

● **형광 현미경법 및 효소결합 면역흡착법을 이용한 *Bacteriodes gingivalis*, *Bacteriodes intermedius* 및 *Bacteriodes asaccharolyticus*의 혈청학적 연구**

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구강내 혐기성 세균 중 성인성 및 급성 진행성 치주염의 가장 중요한 독성 균주인 *B. gingivalis* ATCC 33277 및 *B. intermedius* ATCC 25261와 *B. gingivalis* 유사균주인 *B. asaccharolyticus* ATCC 25260 균주간의 혈청학적 교차반응 유무를 비교 관찰하고자 상기 3균주를 가토에 면역감작시켜 항 혈청을 얻은 후 형광현미경 및 효소결합 면역 흡착법을 이용하여 혈청학적으로 3균주간의 교차반응 유무를 관찰하였던 바 다음과 같은 결과를 얻었다.

1. 면역감작으로 가토에서 얻은 3가지 종류의 항 혈청은 형광 현미경법을 이용한 타균주간의 교차반응 검사에서 모두 양성반응을 나타냈다.
2. 3종류의 항 혈청을 각기 다른 두 균주로 면역흡착 반응을 시킨 후 효소결합 면역흡착법 및 형광 현미경법으로 교차반응 유무를 관찰한 결과 항 *B. asaccharolyticus* 항체만이 특이하게 *B. gingivalis* 및 *B. intermedius*에 대하여 교차 반응을 나타내고 있었고 다른 두항 혈청은 자가 균주에 대하여만이 높은 항체 반응을 나타내고 있으며, 타 균주와의 교차반응은 보이지 않았다.

상기와 같은 결과는 면역감작만으로 얻은 3가지 항 혈청간에는 교차반응이 나타날 수 있고 면역흡착법을 이용할 경우 항 *B. asaccharolyticus* 혈청을 제외한 다른 항 혈청은 타균주에 대하여 교차반응을 보이지 않는다는 것을 알 수 있다.

● **전신질환을 동반하는 사춘기전 치주염 환자의 임상, 미생물 및 면역학적 연구**

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전신적인 증상으로 간헐적인 고열, 위장관의 염증을 동반하며, 구강내에는 설저부위와 점막에 심한 궤양을 호소하고 광범위한 부위에 걸쳐 심한 치아의 동요를 나타내며 치조골의 부골현상을 보여 사춘기전 치주염으로 진단된 13세 남자환자에 대한 임상, 혈액학, 일반화학, 면역학 및 세균학적 검사를 실시하고 치료에 임한 결과 다음과 같은 결과를 얻었다.

1. 혈액학적 검사결과는 Hemoglobin 및 Hematocrit이 정상인보다 현격히 감소되어 있었고 다형 핵백혈구, 적혈구 및 임파구는 증가하였다. 혈청내 IgG, IgM, IgD, complement C₃, C₄는 정상인에 비하여 현저히 증가된 상태인 과면역반응을 보였으나 다형핵백혈구의 화학주성 및 탐식성 산소소모량은 정상인과 동일하였다.
2. 치태세균의 위상차현미경 관찰결과 일반치주염에서 나타나는 spirochetes 및 motile rods는 보이지 않고 non-motile cocci 및 filament가 주종을 이루었다. 치은연하치태의 혐기성세균 검사결과

Ennever's Calculus Surface Severity Index. They are classified into the following respective groups : Mandibular Group, Maxillary Group, Anterior teeth Group and Posterior teeth Group.

The concentration of Ca, Mg, Na, Zn, Cu, Mn and Fe in calculus was analyzed by atomic absorption spectrometry, and that of P by quantitation with molybdenic acid, and that of PO_4^{-3} , CO_3^{-2} and other organic substances by quantitation with infrared spectrometry.

the results were as follows :

