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研究室で撮影した本人のスナップ写真、及び発表論文等のコピーを添付

1．招へい責任者　加藤　熙　㊞

所属機関　北海道大学歯学部歯科保存学第二講座　職名　主任 教授

所 在 地　〒 060-8586　札幌市北区北 13 条西 7 丁目　電話　706-4266

招へい研究者氏名　王　培軍

所属機関　中国哈爾濱医科大学第一臨床医学院口腔正畸科　職名　講師

研 究 テ ー マ　歯周疾患者における矯正治療　—特にＭＴＭによる治療方法について－

2．日 本 滞 在 日 程

- 1998 年 8 月 2 日来日，札幌に入る。次日より、北海道大学歯学部歯科保存学第 2 講座にて研究に従事，歯周病学の臨床研修。
- 1998 年 10 月 26 日より，上記の研修に加えて、北海道大学歯学部歯科矯正学講座にて臨床研修を受ける。
- 1999 年 2 月 14 日，研修を終了し、帰国。

3．研 究 報 告

別紙書式を参考に、報告本文4000字以上で報告して下さい（枚数自由・ワープロ使用）

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歯周疾患者における矯正治療　—特にＭＴＭによる治療方法について—

王培軍

中国哈爾濱医科大学第一臨床医学院口腔正畸科●講師

加藤　熙　北海道大学歯学部歯科保存学第二講座●主任　教授

要旨

北海道大学歯学部にて加藤熙教授の指導のもと、歯周病学、歯科矯正学の臨床、教育、研究に関する研修を受けた。特に歯周病患者をいかにして治療するか、歯周病患者に矯正治療を施すにはどのようにな前処置をするべきか等、実践的技術を身につけることができた。今回、研修内容の概略を記すとともに、今後中国において必要とされるであろう治療法 MTM について考察する。今回の経験を中国の歯科治療に生かし、日中の友好のために今後とも貢献したい。

KEY WORDS: Minor Tooth Movement, Periodontics, and Dentition

研究報告

During my stay in the Hokkaido University, I have been involved in clinics, education, and researches. I had learnt some articles on M.T.M written by Pro. Kato before I came to Japan. It is a good chance for me to come to the Dental School, Hokkaido University and study under the supervision of Pro. Kato. I learnt not only some basic knowledge of Periodontics , but also basic practices on periodontal patients here.

In the clinic, I attended both periodontal clinic and orthodontic clinic. I learnt basic clinical skills of periodontal treatment, i.e. periodontal pocket probing, scaling/root planning, and minor surgeries. Because I had a lot of experience in orthodontics in China, attending Japanese orthodontic clinic is a good opportunity for me. I saw a lot of new skills, i.e. Lingual Arch, Edgewise appliance, chin caps, etc. I also learnt how to do orthodontic treatment for periodontally involved patients. In many cases, elimination of inflammation is

needed prior to orthodontic treatment. Otherwise, orthodontic force will affect the tissue as a traumatic force.

I helped teaching students during my stay. The pre-clinical training impressed me deeply because the students were using the equipment as similar as the real clinical ones. It was benefit to the students in learning clinical skills on models. The attitude of seriousness towards working has been developed before they work on the patients.

I was involved in some researches within the period. One of the researches was focused on the occlusal traumatism. Normal occlusal force or even minor orthodontic force can be worked as a traumatic force when the gingival condition is not healthy. Cats were used for the experiment and 100g of orthodontic force was applied to the artificially made animal models. In the pathologic observation, Osteoclastic (bone resolving cell) activities were found around the tooth. This experiment is still underway.

I would express my thankfulness to the Medical Committee of Japan-China for supporting me during the study. When I go back to my country, I will share my experience and technique with my colleague and teach my students. I am sure it will be helpful to our school and our country. I will also contribute to the friendship between Japan and China, the Hokkaido University and Harbin Medical University in the future.

I would review the articles on Minor Tooth Movement (M.T.M) which is not so common in China yet. I think it is very important to learn this technique because it is an easier and less time taking technique.

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Minor Tooth Movement (M.T.M) is defined as a limited tooth movement within a few teeth. It differs from the Major Tooth Movement in that it uses minor orthodontic force in a limited teeth range. M.T.M can deal with most of the dental disorder rather than skeletal dysplasia. It does not take very long period of treatment as the Major Tooth Movement.

In most cases, M.T.M works as one phase of the periodontal treatment. It has been widely used in correcting displaced teeth caused by alveolar bone loosing or teeth loosing.

The indications for the use of minor tooth movement may be categorized in eight main classes: esthetic purposes, prosthetic purposes, periodontal purposes, procedural purposes, interception of malocclusion in the developing dentition, prevention of pathology of the oral tissues, correction of speech defects, and facilitation of oral surgical procedures.

