



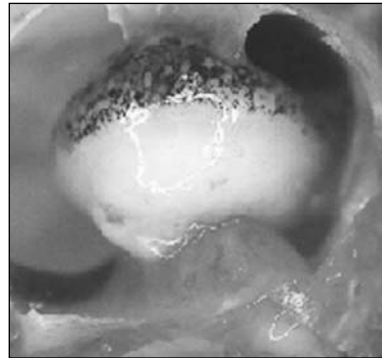


OTOLARYNGOLOGY

AJOU UNIVERSITY SCHOOL OF MEDICINE

SUWON, KOREA

[Korean Language\(Click here\)](#)

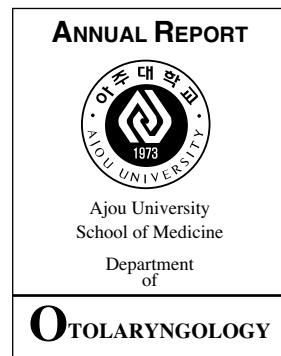


Experimentally Induced
Cholesteatoma in the EAC
of Mongolian Gerbil

Ajou Otolaryngology Symposium
The 9th AJOU OTOLARYNGOLOGY SYMPOSIUM

NEW

Cochlear Implantation



Annual Reports

1994-1995	1999-2000
1995-1996	2000-2001
1996-1997	2001-2002
1997-1998	2002-2003
1998-1999	2003-2004

Faculty Information

Annual Reports

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Case and Topic Schedules

Clinical Page

Case and Topic Protocols

Basic Science Research

Students Lecture



Ajou University Hospital, Suwon, Korea

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Last Update : May 2, 2004

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INTRODUCTION

This year marks the 10th anniversary of Department of Otolaryngology. As we celebrate the 10th anniversary of our Department, it is indeed appropriate to recollect what we have done in the last 10 years and to plan what we have to do in the next 10 years.

Two years have passed since we established new relationship of trust and mutual support with our new faculties and staff members. This year we have treated more outpatients, and performed more operations, and also published more papers than last year. Also, this year Ajou Hearing Center opened. It quickly established itself in providing an excellent service for this community, which continues to expand and represent a major source of pride in our Department. This greater step in the development of the Department was taken with the help of all the faculty members, residents, nursing staffs and laboratory technicians. Their loyal assistance is acknowledged with gratitude, and we also appreciate the support from the School of Medicine and the University in helping us to achieve our fundamental goals.

Respectfully,

Keehyun Park, M.D., Ph.D.

Chairman

Department of Otolaryngology

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EDUCATION

Medical students
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Visiting Professors

PATIENT CARE

FACILITIES AND EQUIPMENTS

ROSTER

FacultyKeehyun Park, M.D. Professor and Chairman

M.D. Yonsei University, 1976.

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Otology, Neurotology & Skull Base Surgery

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D.D.S. Seoul National University, 1989.

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Otology, Neurotology & Skull Base Surgery

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M.D. Yonsei University, 1994.

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Otology, Neurotology

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Affiliated facultyHee Yong Lee, M.D. Clinical Professor

M.D. Yonsei University, 1967.

Ph.D. Yonsei University, 1974.

Chae-Shik Chung, M.D. Clinical Professor

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Hyung Bo Shim, M.D. Clinical Professor

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Jeong Tai Kim, M.D. Clinical Professor

M.D. Catholic University, 1969.

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Ho Sung Lim, M.D. Clinical Associate Prof.

M.D. Yonsei University, 1983.

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Jeong Bae Kim, M.D. Clinical Associate Professor

M.D. Chung-Ang University, 1981.

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Dong Im Chang, M.D. Clinical Associate Prof.

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M.D. Yonsei University, 1987.

M.S. Ajou University, 1996.

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M.D. Chosun University, 1989.

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Jin-Seok Lee, M.D. Clinical Assistant Prof.

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Ph.D. Ajou University, 2001.

Jang Ho Cho, M.D. Clinical Assistant Prof.

M.D. Hallym University, 1991.

Dong-Hoon Lee, M.D. Clinical Assistant Prof.

M.D. Chung-Ang University, 1991.

Ph.D. Ajou University, 1999.

Sun-Bok Song, M.D. Clinical Associate Prof.

M.D. Inje University, 1986.

Joo-Ho Han, M.D. Clinical Professor

M.D. Chosun University, 1976.

Ph.D. Wonkwang University, 1996.

Soon Chul Huh, M.D. Clinical Professor

M.D. Hanyang University, 1980.

M.S. Hanyang University, 1987.

Ho Sung Kim, M.D. Clinical Professor

M.D. Seoul National University, 1982.

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M.D. Yonsei University, 1988.

Jung Sun Yeun, M.D. Clinical Assistant Prof.

M.D. Yonsei University, 1989.

Sang-Joon Shin, M.D. Clinical Assistant Prof.

M.D. Yonsei University, 1990.

Seong-Mo Koo, M.D. Clinical Assistant Prof.

M.D. Yonsei University, 1990.

M.S. Ajou University, 1997.

Byung-II Park, M.D. Clinical Assistant Prof.

M.D. Pusan University, 1991.

M.S. Pusan University, 1995.

Sung-Yeun Ahn, M.D. Clinical Assistant Prof.

M.D. Yonsei University, 1991.

Ho-Sun Lee, M.D. Clinical Associate Prof.

M.D. Inje University, 1986.

Young-Han Goh, M.D. Clinical Assistant Prof.

M.D. Pusan University, 1993.

M.S. Pusan University, 2003.

Hee Sub Chung, M.D. Clinical Assistant Prof.

M.D. Inje University, 1993.

Residents

FOURTH YEAR

Jun Ho Lee, M.D.	M.D. Yonsei Univ. Wonju College, 1996
Sang Jun Ryu, M.D.	M.D. Ajou University, 1999
Young Ju Kim, M.D.	M.D. Chunbuk National University, 1999

THIRD YEAR

Jin Seok Lee, M.D.	M.D. Ajou University, 2000
Seung Ju Lee, M.D.	M.D. Yonsei Univ. Wonju College, 2000
Min Jung Cho, M.D.	M.D. Ajou University, 2000

SECOND YEAR

Jang Woo Lee, M.D.	M.D. Ajou University, 2001
Jung Yun Mo, M.D.	M.D. Ajou University, 2001

FIRST YEAR

Sung Ook Kang, M.D.	M.D. Yonsei University, 2001
Yong Ro Yoon, M.D.	M.D. Yonsei University, 1999

Research Fellow

Alexander Raynov, M.D.	M.D. Sophia University, Bulgaria, 1996
Joon-Ho Bae, M.D.	M.D. Yonsei University, 2002
Jean La Rue Noffke, R.N.	R.N. Greenville Technical College, South Carolina, U.S.A., 1980

Staff members in addition to faculty

NURSE

Moon-Hee Chung, R.N.

NURSE AID

Eun-Young Cho
Seon-Young Han
Kyeong-Ae Choi
Yang-Soon Kim
Hyun-Mi Jo

AUDIOLOGICAL LABORATORY

Young-Sook Kang
Hyoung Ah Mun

VESTIBULAR LABORATORY

Mi-Yoo Koh

VOCAL DYNAMIC & SPEECH LABORATORY

Seo-Ji Ahn
You-Jeong Kim
Nam-Ju Bae
Jin-Hee Hong
Eun-Sil Jung

MOLECULAR BIOLOGY LABORATORY

Hye-Jin Lim

SECRETARY

Mi-Hee Cheon

SOCIETY MEMBERSHIPS, UNIVERSITY & HOSPITAL COMMITTEEKeehyun Park, M.D.

