

Maxillofacial Orthognathics

1. Staffs and Students (April, 2010)

Professor	Keiji MORIYAMA	
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2. Purpose of Education

The goal of the education program in Maxillofacial Orthognathics is to provide an education related to craniofacial growth and development, and stomatognathic function in order to develop proficiency in improvement of a wide variety of malocclusions and malformations.

Fourth and fifth dental students will attend lectures and clinical laboratories, and fifth and sixth students will participate in the patient care clinic to acquire a broad range of general knowledge of a wide variety of malocclusions and malformations, and involvement of treatment. Tutorial lessons will be also provided students as a part of clinical lecture so that it supports them to understand cleft lip and/or palate and other congenital craniofacial conditions.

The Graduate Program provides the biological science education related to the control mechanism of patterning and morphogenesis in the craniofacial region using molecular genetics and morphological analysis through patients born with cleft lip and/or palate and other congenital craniofacial conditions. It also provides the clinical education of orthodontics necessary support to gain an appreciation of their role in the team approach to comprehensive patient care.

3. Research Subjects

- 1) Basic and clinical studies of cleft lip and/or palate and other congenital craniofacial conditions
- 2) Morphological and physiological studies of facial deformity
- 3) Physiological study about control mechanism of stomatognathic function
- 4) Functional MRI study in the craniofacial region
- 5) Evaluate changes in soft tissue following maxillofacial surgery using 3D images

4. Clinical Services

In the clinic, we treat a large number of patients presenting a variety of malocclusions to be assigned to group practice in order to gain valuable experience in diagnosis, treatment planning, orthodontic therapy, and patient management. Especially for patients born with cleft lip and/or palate and who need craniofacial and orthognathic surgery, we have clinical meetings and conferences for the comprehensive care through a team approach with maxillofacial surgeons, maxillofacial prosthodontists and speech therapists. We also provide supportive counseling to families who have members with congenital anomalies before the treatment.

5. Publications

Original Article

1. Ishizaki T, Baba Y, Suzuki S, Doi H, Yoneyama T, Moriyama K. Comparison of the efficiency of two types of intraoral splints in the RED system for maxillary distraction osteogenesis. *Orthod Waves* 69(3):102-9, 2010.
2. Choi SJ, Song IS, Feng JQ, Gao T, Haruyama N, Gautam P, Robey PG, Hart TC. Mutant DLX3 disrupts odontoblast polarization and dentin formation. *Dev Biol.* 344(2):682-92, 2010.
3. Rice DP, Connor EC, Veltmaat JM, Lana-Elola E, Veistinen L, Tanimoto Y, Bellusci S, Rice R. Gli3Xt-J/Xt-J mice exhibit lambdoid suture craniosynostosis which results from altered osteoprogenitor proliferation and differentiation. *Hum Mol Genet.* 19(17):3457-67, 2010.
4. Sato K, Haruyama N, Shimizu Y, Hara J, Kawamura H. Osteogenesis by gradually expanding the interface between bone surface and periosteum enhanced by bone marrow stem cell administration in Rabbits. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod.* 110(1):32-40, 2010.
5. Suda N, Hattori M, Kosaki K, Banshodani A, Kozai K, Tanimoto K, Moriyama K. Correlation between genotype and supernumerary tooth formation in cleidocranial dysplasia. *Orthod Craniofac Res.* 13(4):197-202, 2010.
6. Ganburged G, Suda N, Saito M, Yamazaki Y, Isokawa K, Moriyama K. Dilated capillaries, disorganized collagen fibers and differential gene expression in periodontal ligaments of hypomorphic fibrillin-1 mice. *Cell Tissue Res.* 341(3):381-95, 2010.
7. Tamura R, Ono T, Sato M, Hasegawa M, Moriyama K, Araki K. Association between positional changes in laboratory values and severity in subjects with obstructive sleep apnea syndrome. *J Med Dent Sci.* 57(2):147-54, 2010.
8. Suda N, Bazar A, Bold O, Jigjid B, Garidkhuu A, Ganburged G, Moriyama K. A Mongolian patient with hypohidrotic ectodermal dysplasia with a novel P121S variant in EDARADD. *Orthod Craniofac Res.* 13(2):114-7, 2010.
9. Inokuchi T, Kawamoto T, Aoki K, Aoki A, Nagahama K, Baba Y, Suzuki S, Shibayama M, Mano Y, Ohya K, Moriyama K. The effects of hyperbaric oxygen on tooth movement into the regenerated area after distraction osteogenesis. *Cleft Palate Craniofac J.* 47(4):382-92, 2010.
10. Aoki A, Kawamoto T, Aoki K, Inokuchi T, Kudoh A, Nagahama K, Baba Y, Suzuki S, Ohya K, Moriyama K. Amount of bone lengthening affects blood flow recovery and bone mineralization after distraction osteogenesis in a canine cleft palate model. *Cleft Palate Craniofac J.* 47(3):303-13, 2010.
11. Ono T, Okuma M, Hamada T, Motohashi N, Moriyama K. A case of ring chromosome 18 syndrome treated with a combined orthodontic-prosthetic approach. *Cleft Palate Craniofac J.* 47(2):201-10, 2010.
12. Higashihori N, Buchtova M, Richman JM. The function and regulation of TBX22 in avian frontonasal morphogenesis. *Dev Dyn.* 239(2):458-473, 2010

Books

1. Haruyama N, Hatakeyama J, Hatakeyama Y, Gibson CW, Kulkarni AB. Chapter 3, Lessons from the amelogenin knockout mice. In: *Amelogenins: multifaceted proteins for dental and bone formation and repair.* 2010, pp. 25-31. M. Goldberg Ed., Bentham Science Publishers Ltd.