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<td><strong>Author(s)</strong></td>
<td>Pow, EHN; Leung, KCM; McMillan, AS; Leung, WK; Wong, MCM; Kwong, DLW; Lau, CS; Mok, TMY</td>
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<td><strong>Citation</strong></td>
<td>The 17th Annual Scientific Meeting of the International Association for Dental Research, Southeast Asian Division (IADR-SEA 2002), Hong Kong, China, 18-20 September 2002. In Journal of Dental Research, 2003, v. 82 Sp. Iss. C, p. C641, abstract no. 61</td>
</tr>
<tr>
<td><strong>Issued Date</strong></td>
<td>2003</td>
</tr>
<tr>
<td><strong>URL</strong></td>
<td><a href="http://hdl.handle.net/10722/54196">http://hdl.handle.net/10722/54196</a></td>
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Saliva Profile in Irradiated and Sjögren's Syndrome Patients

The University of Hong Kong, Hong Kong, SAR

INTRODUCTION
Radiotherapy is commonly used in the treatment of head and neck cancer. Sjögren's syndrome is an autoimmune disorder characterized by progressive lymphocytic infiltration of exocrine glands particularly the salivary and lacrimal glands. Both conditions induce xerostomia due to salivary gland damage and result in an increased risk of oral diseases like dental caries and persistent fungal infections. To our knowledge, no data are available comparing saliva profile between these two groups of xerostomic patients.

AIM
A cross-sectional study to compare the saliva profile of Sjögren’s syndrome (SS) patients and Nasopharyngeal carcinoma (NPC) survivors who had received conventional radiotherapy.

MATERIALS AND METHODS
Subjects
- NPC survivors (disease-free for >1 year) recruited from the Department of Clinical Oncology, Queen Mary Hospital, Hong Kong
- SS patients (diagnosed for >1 year) recruited from the Department of Medicine, Queen Mary Hospital, Hong Kong
- Age and gender matched controls attending Prince Philip Dental Hospital for review

Saliva collection and analysis
- Stimulated whole saliva (SWS): chewing on a rubber ring for 5 min
- Saliva volume, pH and buffer capacity were measured immediately using Sentron 501 Pocket FET pH meter (Sentron, WA, USA) and CRT® buffer (Vivadent, Liechtenstein) respectively.

Clinical examination
- Degree of xerostomia was assessed by rating the morphologic appearance of the tongue using a 4-point scale developed by Jansma et al (1992) (Figure 1).

RESULTS
A total of 149 subjects participated in this study (Table 1).

Table 1. Age and gender distribution, by group.

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<th></th>
<th>NPC</th>
<th>SS</th>
<th>Controls</th>
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<tbody>
<tr>
<td>n=38</td>
<td>n=51</td>
<td>n=60</td>
<td></td>
</tr>
<tr>
<td>Age (mean, SD)</td>
<td>50(11)</td>
<td>47(13)</td>
<td>47(11)</td>
</tr>
<tr>
<td>Gender (No., %)</td>
<td>Male 27(71)</td>
<td>3 (6)</td>
<td>23(38)</td>
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<tr>
<td></td>
<td>Female 11(29)</td>
<td>48(94)</td>
<td>37(62)</td>
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Saliva profile
The results are shown in Figure 2-4.

SWS flow
- Significant difference in SWS flow was found between 3 groups (p<0.01).
- The SWS flow was least in NPC survivors and less in SS patients than controls (p<0.01).

Buffer capacity of SWS
- Significant difference in buffer capacity was found between 3 groups (p<0.01).
- Buffer capacity was less in NPC survivors than SS patients and both groups were compromised compared with controls (p<0.05).

DISCUSSION
In both conditions saliva quality and quantity was impaired compared with controls. NPC survivors demonstrated a greater impairment than SS patients.

CONCLUSION
Radiotherapy for NPC seems to produce greater qualitative and quantitative damage to salivary glands than Sjögren’s syndrome.


Supported by CRCG-HKU