 보였다($p<0.05$).
3. aspartate aminotransferase와 β-glucuronidase는 치주낭 깊이가 깊어질수록 활성도가 높았다($p<0.01$, $p<0.001$).
4. lactate dehydrogenase는 치주질환별 차이 및 치은열구출혈지수, 치주낭 깊이변화에 따른 차이가

5. The lesion of localized juvenile periodontitis shows mild infiltration of inflammatory cell within sub-epithelial connective tissue and distribution rate of lymphocyte, plasma cell, PMNLs and macrophage is 56.20%, 40.09%, 1.50% and 2.20.

Antigenic cross-reactivity among periodontopathic microflora by indirect immunofluorescence

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It has been reported that common antigen exists among serotypes of *Bacteroides* species.

The purpose of this study is to detect that antigenic cross-reactivity among periodontopathic microflora.

Antigenic cross-reactivity was observed among *Actinobacillus actinomycetemcomitans* Y4, *Actinomyces viscosus* ATCC 15987, *Actinomyces nadeslundii* ATCC 12104, *Porphyromonas gingivalis* W50, *Prevotella intermedia* G8-9K-3, *Fusobacterium nucleatum* ATCC 25586, *Wolinella recta* ATCC 33238, *Eikenella corrodesn* FDC 373, *Bacteroides forsythus* ATCC 33238, *S. mutans* SK27, *S. sanguis* ATCC 10556 and *S. mitis* ATCC 10557. For the cross-reactivity test, antisera to the twelve strains of periodontopathic microflora was raised from rabbits. Antigenic cross-reactivity between these strains was performed by indirect immunofluorescence.

All experimental microorganisms showed strong response against self-antigen, mild response existed between *Actinomyces viscosus* and *Atinomyces naeslundii,* Between *Bacteroides forsythus* and Fusobacterium nucleatum, and among *Wolinella recta, Actinomyces viscosus* and *Actinomyces nadeslundii.*

These results suggested that antigenic cross-reactivity might be existed among periodontal periodontal microorganisms.

Further study is needed to detect the common antigen.

Electron microscopic study on human inflamed junctional epithelium

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The purpose of this study was to investigate the ultrastructural features of human inflammed junctional epithelium. The tissue specimens were taken from a patient with severe periodontitis.

After extraction of tooth with not detached junctional epithelium, the tissue were fixed with 2.5% glutaraldehyde in 0.1M cacodylate buffer(pH 7.4) for 5 hours and decalcified with 0.1M EDTA solution for 12 weeks. The tissue was postfixed with 1% osmium tetroxide in 0.1M cacodylate buffer and dehydrated and embedded in Epon 812. For light microscopic observation, the specimen was

cut into the 1μm semithin sections an stained with toluidine blue. For electron microscopic observation, the specimen was cut into the 80~90nm and stained with uranylacetate and lead citrate and examined with JEOL 1200 electron microscope.

The results were as follows :

1. At light microscope, the outer surfaces of inflamed junctional epithelium were attached to cementum, it's inner surface were projected digitally to connective tissue.
2. Electron microscope revealed that the basal cell of inflammed junctional epithelium showed numerous desmosomes and basal lamina, but basal lamina had lost it's continuity.
3. Intercellular spaces of junctional epithelium of periodontal pocket were wider than that of normal junctional epithelium and reduced number of desmosomes.
4. Many vacuoles and loss of continuity of basal lamina were observed at the attached junctional epithelium to the tooth surface.

A biochemical study on the activity of aspartate aminotransferase, lactate dehydrogenase and β-glucuronidase in gingival tissue

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The purpose of this study was to inverstigate the correlation of enzymes in the gingival tissues, such as aspartate aminotransferase, lactate dehydrogenase and β-glucuronidase with various periodontal disease, classified by Page and Schröeder. For this study, 43 patients aged 11 to 62 years were selected, and their sulcular bleeding index(SBI) and pocket depth were checked.

The enzyme activities were tested with spectrophotometer by Sigma method.

1. Activity of aspartate aminotransferase was higher in rapidly progressive periodontitis than normal or control group and juvenile periodontitis($p<0.05$), and 4 at grade of sulcular bleeding index than others($p<0.05$).
2. Activity of β-glucuronidase was higher in juvenile periodontitis and rapidly progressive periodontitis than normal group ($p<0.05$), and increased by severity of inflammation($p<0.05$).
3. The deeper periodontal pocket, the higher activity of aspartate aminotransferase($p<0.01$) and β-glucuronidase($p<0.001$).
4. There was no significiant change of lactate dehydrogenase among the various periodontal disease, and by sulcular bleeding index or pocket depth.($p<0.05$)

In conclusion, asparatate aminotransferase and β-glucuronidase were effective enzymes in measurement of activity of periodontal disease, especially in rapidly progressive periodontitis and lactate dehydrogenase was less sensitive enzyme in measurement of activity of periodontal disease.