The etiologic factors causing malposition of the teeth may be grouped into four main categories: hereditary, congenital, systemic, and locally acquired factors. Any one of these factors may be responsible for the malocclusion. The acquired local factors components of the occlusal forces, improper position and distribution of teeth, occlusal attrition, periodontal disease, inadequate restorations, pernicious habits, inadequate or misdirected muscular activity, and labial freni.

FACTORS OF MALOCCLUSION

One of the primary characteristics of periodontal disease is the loss of the alveolar support of the affected teeth. Forces of a magnitude insufficient to move a tooth with normal alveolar bone may cause movement of a tooth with reduced support. When a force is applied to a tooth, resistance to movement is

derived partly from the periodontal fibers attached to the bone and tooth on the side from which the force comes.

When the periodontal pocket is palatal to an anterior tooth, the tooth is moved labially, since the thin labial plate and the restraining forces of the lip may not offer sufficient resistance. When periodontal treatment removes the granulation tissue and the pocket heals, the force acting to move the tooth is eliminated. Pressure of the lip in the opposite direction frequently will move the malposed tooth back to its original position if occlusal and other forces are no longer present.

Periodontal disease is often characterized by gingival enlargement as a result of inflammation and edema. Gingival enlargement associated with several systemic diseases, with fibromatosis, and with the use of Dilantin sodium, can cause migration.

The tongue is an active force in the development and maintenance of the normal positions of the teeth. The morphology, physiology, coordination, and mode of function of the patient's tongue should be evaluated for their influence on the dentition.

CASE SELECTIONS

The choice of cases suitable for minor tooth movement is based upon knowledge of the objectives that can be obtained by the procedures and an understanding of their limitations. A thorough examination is essential for successful selection because what may appear at first to be a minor malposition may really be part of a generalized malocclusion or malrelationship. If the diagnosis is not correct, the proposed movement procedure may cause

unexpected side reactions or a final result that may be worse than the present malposition.

Minor movement techniques may be considered if most of the teeth are in correct relationships, if the malpositions are limited to relatively few teeth, and if the desired movement is not more than a few millimeters. In the case of extruded teeth the degree of extrusion is especially important, since extensive depression is difficult to achieve.

FORCES APPLIED FOR MINOR TOOTH MOVEMENT

All tooth movement is the result of the application of forces to the crowns of the teeth being moved. The response of the tooth and the direction of movement are determined by the type and direction of forces applied, modified by the resistance of the periodontium and the opposing forces.

To produce movement, forces may be derived from the effort of a metal wire to resist distortion by returning to its passive position after it has been displaced. Forces also may be obtained from the ability of rubber or elastic acrylic to return to its passive state after having been stretched or compressed. Methods used for minor tooth movement component of acrylic-and-wire appliance, fixed arch wires, labial arch appliance, lingual arch appliance, sectional arches, steel alloy wire ligatures for anchorage, soft rubber tooth positioners, elastic acrylic positioners, contracting silk ligatures, bite plates and bite planes, tongue depressors, functional appliances and depressor appliances.

M.T.M AND ADULT

Minor tooth movement and complex orthodontic procedures are frequently indispensable in the rehabilitation of the adult dentition. Tooth movement can make the apparently untreatable case manageable. The esthetics of

periodontal and prosthetic treatment can be enhanced. Repositioning of teeth can frequently correct abnormal and eccentric function of the mandible and thus provide a sound basis for subsequent restorative procedures. By correcting abnormal axial inclinations and tooth relationships and by improving anatomic and functional relationships of the teeth and jaws, the number of abutment and crowned teeth frequently can be reduced.

M.T.M AND CHILDREN

Minor tooth movement must be applied with full understanding of the growth and development of the dentofacial complex. In a basically normal occlusion early retraction of a severely protruding maxillary incisor to correct abnormal muscle function and habits of the lip and tongue may be desirable therapy. Minor movement procedures play an important role in the prevention and interception of developing malocclusions but cannot be considered as early stages of orthodontic treatment.

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In China, lots of patients are waiting for the periodontal and orthodontic treatment. Time and money for the treatment needs to be taken in consideration. M.T.M is an appropriate technique for answering to these demands. As I could cover both periodontal and orthodontic field, I will do my best to become a pioneer of this technique through my continuous studying and practice.

I would express my thankfulness to Professor Hiroshi Kato and Lecturer Ryuji Sakagami in the Periodontal Department, to Associate Professor Tohru Imai in the Orthodontic Department as well as to the School of Dentistry, Hokkaido

University. I would also express my thankfulness to the Medical Committee of Japan-China for supporting me during the study.

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