Korean Medical Association
Korean Otolaryngological Society
Korean Audiological Society, Trustee
The Society of Korean Logopedics & Phoniatics
International Association of Logopeics and Phoniatics
Korean Society of Medical Education
Korean Otology Study Group, Trustee
Korean Skull Base Surgery Society, Trustee
Aeromedical Association of Korea, Trustee
Review Board : Journal of Korean Otolaryngological Society
American Association for Research in Otolaryngology, International Committee
Japan Otology Society
American Academy of Otolaryngology-Head and Neck Surgery
Collegium Oto-Rhino-Laryngologicum Amicitiae Sacrum
Ajou University Vision Committee

Sung-Kyun Moon, M.D.

Korean Medical Association
Korean Otolaryngological Society
Korean Audiological Society
Korean Otology Study Group
Association for Research in Otolaryngology
Korean Society of Medical Biochemistry and Molecular Biology
Korean Society of Medical Genetics
Drug Committee of University Hospital
Ethics Committee of University Hospital
Bioengineering Committee of Ajou University
Health Insurance Review Agency

Yun-Hoon Choung, D.D.S., M.D.

Korean Medical Association
 Korean Dental Association
 Korean Otolaryngological Association
 Korean Otology Study Group
 Korean Society of Medical Biochemistry and Molecular Biology
 Korean Society of Medical Education
 Korean Tissue Engineering Society
 Association for Reseach in Otolaryngology, International Commitee
 Korean Skull Base Surgery Society
 Korean Balance Society
 Korean Audiological Society
 Korean Society of Head and Neck Surgeons

Chul-Ho Kim, M.D.

Korean Medical Association
 Korean Otolaryngological Association
 Korean Sociefy of Head and Neck Surgeons
 Society of Korean Logopedics & Phoniatics
 Korean Society for Head & Neck Oncology
 Korean Society of Medical Biochemistry and Molecular Biology
 Korean Tissue Engineering Society

Hyun Jun Kim, M.D.

Korean Medical Association
 Korean Otolaryngological Association
 Korean Rhinologic Society
 Korean Society of Allergology
 Korean Society of Facial Plastic Surgery and Traumatology

Ho Seok Choi, M.D.

Korean Medical Association
 Korean Otolaryngological Association
 Korean Otology Study Group

TRAVELKeehyun Park, M.D.

- Fujita Health University Visit
(Nagoya, Japan : Apr 8, 2003)
- The 5th International Symposium on Tonsils and Mucosal Barriers of the Upper Airways
(Wakayama, Japan : Apr 9-11, 2003)
- The 8th International Symposium on Recent Advances in Otitis Media
(Ft. Lauderdale, U.S.A. : Jun 3-7, 2003)
- The 3rd Symposium of Middle Ear Mechanics in Research and Otology
(Matsuyama, Japan : Jul 9-12, 2003)
- 2003 Meeting of Collegium Oto-Rhino-Laryngologicum Amicitiae Sacrum
(Helsinki, Finland : Aug 24-27, 2003)
- Philipps-University of Marburg Hospital Visit
(Marburg, Germany : Oct 9, 2003)
- International Practical Course in Otology and Temporal Bone Surgery
(Marburg, Germany : Oct 10-11, 2003)

Sung-Kyun Moon, M.D.

- Cochlear Implantation Company Visit
(Melbourne, Australia : May 12-17, 2003)
- The 8th International Symposium on Recent Advances in Otitis Media
(Ft. Lauderdale, U.S.A : Jun 3-7, 2003)
- 24th Politzer Society Meeting
(Amsterdam, Netherland : Aug 31-Sep 4, 2003)
- The 4th Asia Pacific Symposium on Cochlear Implantation
(Taipei, Taiwan : Dec 2-6, 2003)

Yun-Hoon Choung, D.D.S., M.D.

- The 107th Annual Meeting of American Academy of Otolaryngolgy-Head and Neck Surgery
(Orlando, Florida, U.S.A. : Sep 21-24, 2003)
- Cochlear Implant Training Workshop
(Melbourne, Australia : Oct 20-24, 2003)
- The 27th Midwinter Meeting of Association for Research in Otolaryngology
(Daytona Beach, Florida, U.S.A. : Feb 21-26, 2004)

Chul-Ho Kim, M.D.

- 9th International Congress on Oral Cancer/Head & Neck Meeting
(Melbourne, Australia : Nov 16-19, 2003)
- International Course on Laser Microsurgery
(Goettingen, Germany : Feb 16-19, 2004)

Hyun Jun Kim, M.D.

- Advances in Rhinoplasty
(Chicago, U.S.A. : Jun 24-29, 2003)

Ho Seok Choi, M.D.

- The 9th International Center for Otologic Training in Memorial Health University Medical Center
(Savannah, Georgia, U.S.A. : Nov 9-17, 2003)
- The 27th Midwinter Meeting of Association for Research in Otolaryngology
(Daytona Beach, Florida, U.S.A. : Feb 21-26, 2004)

PRESENTATIONKeehyun Park, M.D.

- The 9th Korean Combined Otolaryngological Congress
(Seoul : Apr 25-26, 2003)
“Proposal for classification of congenital ossicular anomalies”
“An interesting case of tuberculous otitis media”
“Iatrogenic facial paralysis in temporal bone surgery(symposium)”
- The 9th Ajou Otology Symposium
(Suwon : May 31, 2003)
“History and ideal system of cochlear implant in Korea”
- The 8th international Symposium on Recent Advances in Otitis Media
(Ft.Lauderdale, U.S.A. : Jun 3-7, 2003)
“Significance of intercellular cross-talking in 3D-in vitro middle ear cholesteatoma model”
- 2003 Yonsei Clinical Otology and Neurotology Symposium
(Seoul : Jun 15, 2003)
“Complication of chronic otitis media (Panel)”
- The 5th Catholic Otology Symposium
(Seoul : Jun 21, 2003)
“Functional morphology of eustachian tube related to otitis media”
“Patulous eustachian tube(panel)”
- Oto-Rhino-Laryngology Busan V
(Busan : Jun 29, 2003)
“Management of conductive hearing loss”
- The 3rd Symposium of Middle Ear Mechanics in Research and Otology
(Matsuyama, Japan : Jul 9-12, 2003)
“3D Micro-CT images for human ossicles”
- 2003 Meeting of Collegium Oto-Rhino-Laryngologicum Amicitiae Sacrum
(Helsinki, Finland : Aug 24-27, 2003)
“3D Micro-CT images for ossicles destructed by middle ear cholesteatoma”
- The 27th Annual Meeting of Korean Otology Study Group
(Seoul : Nov 1, 2003)
“Postoperative management of middle ear surgery : TM graft management (Panel)”

Sung-Kyun Moon, M.D.

