BACKGROUND:
Diagnosis, treatment and long-term retention of the furcation involved molars in chronic periodontitis patients always have been a challenge to the periodontal specialist. Continued periodontal breakdown in the furcation area may lead to total loss of the tooth unless these defects can be predicted, diagnosed and appropriately treated to preserve as long as possible the entire dentition. Two important risk factors for progression of periodontal disease – furcation involvement and pocket depth – are implicated in a multi-step process of the calculation of the risk (PRC) (2).

The demonstration of the association between actual pocket depth in molar sites and interradicular deterioration would be of great importance in suggesting treatment options for minimizing future risk for progression of the bone loss in furcation involved teeth (3, 4).

OBJECTIVES:
Assessment of the association of interradicular bone loss with probing pocket depth in chronic periodontitis patients.

MATERIALS AND METHODS:
Patients: 49 (25 male and 24 female) 30 to 64 years of age with untreated chronic periodontitis.
Radiographs: Bitewing and periapical radiographs were used for all the measurements.
Radiographic measurements: All further measurements were made using a periodontal probe (Williams periodontal probe - Hu-Friedy, Chicago, IL, USA). Interradicular bone loss was measured as the distance from the furcation fornix to the intact interradicular bone, interdental – from the CEJ to the alveolar margin (1).

Clinical examinations: At 6 sites per tooth was measured probing pocket depth – dB, midB, mB, mL, midL and dL.

Statistical analysis: SPSS v 15.0.

RESULTS:
The results of this study depict lower mean values for interradicular bone loss in maxillary molars than in mandibular (Diagram 1) probably due to the difficulties in the assessing bone loss in three-furcations on radiographic images.

The obtained data show that interradicular involvement of 1-2mm in mandibular molars may present in conjunction with mean values of the buccal pocket depth ≥4mm mesial and distal and ≥3mm midbuccal in patients with untreated chronic periodontitis (Diagrams 2, 3). The lingual measurements are similar – >4mm≤5mm for the mesial and distal and ≥3mm midlingual.

The results for maxillary molars are comparable with data for the mandibular multirooted furcation involved teeth. Measurements of range 1-2mm are associated with buccal and lingual pocket depth ≥4.5mm with some variations and ≥3mm pocket depth midbuccal and midlingual (Diagrams 4, 5).
Diagram 1. Mean values of the interradicular bone loss in chronic periodontitis patients

- Second left: 0.56, 1.81
- First left: 1.18, 1.69
- First right: 1.07, 1.64
- Second right: 1.28, 1.53

Diagram 2. Mandibular molars interradicular bone loss in conjunction with buccal pocket depth in chronic periodontitis patients

- #37: 1.81, 4.13, 4.55
- #36: 1.69, 3.02, 4.75
- #46: 1.64, 3.23, 4.36
- #47: 1.53, 2.95, 4.98

Mean values in mm
Diagram 3. Mandibular molars interradicular bone loss in conjunction with lingual pocket depth in chronic periodontitis patients

Diagram 4. Maxillary molars interradicular bone loss in conjunction with buccal pocket depth in chronic periodontitis patients
CONCLUSION:
The results of this study demonstrate that the interradicular bone loss is presented in chronic periodontitis patients in detectible means when the scores of the vertical dimensions reach 1-2mm. Interradicular bone loss is associated with >4mm<5mm interdental pocket depth and

>3mm pocket depth in the furcation entrance.

The treatment of the chronic periodontitis patients with successful reduction of the periodontal pockets may be effective in preventing future bone loss in the furcation area and long-term preserving of the involved teeth.

REFERENCES:

Address for correspondence:
Assoc. prof. Christina Popova, PhD
Department of Periodontology, Faculty of Dental Medicine, Medical University of Sofia,
1, Georgi Sofiiski Str., Sofia, Bulgaria
Mobile: +359 88 875 90 49; E-mail: hrpopova@yahoo.com