

치아가 6개, 2군의 치아가 6개였는데 2군에서 1군보다 세균층이 얇고 세균의 밀도도 낮게 관찰되었다.

- 21개 치아중 3개 치아(1군의 2개 치아와 2군의 1개 치아)의 백악질내에서 침투세균이 발견되었으며, 7개 치아(1군의 3개 치아와 2군의 4개 치아)의 상아세관내에서 침투세균이 발견되었다.

이상과 같은 결과에 비추어 볼 때 치근활택술시 시행하는 chlorhexidine치주낭 세척은 치근표면의 세균을 감소시키는 경향은 있으나, 상아세관내에 침투한 세균을 제거하지는 못하는 것으로 보인다.

● *Bacteroides forsythus*의 항원특성 및 조직독성에 관한 연구

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*B. forsythus*의 특이항원의 유무 및 다른 *Bacteroides*와의 공동항원 존재유무 그리고 생체독성에 관한 실험을 하기 위하여, 면역확산법 및 SDS-PAGE법, Western blotting법 그리고 쥐를 이용한 생체독성실험 결과 다음과 같은 결론을 얻었다.

1. *B. forsythus* ATCC 43037은 *B. intermedium* ATCC 25611, NCTC 9336, G8-9K-3, *B. gingivalis* 381, W50, A7A1-28 균주들과 면역확산법과 Western blotting법 결과 공동항원이 없는 것으로 밝혀졌다.
2. *B. forsythus* ATCC 43037은 SDS-PAGE법 결과 분자량 200kd이상의 특이단백을 갖고 있음이 확인되었다.
3. *B. forsythus* ATCC 43047은 Western blotting법 결과, 200kd marker 상방의 고분자량 단백질이 아주 강한 양성반응을 나타냈고, 다른 *Bacteroides* 균주와 유사한 저분자량 단백질들은 미약한 반응을 나타냈다.
4. *B. forsythus* ATCC 43037은, 조직독성 실험결과, 다른 *Bacteroides* 균주보다 더욱 심한 조직파괴상과 염증소견을 나타냈다.

● *Bacteroides intermedium*의 항원 이종성과 조직독성과의 관계에 관한 연구

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*B. intermedium*의 항원 이종성과 조직독성을 규명하고자, *B. intermedium*의 혈청형 A(ATCC 25611), 혈청형 B(NCTC 9336), 혈청형 C(G9-9K-3) 균주를 이용하여 가토로부터 세가지 균주에 대한 비특이 항체와 특이항체를 얻어 순수분리 시킨후 이를 이용하여 면역확산법, 간접면역형광법을 시행한 후 관찰하였고, 세가지 균주를 초음파 파절 후 SDS-polyacrylamide gel 전기영동 시켜서 Coomassie brilliant blue와 silver nitrate로 염색하여 관찰하였으며, 비특이 항체와 특이항체를 이용 western blotting 분석을 시행하였다. 조직독성 검사를 위해 적정농도의 세가지 혈청형 균주 부용액을 백서의

The results were as follows :

1. In adult periodontitis patients, cocci of 20.79% , 55.46% , motile of 15.76% , 2.42% , and total spirochetes of 29.41% , 4.96% were separately in diseased sites and relatively healthy sites and significant difference were present ($p < 0.005$).
2. In rapidly progressive periodontitis patients, cocci of 18.77% , 48.43% , motile rods of 14.22% , 3.65% , and total spirochetes of 34.52% , 8.66% were separately in diseased sites and relatively healthy sites and significant differences were present too ($p < 0.005$).