- 24th Politzer Society Meeting
(Amsterdam, Netherland : Aug 31-Sep 4, 2003)
“Cochlear implantation in a clinical case with Behcet's disease”

- The 9th Korean Combined Otolaryngological Congress
(Seoul : Apr 25-26, 2003)
“Analysis for causes of hearing aid failure”
“Clinical analysis of the patients who were diagnosed by newborn hearing screening test”
“Cochlear implantation in a clinical case with Behcet’s disease”
“A family of Waardenburg syndrome type II not-associated with mutation of MITF”
“2 cases of vestibular schwannoma treated with LINAC based stereotatic radiosurgery”
- The 9th Ajou Otology Symposium
(Suwon : May 31, 2003)
“Establishment of regional CI center”
“Development of Korean HINT”
“CI in clinical cases with Behcet disease”
- 2003 Yonsei Clinical Otology and Neurotology Symposium
(Seoul : Jun 21, 2003)
“Complication of chronic otitis media(Panel)”
- The 77th Congress of Korean Society of Otolaryngology
(Jeju : Oct 10-11, 2003)
“Feasibility of genetic testing and CMV screening as newborn hearing screening”
“Management of V-tube complication”
“The perception and production of the final question internations for the cochlear implanted”
- 4th Asia Pacific Symposium on Cochlear Implantation
(Taipei, Taiwan : Dec 2-6, 2003)
“CI in a case with Waardenburg syndrome”

Yun-Hoon Choung, D.D.S., M.D.

- The 9th Korean Combined Otolaryngological Congress
(Seoul : Apr 25-26, 2003)
“Burning mouth syndrome”
“A case of bilateral congenital double lips”
- The 6th Congress of Korean Balance Society
(Seoul : Jun 1, 2003)
“Various causes of vertigo in children with normal eardrums”
- The 107th Annual Meeting of American Academy of Otolaryngology-Head and Neck Surgery
(Orlando, Florida, U.S.A. : Sep 21-24, 2003)
“A clinical significance of AAO-HNS guidelines for Meniere’s diseases”
- The 77th Congress of Korean Society of Otolaryngology
(Jeju : Oct 10-11, 2003)
“The clinical characteristics and treatment results of bilateral sudden sensorineural hearing loss”
“Expression pattern of gap junction protein - Connexin 43, 26 of human middle ear cholesteatoma”
“The comparison of benign paroxysmal vertigo of childhood and migraine related vertigo in children”
- The 27th Midwinter Meeting of Association for Research in Otolaryngology
(Daytona Beach, Florida, U.S.A. : Feb 21-26, 2004)
“Expression of gap junction protein connexin 43 and connexin 26 in human cholesteatoma”

Chul-Ho Kim, M.D.

- The 9th Korean Combined Otolaryngological Congress
(Seoul : Apr 25~26, 2002)
“A clinical study of deep neck infection”
“A case of optic neuritis secondary to sphenoid fungal sinusitis”
“A case of salvage operation in radiation-failed squamous cell carcinoma transformed from Bowen’s disease”
“A case of recurrent multiple myoepithelioma in cheek”
- The 77th Congress of Korean Society of Otolaryngology
(Jeju : Oct 10-11, 2003)
“Role of HGF/c-Met in invasion and metastasis of hypopharyngeal squamous cell carcinoma”
“Neoadjuvant chemotherapy and radiation therapy in the treatment of advanced head and neck cancer”
“A case of chondrosarcoma in nasal septum”
- The 24th Annual Meeting of Korean Society of Head and Neck Surgeons
(Pyongchang : Feb 27. 2004)
“Necrotizing Fasciitis”

Hyun Jun Kim, M.D.

- The 77th Congress of Korean Society of Otolaryngology
(Jeju : Oct 10-11, 2003)
“Three cases of unilateral visual loss caused by sinus inflammatory diseases”
“Clinical analysis of orbital complications of acute sinusitis according to the age”
- 10th Congress of International Rhinologic Society
(Seoul : Oct 23-26, 2003)
“Surgical anatomy of sphenopalatine artery of lateral nasal wall”

Departmental research activities are always a source of pride among the faculty. Research in the Department of Otolaryngology continues to grow with investigations, which include both basic and clinical interdepartmental and interdisciplinary research. For the time being, the major research area in our Department is in otology, especially middle ear cholesteatoma, genetic hearing loss & otitis media.

PUBLICATIONS

- Park K, Moon SK, Choung YH, Choi HS : Expression of beta-defensins in human middle ear cholesteatoma. *Acta Otolaryngol(Stockh)* 123:236-240, 2003
- Choung YH, Park K, Moon SK, Kim CH, Ryu SJ : Various causes and clinical characteristics in vertigo in children with normal eardrums, *Int J Pediatr Otolaryngol* 67:889-894, 2003
- Kim KS, Choi YS, Kim HJ, Yoon JH : The risk of olfactory disturbance from conchal plate injury during ethmoidectomy. *Am J Rhinol* 17:307-310, 2003
- Chung JH, Park KH, Seo BM, Kim ES, Hong JR, Chung IH, Kang N, Baek JH, Min BM, Choung YH, Akaike T, Choung PH : Determination of specific interactions between glucose ligand carrying polymer and glucose transporter type-1(GLUT-1) using different cell types. *J Biomed Mat Research* 67A:1055-1059, 2003
- Kim CH, Lim YC, Kim KB, Kim YH, Choi HS, Kim KM, Choi EC : Vocal analysis after vertical partial laryngectomy. *Yonsei Med J* 44:1034-1039, 2003
- Choung YH, Park K, Moon SK, Ryu SJ : Clinical characteristics and diagnostic classification of vertigo in children. *Korean J Otolaryngol* 46:105-109, 2003
- Park K, Moon SK, Choung YH, Eum JH, Lee JH : The Morphologic study of elastic structures in the developing murine eustachian tube. *Korean J Otolaryngol* 46:185-190, 2003
- Lee JG, Lee JJ, Kim HJ, Nam JI, Kim MH, Yoon JH : Mucociliary differentiation according to time in human nasal epithelial cell culture. *Korean J Otolaryngol* 46:216-221, 2003
- Park K, Moon SK, Lee JH, Won YY, Baek MH : Study on the three dimensional structure of the human ossicle using micro CT. *Korean J Otolaryngol* 46:276-281, 2003

- Kim HJ, Choi JY, Kim JY, Seo YS, Lee JG, Yoon JH : UTP and ATP γ S induce mucin secretion via Ca²⁺ dependant pathways in human nasal epithelial cells. *Korean J Otolaryngol* 46(4):302-308, 2003
- Park K, Chun YM, Moon SK, Choung YH, Lee JS, Kim Y : Study for reversibility of experimental cholesteatoma using Mongolian gerbils. *Korean J Otolaryngol* 46:372-380, 2003
- Kim CH, Jung SH, Shin JW, Kim YH, Choi HS, Kim KM, Choi EC : Voice Analysis after the vertical partial laryngectomy. *Korean J Otolaryngol* 46:414-418, 2003
- Choung YH, Ryu SJ, Cho MJ, Moon SK, Park K : Various causes of vertigo with normal eardrums. *J Korean Balance Society* 2:121-126, 2003
- Park K, Moon SK, Choung YH, Lee JH, Mo JY : Hearing result and its affecting factors of ossiculoplasty. *J Clinical Otolaryngol* 14:105-112, 2003
- Choung YH, Kim SK, Cho MJ : A case of metallic foreign body penetrated into posterior ethmoid sinus through orbit. *J Clinical Otolaryngol* 14:126-128, 2003
- Kim CH, Kim YJ, Choung YH, Lee JW : A clinical study of parapharyngeal abscess. *Korean J Otolaryngol* 46:769-774, 2003
- Choung YH, Park HJ, Song JW, Moon SK, Park K : Treatment effects of glutamate antagonist for tinnitus. *Korean J Otolaryngol* 46:935-939, 2003
- Choung YH, Cho MJ, Choi HS, Lee SJ, Lee JS, Jeon JM, Baik SS : The comparison of benign paroxysmal vertigo of childhood and migraine related vertigo in children. *J Korean Balance Society* 2:191-197, 2003
- Kim CH, Han JH, Shin JW, Moon IS : A case of recurrent multiple myoepithelioma in Cheek. *Korean J Otolaryngol* 46:1092-1096, 2003
- Choung YH, Lee SJ, Lee JW, Mo JY, Moon SK, Park K : The comparison of hearing recovery of sudden deafness treated with different protocols. *Korean J Audiol* 7:24-31, 2003
- Park K, Choung YH, Kim CH, Lee WS : Clinical evaluation of small vestibular schwannoma. *Korean J Otolaryngol* 47:22-26, 2004
- Moon SK, Lim DS : Expression of β - defensins in the human middle ear mucosa. *Korean J Otolaryngol* 47:103-107, 2004

