<table>
<thead>
<tr>
<th><strong>Title</strong></th>
<th>Microbial colonization of spent Minocycline strips - a preliminary report</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Author(s)</strong></td>
<td>Leung, WK; Sun, Q; Yau, JYY; Jin, LJ; Corbet, EF</td>
</tr>
<tr>
<td><strong>Citation</strong></td>
<td>The 14th Annual Scientific Meeting of the International Association for Dental Research (Southeast Asian Division), Fort Canning Lodge, Singapore, 27-29 September 1999. In Journal of Dental Research, 2000, v. 79 n. 5, p. 1326, abstract no. 88</td>
</tr>
<tr>
<td><strong>Issued Date</strong></td>
<td>2000</td>
</tr>
<tr>
<td><strong>URL</strong></td>
<td><a href="http://hdl.handle.net/10722/53192">http://hdl.handle.net/10722/53192</a></td>
</tr>
<tr>
<td><strong>Rights</strong></td>
<td>This work is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License.</td>
</tr>
</tbody>
</table>
Microbial Colonization of Spent Minocycline Strips - A Preliminary Report.

W.K. LEUNG*, Q. SUN, J.Y.Y. Yau, L.J. JIN, E.F. Corbet
Faculty of Dentistry, the University of Hong Kong, Hong Kong SAR, PR China.

ABSTRACT
This study investigated the colonization pattern of oral microbes on Minocycline strips used as an adjunct in non-surgical periodontal therapy. Minocycline (1.4 mg/strip) and control strips were applied into all residual pockets (PD ≥ 5 mm, ≥4 pockets/subject) of adult periodontitis patients one month after a course of non-surgical periodontal therapy. The clinical experiment was conducted in a double-blind randomized parallel fashion. Strips were inserted into the pockets for 3 days each week for 2 occasions. Chlorhexidine mouthrinses were used during the weeks of strip placement. Spent strips were randomly recovered from 10 of the 32 patients and cultured. However, significantly increased prevalence of coliform bacteria was found on day-3 spent minocycline strips versus control (75% vs 0%, Fisher exact test, p = 0.03). Such difference was not observable among day-1 spent-control strips (55% vs 40% p = 0.26). This preliminary finding indicates the micro-ecology colonizing the spent test Minocycline strip used in the study. The preliminary findings indicate that the micro-organisms colonizing the spent test strip can be readily observable. A: unused control strip, B: control strip retrieved on day 3, C: test (minocycline) strip retrieved on day 3, D: test (minocycline) strip retrieved on day 6.

INTRODUCTION
Local delivery of antimicrobial agents into periodontal pockets offers further possibilities in periodontal therapy. A considerable number of agents using different vehicles have been developed. Some clinical studies showed the agents tested to be as effective as conventional mechanical therapy, however in most studies the agents were adjunctive to mechanical therapy. A related project (Sun et al. 1999) was carried out to investigate local delivery of minocycline strips could produce added clinical effects in residual periodontal pockets one month after a course of non-surgical periodontal therapy. The present investigation was carried out to study the short-term effects of the minocycline strips on subgingival microbiology.

MATERIALS & METHODS
Subjects:
- 10 adult patients randomly selected from a group of 32 periodontitis patients who participated in a double-blinded randomized parallel clinical trial on a local delivery Minocycline Strip (Vehicle-proteinpolymers, Dong Kiak Pharmaceutical Co., Seoul, Korea).
- Bleeding on probing (BOP) and probing depth (PD) of sample sites were measured using Florida Probe (Gainesville, FL).

Laboratory investigations:
- Spent minocycline and control strips retrieved at day 3 and 6 were subjected to:
  1) anaerobic culture using ETSA
  2) culture for coliform bacteria using MacConkey agar
  3) yeast culture using Sabouraud’s dextrose agar

RESULTS
Table 1. Subjects and sites in the study
<table>
<thead>
<tr>
<th>Age (yr)</th>
<th>n</th>
<th>Control</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>47.2 (9-60)</td>
<td>6</td>
<td>49.1 (36-64)</td>
<td>4</td>
</tr>
</tbody>
</table>

Table 2. Prevalence % of microbial morphotypes isolated from strips’ culture

Table 3. Morphotypes and counts of microbes isolated from strips culture

Figure 1. Minocycline strip used in the study. Left: new minocycline (test) strip; right: 3 day spent minocycline strip.

Figure 2. SEM pictures of Strips. Colonization by plaque bacteria such as cocci, rods and filamenous organisms on control and test (Minocycline) strips is readily observable. A: unused control strip, B: control strip retrieved on day 3, C: test strip retrieved on day 3, D: test (minocycline) strip retrieved on day 3, E: biofilm on control strip retrieved on day 6, F: biofilm on test (minocycline) strip retrieved on day 6.

CONCLUSION
1) Minocycline in polygalactolactone vehicle (1.4 mg strip) suppressed but did not eliminate the subgingival survival or colonization of isolated plaque species, certain amount of gram-negative rods were also found colonizing the spent test strip in the subgingival pocket environment. The elimination of gram-negative rods is needed to improve the clinical effects of this agent.

ACKNOWLEDGEMENT
We would like to thank Dong Kiak Pharmaceutical Co., Seoul, Korea and its distributor CNW (Hong Kong) Ltd. for providing the test and placebo strips.

* Corresponding author.