Effect of subgingival chlorhexidine irrigation on bacteria invaded the periodontitis-affected roots

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Previous studies have shown the presence of invading bacteria in the radicular hard tissues of periodontitis-affected teeth. This study was performed to examine the effect of single episode of subgingival chlorhexidine irrigation on periodontal attachment loss in nine patients were randomly divided into two experimental groups :

Group I nine teeth received root planing only : and Group II, twelve teeth received root planing and single irrigation with 0.2% chlorhexidine. One week after treatment the teeth were extracted, stained by Brown and Brenn method, and observed with light microscopy. The surface bacterial deposit of group I was considerably thicker and denser than that of group II. In 3 teeth bacterial invasion was found in cementum (group I : 2 teeth, group II : one tooth). In 7 teeth bacteria had invaded the dentinal tubules (group I : 3 teeth, group II : 4 teeth). In 6 teeth bacteria were detected in outer 1/3 and middle 1/3 portion of radicular dentin, and in one tooth (group II) the bacteria had invaded into pulpal 1/3 portion of radicular dentin. No bacteria were found in the portion to the root located apically to the epithelial attachment. These data suggested that single episode of subgingival chlorhexidine irrigation could reduce the surface bacterial deposit to some extent, but could not eliminate the bacteria invaded the dentinal tubules.

Antigenic characterization and virulence of *Bacteroides forsythus*

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Recently, a distinct species, *B. forsythus* in genus *Bacteroides* has been identified and characterized. They have a unique cell wall ultrastructure and yield inconsistent and usually negative results upon biochemical tests. However, their pathogenic potentials were not studied in detail. This study was

undertaken to investigate the antigenic characterization and cytotoxicity of *B. forsythus*. The type strains of *Bacteroides* of this study were *B. forsythus* ATCC 43047, *B. intermedius* ATCC 25611, NCTC 9336, G8-9K-3, *B. gingivalis* 381, W50 and A7A1-28. By immunodiffusion assay, *B. forsythus* do not share the common antigen compared with the other *Bacteroides* strains.

In SDS-PAGE and Western blotting assay, a *B. forsythus*-specific protein at molecular weight of more than 200kd was identified, and showed no cross reactivity with antisera specific to other *Bacteroides* strains.

In cytotoxicity test, clinical manifestations of animals injected with 3 species of *Bacteroides* showed diffuse swelling and abscess formations 2-4 days injection. Histologically, a8/*B. forsythus* induced more severe inflammatory features than other strains.

These results indicated that *B. forsythus* possesses unique antigen which is not shared with the other *Bacteroides* strains and this antigen might involve in the development of cytotoxicity.

The virulence and antigenic heterogeneity of *bacteroides intermedius*

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Recent studies have indicated that virulence of *B. intermedius* might be associated with serological difference. The purpose of this study was to characterize the heterogeneity of antigenicity and virulence on 3 different serotypes of *B. intermedius*. Three serotypes of *B. intermedius* (serotype A : *B. intermedius* ATCC 25611, serotype B : *B. intermedius* NCTC 9336, and serotype C : *B. intermedius* G8-9K-3) were used with rabbit polyclonal anti-A.B.C. antisera for examining of immuno-fluorescent, immunodiffusion, immunoblotting and in vivo virulence test. The characterization of antigenic heterogeneity of 3 serotypes in *B. intermedius* was performed with immunoblotting analysis, and in vivo virulence test performed with injection of viable bacterial suspension in the back of mice, subcutaneously, and were sacrificed at 1st, 2nd and 4th day for histological evaluation on the severity of inflammation and abscess formation. Serological reactions with unabsorbed antisera demonstrated cross-reactivity between serotype A and C in immunodiffusion and immunofluorescent assays, and disappeared after immuno-absorption.

Strong antigenicity was demonstrated in serotype A, B, C, and 110kd, 95kd, 50kd, respectively, in immunoblotting analysis. In vivo virulence study, serotype A showed diffuse swollen abscess, serotype B revealed localized or diffuse swollen abscess and serotype C showed localized abscess formation. This study suggested that serogroup specific antigen should be related to the periodontal disease severity. Further study should be needed to the prevalence of specific serogroup of *B. intermedius* on each periodontal disease.