ABSTRACTS

1. International Meeting

- The 8th International Symposium on Recent Advances in Otitis Media
(Ft. Lauderdale : Jun 3-7, 2003)

“Significance of intercellular “cross-talking” in 3D-in vitro middle ear cholesteatoma model”

Background : During years, etiopathogenicity of middle ear cholesteatoma raised many controversies and still a unanimous concept doesn't exist. From histological point of view this pathological tissue is composed of 2 integrated parts - matrix and perimatrix. It's our firm belief that the interaction between their cellular components is essential for the major histopathological features of cholesteatoma-hyperproliferation and bone destruction. Objectives : In order to prove our concept, we design an in vitro model using primary keratinocytes and fibroblasts isolated from middle ear cholesteatoma tissue. An alternative model, using HaCaT cell line as a “skin equivalent”, has been developed and the grade of homogeneity between cholesteatoma keratinocytes and HaCaT cells was compared in vitro, focusing on the cytokeratin profile. Methods : Using enzymatic disaggregation protocol we isolated cholesteatoma keratinocytes and fibroblasts from cholesteatoma samples, obtained during surgery. A subconfluent feeder layer from cholesteatoma fibroblasts was prepared using Mitomycin C (Sigma) and cultured on Transwell (Costrar) system. Upon reaching the confluence, cholesteatoma keratinocytes were trypsinised and co-cultured on the feeder layer for 3-5 days and subsequently air-exposed for 14 days. Cholesteatoma keratinocytes and HaCaT cells seeded without a feeder layer have been used as a control. The protein profile of cholesteatoma keratinocytes and HaCaT cells was evaluated through SDS-PAGE electrophoresis and Coomassie blue staining. Immunoblot analysis and immunohistochemistry have been advocated to estimate the cytokeratin profiles, using mouse monoclonal antibody K 8.12 (Sigma) against cytokeratin (CK) 13 and 16. Results : Different protein profile and stronger expression of CK 13 and 16 was demonstrated in middle ear cholesteatoma keratinocytes in comparison with HaCaT cells. The cytokeratins were expressed both in basal and suprabasal layers in cholesteatoma matrix. Bigger stratification was observed in 3D-in vitro system when cholesteatoma keratinocytes and HaCaT cells were cultured with fibroblasts in comparison with control group without fibroblasts. Conclusion : Using 3D-in vitro model we demonstrated the significance of intercellular interaction between cholesteatoma matrix and perimatrix. The different cytokeratin profile between cholesteatoma keratinocytes and HaCaT cells gives an argument against the simplified definition for middle ear cholesteatoma as a “skin in the wrong place”

“Matrix metalloproteinase activity in otitis media with effusion”

Background : Different pathological conditions such as tympanosclerosis, atelectasis,

adhesion, perforation, and attic retraction appeared in the middle ear and tympanic membrane (TM) as a result of natural course of otitis media with effusion (OME). Atrophic changes both in outer and inner fibrous layers of the lamina propria result in alteration of elastic properties of TM. Matrix metalloproteinases (MMPs) are a family of zinc- and calcium-dependent endopeptidases, which dissolve the unmineralized components of extracellular matrix. Previously Jennings et al reported the presence of MMP-2 and 9 and their putative role in maintaining the chronicity of OME. Chronic activation of MMPs could cause degradation of the extracellular matrix substrates of TM (collagen, fibronectin or laminin) and thus could be attributable to development of OME sequelae. Objectives : The purpose of this study is to compare the activities of MMP-2, 3, 7 and 9 in mucous, serous and hemorrhagic effusions of otitis media. Methods : Individual samples were separated into three groups - mucous, serous and hemorrhagic (from idiopathic hemotympanum), on the basis of clinical experience. Five samples were selected from each group and subsequently processed with Bradford assay to measure the total protein concentration. Metalloproteinase activity was assessed by zymography using gelatin and casein gels. The area of enzymatic degradation was quantitated by densitometry. Results : The precursor of MMP-2 (72kDa) was expressed in all effusions. Its active form (66 kDa) was expressed strongly in the mucous effusion, weakly in the hemorrhagic one, and absent in the serous one. MMP-3 and 7 were demonstrated only in the mucous effusion. The precursor of MMP-9 (92 kDa) was established in all effusions, while the active form (84 kDa) was detected in both mucous and hemorrhagic effusions. Conclusions : We hypothesized that increased expression of the active forms of MMPs in mucous effusions involves changes of TM elasticity and development of OME sequelae such as retraction, atelectasis and adhesion.

- The 3rd Symposium of Middle Ear Mechanics in Research and Otology
(Matsuyama, Japan : Jul 9-12, 2003)

“3D micro-CT images for human ossicles”

Purpose : Conventional studies of the middle ear ossicles give relatively limited information on shape, mechanical strength and 3-dimensional relationship. Recently, Micro-CT scanning technology has been applied to analysis of skeletal structure. This study aims to reconstruct the 3-dimensional structure of the ossicles, including the length, strength, and the angle. Materials and Method : The structures of ossicles obtained from 3 cadavers were analyzed through micro-CT (Skyscan, Belgium) by filming the 2-dimensional cross section image running perpendicular to the long axis of the ossicles. The 3-dimensional images were thereby reconstructed for each, and were analyzed using CT-Analyzer™ and Ant™. Based on the results, the strength, length, and angle of each ossicle were measured. Results : The ratio between the handle of malleus (4.413mm) and the long process of incus (3.559mm) was 1.24 : 1, which acts as a lever of middle ear impedance transformer. The volume fraction, indicating relative strengths of ossicles, was higher in the portion close to the articular surface. Conclusion : Our preliminary data of ossicular structure analyzed by Micro-CT scan will be helpful for elucidation of ossicles' structure and further development of artificial prosthesis.