1. The mean values of Ca and P concentration in calculus were $199.55 \pm 57.36 \mu\text{g}/\text{mg}$ and $116.60 \pm 31.52 \mu\text{g}/\text{mg}$ respectively, and the Ca/P ratios were 1.77 ± 0.45 .
2. The mean values of Mg, Na, Zn, Cu, Mn and Fe concentration in calculus were $7.46 \pm 3.75 \mu\text{g}/\text{mg}$, $6.89 \pm 3.46 \mu\text{g}/\text{mg}$, $8.78 \pm 6.24 \mu\text{g}/\text{mg}$, $0.41 \pm 0.47 \mu\text{g}/\text{mg}$, $0.54 \pm 0.55 \mu\text{g}/\text{mg}$ and $5.91 \pm 3.95 \mu\text{g}/\text{mg}$ respectively.
3. The mean values of PO_4^{-3} , CO_3^{-2} and other organic substances concentration in calculus were $87.75 \pm 29.11 \mu\text{g}/\text{mg}$, $11.66 \pm 5.65 \mu\text{g}/\text{mg}$, and $64.66 \pm 26.25 \mu\text{g}/\text{mg}$ respectively.
4. The Ca/P ratios and the mean values of coconcentrations of Ca, P, Mg, Cu, CO_3^{-2} and organic substances in the supragingival and subgingival calculus were almost same.
5. The mean values of Na and Mn concentration in subgingival calculus were roughly higher than those ones in supragingival calculus, but there was no statistical significance.
6. The mean values of Zn, Fe and PO_4^{-3} concentration in the supragingival calculus were significantly higher than those ones in the subgingival calculus.
7. According to the area, the Ca/P ratios in the subgingival calculus of the Maxillary posterior teeth area is the highest (1.85) and that in the supragingival calculus of the Mandibular posterior teeth area is the lowest (1.73). The total amount of the inorganic substances is the highest in the supragingival calculus of the Maxillary posterior teeth area, and the lowest in the subgingival calculus of Maxillary anterior teeth area.
8. The difference, according to age and sex, among the mean values of the concentrations of the various inorganic substances in the calculus could not be significant.

Serological study on the cross-reactivity of *bacteroides gingivalis*, *bacteroides intermedius* and *bacteroides asaccharolyticus* by indirect immunofluorescence and enzym-linked immunosorbent assay

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previous studies have been performed for the sero-identification of selected species of *Bacteroides* by immunofluorescence antibody techniques and enzyme-linked immunosorbent assay using species-specific rabbit antisera to *B. gingivalis*, *B. intermedius*, and *B. melaninogenicus*. However, these studies

have not commented on the serological cross-reactivity between these 3 species of black-pigmented Bacteroides. For the cross-reactivity study, antisera to *B. gingivalis* ATCC 33277, *B. intermedius* ATCC 25261 and *B. asaccharolyticus* ATCC 25260 were raised from rabbits. Preliminary study for observing the cross-reactivity between these species was performed by indirect immunofluorescence technique. Immunoabsorption of the antisera was done with bacterial cells from the other species and the species-specificity of the antisera was conformed by the absence of reactivity with bacterial strains from the other species by indirect immunofluorescence technique and enzyme-linked immunosorbent assay. Three representative unabsorbed antisera cross-reacted strongly with cells from and antiserum to *B. gingivalis* ATCC 33277 and *B. asaccharolyticus* ATCC 25260. Further study would be necessary to clarify the cross-reactivity between important oral black-pigmented Bacteroides from subgingival plaque or bacterial colonies for rapid identification.

Clinical, microbiological, and immunological study of prepubertal periodontitis with systemic disease

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A case of prepubertal periodontitis, age of 12, male exhibiting Behcet's syndrome was examined clinically, microbiologically, and immunologically. This patient had suffered from periodic high fever, recurrent tongue, and mucosal ulcer with gingival inflammation on all permanent dentition. Clinical examination showed sequestration of interdental alveolar bone in mandibular right first molar area and gingival inflammation. Hematological analysis revealed decrease of hemoglobin and hematocrit values and increase of numbers of neutrophils, red blood cells and lymphocyte when compared with a healthy person. Immunological examination showed significantly elevation of serum IgG, IgA, IgM, IgD, complement C3 and C4 levels to compare with a healthy person, and neutrophil chemotaxis and oxygen consumption rate were generally within normal limit. Plaque bacterial morphotype revealed no spirochete, no motile rod, and high numbers of non-motile cocci and filament. Anaerobic culture study of subgingival plaque revealed that predominant bacteria in ulcerated tongue were Gram(-) cocci, rods, Gram(+) cocci, rods, Staphylococci, Streptococci, and Capnocytophaga species. Subgingival plaque of sequestered alveolar bone area harbored predominantly Gram(+) rods, cocci, and Gram(-) rods.

However, black pigmented Bacteroides was not found in that area. Fungal infection in tongue and gingival area was not observed. After oral administration of tetracycline(750mg/day) for 2 weeks and oral prophylaxis, the denuded alveolar bone was exfoliated and newly formed attached gingiva was covered on the interdental col area. During local treatment, this patient had taken Oradexon regularly for prevention of recurrent high fever. This clinical, microbiological, and immunological results suggested that this patient may have a viral infection or autoimmune disease and a further study should be needed for clarifying the entity of this disease.