



## TAOMFR - general description, evolution and perspectives

### General Description

All the seven dental schools (three national and four private schools) in Taiwan have formal certified dental curriculum in both undergraduate and graduate courses. For undergraduate course, oral and maxillofacial radiology is a compulsory subject comprising lecture and laboratory classes encompassing fundamental radiological principles, various basics and advanced radiographic techniques as well as radiological interpretation. For graduate courses, it is a selective subject for the dental graduate students of master and PhD degrees. On the other hand, for clinical practice, oral and maxillofacial radiology in Taiwan has not yet been an independent department.

Hereby, we would like to introduce the current condition of Kaohsiung Medical University as one of the representative status of oral and maxillofacial radiology in



Figure 1

Taiwan. As aforementioned, the oral and maxillofacial radiology of our institution is not an independent department and affiliates to the oral diagnostic department which implements the conventional intra-oral and extra-oral radiographic examinations together with the practice of clinical and histopathological diagnoses. Starting from September of 2006, film-based radiography in the oral and maxillofacial radiology section of our institution has gradually been replaced by dental digital radiography using a photostimulable phosphor storage plate (PSP) system for both intra-oral and extra-oral radiography as well as charge coupled device (CCD) system for extra-oral radiography (Figure 1).

Most recently, cone beam computerized tomography (CBCT) is also available in our oral and maxillofacial radiology section (Figure 2).



Figure 2

However, some special radiographic examinations including computerized tomography (CT), magnetic resonance imaging (MRI), angiography, scintigraphy and positron emission tomography (PET)/PET-CT have to be ordered and performed by the general radiology department in our hospital (Figure 3).



Figure 3

In the future, we are planning to recruit ultrasound (US) examination for the head and neck lesions. Moreover, we would plan to establish an autonomous oral and maxillofacial department in our hospital. Nevertheless, in the dental college we have actually already established the Oral and Maxillofacial Imaging Center (OMFIC) which will be briefly in subsequent section in our institution.



## **Introduction on Oral and Maxillofacial Imaging Center (OMFIC)**

### ***1. Reasons for founding***

In order to create a global unified development of dental science; amalgamation of oral & maxillofacial imaging (OMFI) research; enhancement of techniques for diagnostic & therapeutic imaging and fostering of related talented workforce as well as a lack of an organization specific to OMFI in Taiwan. College of Dental Medicine of Kaohsiung Medical University has founded the OMFIC in April of 2008 to expand research, teaching and service in the area of OMFI.

### ***2. OMFIC mission***

- [a]** Eagerly assists the establishment of a department of OMFI in our teaching hospital.
- [b]** Establish diagnosis, therapy and follow-up of OMFI in different related departments; a common platform for associated clinical and animal experimental studies will also be launched.
- [c]** Cooperate with other related departments to train the certified workforce in inter-field of OMFI (include doctors, technicians, and researchers); also to augment and continue education training of the professional workforce.
- [d]** To improve the teaching content and technique on imaging; enhance the basic and clinical dental digital radiography.
- [e]** Promote and encourage international exchange; integrate advanced Asian-Pacific and American-European countries.
- [f]** Combine basic research manpower and resources on OMFI.

### ***3. Research***

Due to the paucity of specialists and researchers focusing on the area of OMFI in Taiwan, OMFIC would possess dominant competitive power. The international competition is still inadequate; however, if the below-described researches have sound results, then, future development can keep pace with the countries of both Asian-Pacific and American-European regions.

#### ***A. Animal studies***

- [1]** Induction and imaging (chiefly cone beam CT) of animal models of cancers of oral cavity and other regions.
- [2]** MRI imaging analysis of inoculation and implantation of cancers of animal models.
- [3]** MRI imaging analysis of pathological confirmed hepatic and pulmonary metastases.
- [4]** Analysis and application of PET and CT on animal models of cancers.
- [5]** Analysis and application of angiogram on animal models of cancers (angiogenesis observation and embolization effect).
- [6]** Analysis of the effect of antivirus pharmaceutical compound applied to the therapy on animal models of cancers.
- [7]** Evaluation of the effect of IA approach on animal models of cancers.
- [8]** Evaluation of the effect of chemotherapy on animal models of cancers.
- [9]** Alterations of the hematogenic factors during induction of animal models of cancers.
- [10]** Evaluation of the effect of radiation therapy on animal models of cancer.
- [11]** Evaluation of the effect of photodynamic therapy on animal models of cancers.



[12] Consultation of the technique, pathology, imaging, and therapy of animal models of cancer.

#### *B. Clinical diagnostic and therapeutic studies*

- [1] To study the diagnostic and treatment follow-up imaging on the relationship of oral diseases and systemic diseases.
- [2] Early imaging detection on early stages of the diseases (include cancer), such as using the new equipment of PET, MRIS.
- [3] Application of animal experimental results on clinical studies.

### **Academy Establishing**

The establishment of oral and maxillofacial radiology society in Taiwan was promoted greatly with the rapid internationally progress of oral radiology. The Taiwan Academy of Oral & Maxillofacial Radiology (TAOMFR) was officially founded in 2000, two years before the 4th Asian Pacific Conference on Oral and Maxillofacial Radiology was held in Kaohsiung (2002). At that time, our academy was under the leadership of Professor L-M Lin, and subsequently Professor S-L Lian. In the very beginning, we have small number of society members but now, the total members of our academy has been increased to 70, which indicated a gradually flourishing academy. Conference on Oral and Maxillofacial Radiology in Taiwan was held annually starting from 2000. Significantly, to be regarded as the milestone of growth of our academy, starting from 2009, broad certified specialists for oral and maxillofacial radiology in Taiwan were accredited and we now have 21 broad certified oral and maxillofacial radiology specialists in Taiwan. In addition, our society has constructed its own web site in 2009 and, in addition, launched its own official scientific on-line journal (Cases Journal TAOMFR) publishing not only well-described case reports or case series reports but also technical notes as well as research papers related to head and neck imaging written in either English or Chinese (<http://www.taomfr.tw/>).

### **Prospective**

Despite a rather short term of development, oral and maxillofacial radiology has urged to become one of the vital branches of dentistry in Taiwan. Hoping, its continual expansion will contribute to the progress of dentistry in Taiwan. Honestly, we still lack advanced imaging devices such as MRI, PET, US and others in dental departments of Taiwan; however, we can take full advantage of these types of advanced equipment in our medical department. In addition, we should fortify our relationship with general radiologists for the advance of oral and maxillofacial radiology in Taiwan.

Finally, although we appear to have come across the barren land of oral and maxillofacial radiology in Taiwan, we still obviously have a long and difficult road to fight in order to secure abreast with the fast global upsurge in technology and knowledge within the field of oral and maxillofacial radiology. Encouraging each other to work harder and step advance with unconquerable, innovative and revolutionary spirit to acquire the marvelous prospect of oral and maxillofacial radiology in Taiwan! 