- 2003 Meeting of Collegium Oto-Rhino-Laryngologicum Amicitiae Sacrun
(Helsinki, Finland : Aug 24-27, 2003)

“3D micro-CT images for ossicles destructed by middle ear cholesteatoma”

Background : Conventional studies of the middle ear ossicles destructed by cholesteatoma give relatively limited information on shape, mechanical strength and 3- dimensional relationship. Recently, Micro-CT scanning technology has been applied to analysis of skeletal structure. This study aims to reconstruct the 3-dimensional structure of normal ossicles and destructed ossicles by different cholesteatomas and to compare volume fraction of destructed ossicles with that of normal ossicles. Study Design : 13 pathological ossicles obtained during cholesteatoma surgery were used in this study(2 malleuses and 2 incuses from attic cholesteatoma; 1 malleus and 2 incuses from sinus cholesteatoma; 2 malleuses and 2 incuses from tensa retraction cholesteatoma; 2 incuses from congenital cholesteatoma). As control, normal ossicles obtained from cadaver were used. The structure of obtained ossicles was analyzed through micro-CT (Skyscan, Belgium) by filming the 2-dimensional cross section image running perpendicular to the long axis of the ossicles. The 3-dimensional images were thereby reconstructed for each, and were analyzed using CT-Analyzer™ and Ant™. Based on the results, the length and strength of each ossicle were measured.

Results : The normal ratio between the handle of malleus (4.413mm) and the long process of incus(3.559mm) was 1.24 : 1, which acts as a lev of middle ear impedance transformer. The volume fraction, indicating relative strengths of normal ossicles, was higher in the portion close to the articular surface. The pattern of destructed ossicles by cholesteatoma was different according to pathological status of cholesteatoma. Conclusion : Our preliminary data of ossicular structure analyzed by Micro-CT scan will be helpful for elucidation of normal and pathological structure of ossicles and further development of artificial prosthesis.

- 24th Politzer Society Meeting
(Amsterdam, Netherland : Aug 31-Sep 4, 2003)

“Cochlear implantation in a clinical case with Behcet’s disease”

Recurrent iritis and oral/genital ulcers have been described for the first time as a separated pathological entity by the Turkish dermatologist Hulasi Behcet. Behcet’s disease is a chronic, multi-systemic disorder, which affects many organs as a result of vasculitis. The clinical manifestations are divided into two groups: major (oral ulcers, eye lesions, genital ulcerations, and skin lesions) and minor (arthritis, gastrointestinal lesions, epididymitis, thrombophlebitis, and central nervous system involvement) criteria. Inner ear involvement in Behcet’s disease was first reported by Alajouanine et al in 1961. The incidence of hearing loss in Behcet’s disease has been reported as 12% to 80% in several studies.

A 37-year-old man diagnosed with Behcet’s disease was admitted to our department with complaint of the right side profound hearing loss and dizziness. He was treated with steroid therapy without further improvement. After a period of one year, he suffered from complete hearing loss on the left side. Temporal bone CT scan revealed right cochlear ossification. Cochlear implantation was performed in the left cochlea, partially obstructed by fibrosis, and the

electrode was fully inserted without resistance. No healing deficiency was encountered in the following postoperative period. The hearing threshold was restored to 30dBHL, while the dynamic range was relatively narrower than others.

We propose the routine hearing check in Behcet’s disease as a diagnostic strategy. According to our experience, we consider that cochlear implantation is not contraindicated in those clinical cases associated with Behcet’s disease.

- The 107th Annual Meeting of American Academy of Otolaryngology-Head and Neck Surgery
(Orlando, Florida, U.S.A: Sep 21-24, 2003)

“A clinical significance of AAO-HNS guidelines for Meniere’s diseases”

Background and Purpose : The guidelines for Meniere’s disease recommended from the Committee on Hearing and Equilibrium of the American Academy of Otolaryngology-Head and Neck Surgery (AAO-HNS) in 1995 have been used for reporting results of treatments for Meniere’s disease. However, these guidelines are sometimes not appropriate for management and reporting for some patients clinically considered as Meniere’s disease. But there are few publications about their efficacy and significance. The objectives of this study is to review and analyze the symptoms, vertiginous episodes, audiometry, vestibular function test and results of treatment of Meniere’s disease and to evaluate the significance of AAO-HNS guidelines. Materials and Methods : The patients with Meniere symptom visited the dizziness clinic of Ajou university hospital between 1994 and 2001 were included in this study. The medical records were reviewed retrospectively. The characteristics of dizziness (duration, frequency, and episodes), pure tone audiometry (PTA), vestibular function test, and treatment results were carefully analyzed according to AAO-HNS guidelines. Results : Of 550 patients with Meniere symptoms, 198 patients were in the criteria of Meniere’s disease. They were classified to 75 (37.9%) of the definite, 120 (60.6%) of the possible, and only 3 (1.5%) of the probable. In definite group, mean threshold of PTA was 54.3dB and canal paresis (CP) was showed in 33 patients (44%) with mean CP of 53.6%, and peak and descend types of the PTA were dominant (62%). In possible group, mean threshold of PTA was 19.4dB and CP was found in 30 patients (25%) with mean CP of 50.1%. Conclusion : Nevertheless, AAO-HNS guidelines for Meniere’s disease are helpful for communications between doctors, they should be considered to have limitations for diagnosis and treatment in clinical practices.

- 10th Congress of International Rhinologic Society
(Seoul, Korea : Oct 23-26, 2003)

“Surgical anatomy of the sphenopalatine artery in lateral nasal wall”

Objectives : We investigated the surgical anatomy of the sphenopalatine artery. First, the location of the sphenopalatine foramen on the lateral nasal wall and the pattern of the main branches of the sphenopalatine artery from the sphenopalatine artery were studied. Second, the course of the posterior lateral nasal artery with respect to the posterior wall of the maxillary sinus, the perpendicular plate of the palatine bone, and the pattern of distribution of its branches on the fontanelle was determined. Third, the distribution pattern on the inferior turbinate was

analyzed. Study design : Fifty midsagittal sections of randomly selected Korean adult cadaver heads with intact sphenoid sinus and surrounding structures were used in the study. Methods : The mucosa on the sphenopalatine foramen and its surrounding mucosa were removed with a microscissors, a fine forceps, and a pick to expose the sphenopalatine artery under an operating microscope (original magnification x6). Results : The feeding vessels of the superior turbinate were from the septal artery in 36 cases (72%). The feeding vessels to the middle turbinate branch originated from the proximal portion of the posterior lateral nasal artery just after exiting the sphenopalatine foramen in 44 cases (88%). Some portion of the posterior lateral nasal artery ran anterior to the posterior wall of the maxillary sinus in 38%. The major feeding arteries to the fontanelle were from the inferior turbinate branch in 25 cases (50%). In most cases, the inferior turbinate branch was the end artery of the posterior lateral nasal artery (98%). Conclusion : The study provides detailed information concerning the sphenopalatine artery, which we hope will help explain the arterial bleeding that may occur during ethmoidectomy, middle meatal antrostomy, conchotomy, and endoscopic ligation of the sphenopalatine artery.

- 4th Asia Pacific Symposium on Cochlear Implantation
(Taipei, Taiwan : Dec 2-6, 2003)

“Cochlear implantation in a case with Waardenburg syndrome”

Waardenburg syndrome (WS), an autosomal dominant syndromic deafness, is characterized by pigmentary abnormalities and deafness with/without dystopia canthorum (lateral displacement of inner canthi of eye). The prevalence of this syndrome is 1/42000 of the population and 1.43% of the congenital deafness. This syndrome is both clinically and genetically heterogeneous and is clinically classified into four types, WS types 1-4 according to the accompanying signs such as dystopia canthorum, limb deformity and Hirschsprung disease. Of the four clinical subtypes of WS, the most common are WS1 and WS2. The genetic basis of WS2 is unknown, but 15% of WS2 cases are caused by mutation in MITF (microphthalmia-associated transcription factor).

We here present a Korean family of Waardenburg syndrome type 2, which is not associated with MITF mutations. Three affected patients of four family members demonstrate various pigmentary lesions of iris and deafness. Temporal bone CT scan showed the modiolar defect and the hypoplasia of lateral semicircular canals. Severe CSF gush out was noted during the cochlear implantation, however, it was controlled by soft tissue packing around the cochleostomy site, head elevation and mannitol infusion. The patient was discharged without complications and the hearing threshold was restored to 30 dB HL after mapping.

- The 27th Midwinter Meeting of Association for Research in Otolaryngology
(Daytona Beach, Florida, USA: Feb 21-26, 2004)

“Expression of gap junction protein connexin 43 and connexin 26 in human cholesteatoma”

Background and Objectives: Cholesteatoma is an otologic disease having characteristics of hyperproliferation and differentiation of epithelial cells, and needs intercellular signal exchange through gap junctions as well as intracellular signal pathway. Connexin(Cx) is a gap junction

protein for intercellular communication, and especially Cx 26 and Cx 43 are plenty in human epithelial cells. The objective of this study was to analyze the expression and possible roles of Cx 43 and Cx 26 in human cholesteatomas comparing normal epitheliums. Materials and Methods: Ten retroauricular skins (RAS), external auditory canal skins (EACS), and cholesteatomas were taken during middle ear operations in Department of Otolaryngology, Ajou University Hospital for this study. Immunohistochemical staining and reverse transcription-polymerase chain reaction(RT-PCR) were used for detection of Cx 43 and Cx 26. The expression patterns of Cx 43 and Cx 26 were also compared with that of a proliferation marker Ki67 for identification of the roles of Cx in cholesteatomas. Results: In human cholesteatomas, Cx 43 were expressed in whole suprabasal layers, especially in middle portion, except basal layer, and Cx 26 were usually expressed supra- and basal layers. But normal RAS showed weak expression of Cx 43 in upper spinosal and granular layers, but not in basal layers, and the restricted localization of Cx 26 in basal layer. The expression of Cx 43 and Cx 26 in EACS was weak but similar patterns to that of cholesteatomas. In RT-PCR, the expression of Cx 43 and Cx 26 were increased in cholesteatomas than in RASs. And Cx 43, and Cx 26-expressed epithelial cells in cholesteatomas were not identical to the Ki-67 expressed cells, suggesting Cx 43 and 26 may be related to differentiation rather than to proliferation. Conclusion: Human cholesteatomas showed upregulated expression and different localization of Cx 43 and Cx 26, gap junction proteins for intercellular communication, compared with normal RASs, suggesting that perturbations of intercellular communication through gap junctions may be associated with the pathology of human cholesteatomas.

2. Domestic Meeting

- The 9th Korean Combined Otolaryngological Congress
(Seoul : Apr 25-26, 2003)
 - “Proposal for classification of isolated congenital ossicular anomalies”
 - “Significance of intercellular cross-talking in 3D-in vitro middle ear cholesteatoma model”
 - “Iatrogenic facial paralysis in temporal bone surgery”
 - “Analysis for causes of hearing aid failure”
 - “Clinical analysis of the patients who diagnosed by newborn hearing screening test”
 - “Cochlear implantation in a clinical case with Behcet’s disease”
 - “A family of Waardenburg syndrome type II not-associated with mutation of MITF”
 - “An interesting case of tuberculous otitis media”
 - “2 case of vestibular schwannoma treated with LINAC based stereotatic radiosurgery”
 - “A clinical study of deep neck infection”
 - “Burning mouth syndrome”
 - “A case of bilateral congenital double lips”
 - “A case of optic neuritis secondary to sphenoid fungal sinusitis”
 - “A case of salvage operation in radiation-failed squamous cell carcinoma transformed from Bowen’s disease”
 - “A case of recurrent multiple myoepithelioma in cheek”

- The 9th Ajou Otology Symposium
(Suwon : May 31, 2003)
“History and ideal system of CI in Korea”
“Establishment of regional CI center”
“Development of Korean HINT”
“CI in clinical cases with Behcet disease”
- The 6th Congress of Korean Balance Society
(Seoul : Jun 1, 2003)
“Various causes of vertigo in children with normal eardrums”
- The 77th Congress of Korean Society of Otolaryngology
(Jeju : Oct 10-11, 2003)
“The comparison of benign paroxysmal vertigo of childhood and migraine related vertigo in children”
“Expression pattern of gap junction protein Connexin 26, 43 in human middle ear cholesteatoma”
“The clinical characteristics and treatment results of bilateral sudden sensorineural hearing loss”
“Feasibility of genetic testing and CMV screening as newborn hearing screening”
“The perception and production of the final question internations for the cochlear implanted”
“Role of HGF/c-Met in invasion and metastasis of hypopharyngeal squamous cell carcinoma”
“Management of complication in ventilation tube insertion”
“Neoadjuvant chemotherapy and radiation therapy in the treatment of advanced head and neck cancer”
“A case of chondrosarcoma in nasal septum”
“Clinical anomaly of orbital complications of acute sinusitis according to the age”
“Three cases of unilateral visual loss caused by sinus inflammatory diseases”
- The 27th Annual Meeting of Korean Otology Study Group
(Seoul : Nov 1, 2003)
“Postoperative management of middle ear surgery : TM graft management (Panel)”
- The 24th Annual Meeting of Korean Society of Head and Neck Surgeons
(Pyongchang : Feb 27, 2004)
“Necrotizing Fasciitis”

GRANTS RECEIVED

- Characterization of gene regulatory region for up-regulation of human beta defensin, funded by Korea Science and Engineering Foundation.
- Modeling and animation of articulation organs for the speech rehabilitation of hearing impairments, funded by Korea Research Foundation.
- Development of Korean HINT, funded by Cochlear Ltd. from Melbourne, Australia.

Educational activities in the Department involve basic student education, post-M.D. residency education, patient education, and faculty participation in continuing educational programs both local and national.

Medical student education according to the curriculum and manual, classroom lectures up to 5th year are given using the symptom-oriented-disease approach and special behavioral objects (one semester - 30 hours). After completion of lectures, during 1 week, we contact medical students(5th grade) with clerkship. Basic physical examination and other diagnostic and therapeutic procedures are reviewed through the training period.

The residency program includes clinical practicum, instructional and research experiences. Also, we invite some professors of the other universities to present useful and upmost lectures. The academic schedule for resident doctors is as follows:

Textbook Review : Provides an opportunity for first-year residents to read, review, and discuss selected chapters from a major textbook in Otolaryngology. Anatomy, Physiology and Pathology are stressed in the selection of material. Textbook review usually meets every weekly morning (7:30-8:30 AM) except Saturday.

Journal Club : Review current literature in Otology, Rhinology, Laryngology, Head & Neck Oncology, Neurotology and Skull base surgery. Journal Club usually meets every Monday evening 8:00-9:00 PM.

Case Conference : Opportunity to discuss interesting or/and problem cases with Radiologist, Pathologist and any other related department doctors. Case Conference usually meets every Monday evening 6:00-7:00 PM.

Case Preview : Gives the resident a thorough understanding of the disease and decision-making process for treatment by analyzing cases. Case Preview usually meets every Monday evening 5:00-6:00 PM.

Case Review : Provides postoperative analysis of the total cases performed during last week. Case Review usually meets every Monday evening 7:00-8:00 PM.

Topic Review : Allows the residents to prepare interesting and important topics by themselves to improve their presentation ability, and to help them to care for patients. Topic Review usually meets every Thursday evening 5:00-6:00 PM.

Special Lecture : Faculty members of the Department have the chances to give lecture on their specialty to the residents. Sometimes doctors or professors from another university or institute are invited to give special lecture. This usually meets the first Saturday morning 7:30-8:30 AM of the month.

Head and Neck Tumor Conference : Provides an opportunity to review, discuss, and decide treatment plan of H&N cancer patients with Oncologist, Radiotherapist, Radiologist, Plastic surgeon, Dentist and General surgeon. This usually meets 2nd and 4th Tuesday evening 5:30-6:30 PM.

Dizziness Conference : Provides a discussion opportunity to review diagnose and make decision for the treatment of dizzy patients with neurologist and otologist. This usually meets 3rd Tuesday evening 5:30-6:30 PM of the months.

CI Conference : Provides an opportunity to review and decide CI treatment plan of bilateral deaf patients with otologist, audiologist, speech therapist, rehabilitation physician and social worker. This usually meets 4th Thursday evening 5:00-6:00 PM of the months.

Nose and Sinus Conference : Provides knowledge and an opportunity to study and discuss anatomophysiology, pathophysiology, diagnosis and treatment of nose & sinus diseases. This conference usually meets on the 2nd Saturday at 7:30-8:30 AM of the months.

ENT Practitioner Meeting : Provides local practitioner with opportunity to obtain advises from colleagues on difficult cases, share clinical pearls and the state-of-the-art in ENT fields. This usually meet the 2nd Wednesday morning 7:30-8:30 AM of the months.

Introduction Course : Gives the new resident a thorough background in the anatomy, physiology and pathology of otolaryngology and provides them a thorough understanding of the method of diagnosis, laboratory test, and methods of treatment of ENT diseases. This course usually meets the last week of February.

Dissection Course : Temporal bone dissection for the 3rd year resident.
Neck dissection for the 3rd and the 4th year resident.
Nose & paranasal sinus dissection for the 2nd year resident.

Thoroughly familiarize the participant with the intricate three dimensional anatomy of the human nose, neck and temporal bone, give them an opportunity to develop the skills necessary for live surgery via a hands-on-approach with close guidance and instruction in the temporal bone laboratory and department of anatomy. The participant should gain a working knowledge of the application of the techniques for actual patient application. These courses usually are held once a year. Temporal bone dissection course usually meets May or June of the year. Paranasal sinus and neck dissection courses depend on condition of the department of anatomy.

Temporal Bone Histopathology Course : The residents are required to understand the intricate three dimensional anatomy of the human temporal bone including the basic histological anatomy of the middle ear and inner ear as described in standard textbooks. The objective of this course is to thoroughly familiarize the resident with the detailed anatomy of the temporal bone before the surgical dissection. An effort will be made to correlate the various anatomical findings with diagnostic and surgical problems that arise in the otolaryngological area.

Ajou Otology Symposium : The 9th symposium was held in May 31, 2003. The title of the symposium was "Cochlear Implantation." This symposium consisted of 5 presentations ① Social issues(History and ideal system of CI in Korea, Government support for CI and cost-effectiveness, Establishment of regional CI center) ② Surgical issues(Standard and alternative method for CI, Inner ear anomaly and CI, CI in the ossified cochlea, Complication of CI, Revision surgery for CI, Bilateral cochlear implantation) ③ Special lecture(Hearing in noise test) ④ Evaluation tools(Recent advances in evaluation tools for profound SNHL, Development of Korean HINT) ⑤ Case reports(for inner ear anomalies, cholesteatoma, Behcet disease, COM, and kinked distal electrode).

MEDICAL STUDENTS EDUCATION

Keehyun Park, M.D.

- Introduction of otolaryngology : lecture for junior student (Feb 7, 2003)
- Structure & function of hearing organ : lecture for junior student (Feb 7, 2003)

Sung-Kyun Moon, M.D.

- Audiology, Rehabilitation of hearing : lecture for junior students (Feb 24, 2003)
- Hearing impairment, Otorrhea, Otagia : lecture for junior students (Mar 7, 2003)

Yun-Hoon Choung, D.D.S., M.D.

- Vertigo & Tinnitus : lecture for junior students (Feb 21, 2003)
- Skull base tumor, Otologic emergency, Oral cavity & pharynx problem : lecture for junior students (Feb 28, 2003)

Chul-Ho Kim, M.D.

- Nose & PNS disease, Septorhinoplasty : lecture for junior students (Apr 1, 2003)
- Structure & function of larynx, Trauma of larynx, Hoarsness, Paralysis of larynx, Neck mass : lecture for junior students (Apr 8, 2003)
- Pediatric otolaryngology, Dx & Tx of head & neck tumor : lecture for junior students (Apr 15, 2003)
- Diagnosis in otolaryngology : lecture for junior students (Nov 6, 2003)

Hyun Jun Kim, M.D.

- Nose & paranasal sinus; anatomy & physiology : lecture for junior students (Mar 14, 2003)
- Rhinitis & sinusitis : lecture for junior students (Mar 21, 2003)
- Septorhinoplasty, Malignancy, Other disease : lecture for junior students (Mar 28, 2003)

RESIDENTS EDUCATIONKeehyun Park, M.D.

- Middle ear surgery (Mar 15, 2003)
- Surgical and imaging anatomic pathology of the temporal bone (Sep 20, 2003)

Sung-Kyun Moon, M.D.

- Hereditary hearing impairment (Apr 19, 2003)
- Stapes surgery (Oct 27, 2003)

Yun-Hoon Choung, D.D.S., M.D.

- Neuromonitoring in temporal bone surgery (May 10, 2003)
- Pathophysiology and treatment of Meniere's disease (Nov 24, 2003)

Chul-Ho Kim, M.D.

- Conservative laryngeal surgery (Jun 14, 2003)
- Infectious and inflammatory neck diseases (Dec 13, 2003)

Hyun Jun Kim, M.D.

- Frontal sinusotomy (Jul 12, 2003)
- Management of turbinate disease (Jan 17, 2004)

Ho Seok Choi, M.D.

- How to write a medical certificate in otolaryngology (Feb 14, 2004)

Thesis for Master's DegreeSang-hyuk Lee, M.D.

- Expression of PDGFR, EGFR and PI3-K in human middle ear cholesteatoma

Jinseok Lee, M.D.

- Cost-effectiveness of newborn hearing screening protocols

Seung Joo Lee, M.D.

- Digital hearing aid benefit in patients with high-frequency hearing loss

Min Jung Cho, M.D.

- Study on the three dimensional structure of the human pathologic ossicles destructed by cholesteatoma using Micro-CT

Sung Ook Kang, M.D.

- Expression of gap junction protein connexin 26, 43 in human middle ear cholesteatoma

OTHERSKeehyun Park, M.D.

- Personal experience of middle ear surgery (atticotomy) : lecture at Fujita Health University (Nagoya, Japan : Apr 8, 2003)
- Moderator at Lunch on Seminar of the 5th International Symposium on Tonsils and Mucosal Barriers of the Upper Air Ways (Wakayama, Japan : Apr 11, 2003)
- Moderator at special lecture of the 9th Ajou Otolaryngology Symposium (Suwon : May 31, 2003)
- Moderator at pathology session of the 8th International Symposium on Recent Advances in Otitis Media (Ft. Lauderdale, U.S.A. : Jun 4, 2003)
- Congenital middle ear malformation :lecture for ENT practitioners in Anam area (Korea University Hospital, Seoul : Jun 19, 2003)
- Moderator at diagnosis session of the 3rd Symposium of Middle Ear Mechanics in Research and Otolaryngology (Matsuyama, Japan : Jul 11, 2003)
- Eustachian tube teratoma : case presentation at Nine Medical Schools Joint Meeting (Catholic University Medical Center, Seoul : Sep 4, 2003)
- Personal experience of middle ear surgery : lecture at Philips-University of Marburg (Marburg, Germany : Oct 9, 2003)
- Instructor at International Practical Course in Otolaryngology and Temporal Bone Surgery (Marburg, Germany : Oct 10-11, 2003)

Sung-Kyun Moon, M.D.

- Hearing aid update : lecture for ENT practitioner at Jeju area (Jeju : Mar 15, 2003)
- Newborn hearing screening, today & tomorrow : lecture for newborn hearing screening workshop (Seoul : Mar 29, 2003)
- Auditory rehabilitation : lecture for rehabilitation medicine practitioner at Ajou University (Suwon : Apr 9, 2003)
- Auditory biomechanics : lecture at Graduate School of Ajou University (Suwon : Apr 16, 2003)
- Newborn hearing screening : lecture for doctors in the department of pediatrics (Hallym University School of Medicine, Seoul : May 28, 2003)
- Hearing aid overview : lecture for audiologist workshop (Seoul : Aug 13, 2003)
- Newborn hearing screening : lecture for ENT residents in Yonsei University (Seoul : Aug 20, 2003)
- Newborn hearing screening : lecture at ENT resident education workshop by Korean Otolaryngological Society (Seoul : Sep 28, 2003)
- Auditory physiology and rehabilitation : lecture for audiologist course in Yongin University (Yongin : Oct 1, 2003)
- Development of Korean HINT : lecture at hearing seminar (Hallym University School of Medicine, Seoul : Nov 19, 2003)
- Referred case presentation : lecture for ENT practitioner at Suwon area (Suwon : Dec 10, 2003)
- Newborn hearing screening : lecture for audiologist workshop (Seoul : Dec 21, 2003)

Yun-Hoon Choung, D.D.S., M.D.

- Facial Schwannoma :case presentation at Nine Medical School Joint Conference (Catholic University School of Medicine, Seoul: Mar 6, 2003)
- VFT findings in acoustic neuroma: lecture at Gacheon vestibular workshop (Gil Hospital, Incheon: Mar 30,2003)
- Neuromonitoring in temporal bone surgery: lecture at ENT resident education workshop by Koean Otolaryngological Society (Seoul: Apr 6, 2003)
- Vestibular function test : lecture for doctors in the department of cardiology (Suwon: Apr 30, 2003)
- Ear nose throat : lecture for nurses in Ajou nursing school (Jul 15, 2003)
- Central auditory center and disease : lecture for speech therapist in Yongin University (Yongin, Oct 8, 2003)
- Physical examination in ear, nose, and throat : lecture for nursing practitioner in Ajou University Hospital (Suwon, Oct 15, 2003)
- Oral disease and speech : lecture for speech therapist in Yongin University (Yongin, Oct 15, 2003)
- COM with sigmoid sinus thrombophlebitis : case presentation at Nine Medical School Joint Conference (Yonsei University, Seoul: Dec 4, 2003)
- Benign paroxysmal positional vertigo, sigmoid sinus thrombophlebitis : case discussion in ENT practitioner in Suwon area (Suwon: Dec 10,2003)
- ENT disease : lecture for nurses in operating room, Ajou University Hospital (Suwon, Dec 13, 2003)

Chul-Ho Kim, M.D.

- Anatomophysiology of head and neck, and deep neck infection : lecture for junior students in Inha University (Mar 19, 2003)
- Two cases of neck metastasis with suspicious carotid artery invasion : lecture at the 15th case conference of Korean Society of Head and Neck Surgeons (Aug 30, 2003)
- Anatomophysiology of larynx : lecture for speech therapist in Yongin University (Sep 3, 2003)
- Infectious and inflammatory neck diseases : lecture at ENT resident education workshop by Koean Otolaryngological Society (Seoul : Sep 28, 2003)
- Diseases of head and neck : lecture for speech therapist in Yongin University, the graduate school (Oct 22, 2003)
- Surgery and postoperative care of head and neck : lecture for nursing practitioner in Ajou University Hospital (Nov 26, 2003)
- Airway management : lecture for rehabilitation medicine practitioner at Ajou University (Dec 17, 2003)

Hyun Jun Kim, M.D.

- Aerosol therapy in ENT field : lecture for ENT practitioner in Gangnam area (Yongdong Severance Hospital, Seoul : Apr 12, 2003)
- Aerosol therapy in ENT field : lecture for ENT practitioner in Guro area (Korea University Hospital, Seoul :Sep 17, 2003)
- Nasal disease and terminology : lecture for speech therapist in Yongin University (Oct 29, 2003)
- Turbinate surgery : lecture for ENT practitioner in Suwon area (Suwon : Nov 12, 2003)
- Management of nasal obstruction : lecture for ENT resident at Sungae Hospital (Dec 9, 2003)

VISITING PROFESSORS

- Yongjin Park, M.D.
Associate Professor, Department of Otolaryngology, Catholic University College of Medicine
“Steroid therapy in rhinology” (Mar 12, 2003)
- Todor Karchev, M.D.
Professor, Department of Otolaryngology, Sophia University, Bulgaria
“Diagnosis & management of otosclerosis” (Apr 7, 2003)
- Eun Chang Choi, M.D.
Associate Professor, Department of Otolaryngology, Yonsei University College of Medicine
“Parotidectomy” (Apr 9, 2003)
- Hyung-Tae Kim, M.D.
Associate Professor, Department of Otolaryngology, Catholic University College of Medicine
“Activation and neuroimmunologic reaction of laryngeal neuronal circuitry in response to laryngeal stimulation and laryngeal inflammation” (May 23, 2003)
- Sung-Hwa Hong, M.D.
Associate Professor, Department of Otolaryngology, Sungkyunkwan University School of Medicine
“Government support for CI and cost-effectiveness” (May 31, 2003)
“A case with Kinked distal electrode” (May 31, 2003)
- Sun O Chang, M.D.
Professor, Department of Otolaryngology, Seoul National University College of Medicine
“Standard and alternative method for CI” (May 31, 2003)
- Lee-Suk Kim, M.D.
Professor, Department of Otolaryngology, Dong-A University College of Medicine
“Inner ear anomaly and CI” (May 31, 2003)
- Hee-Nam Kim, M.D.
Professor, Department of Otolaryngology, Yonsei University College of Medicine
“CI in the ossified cochlear” (May 31, 2003)
- Tae Hyun Yoon, M.D.
Professor, Department of Otolaryngology, Ulsan University College of Medicine
“Complication of CI” (May 31, 2003)

- Chong-Sun Kim, M.D.
Professor, Department of Otolaryngology, Seoul National University College of Medicine
“Revision surgery for CI” (May 31, 2003)
- Kwang-Sun Lee, M.D.
Professor, Department of Otolaryngology, Ulsan University College of Medicine
“Bilateral cochlear implantation” (May 31, 2003)
- Sigfrid D. Soli, Ph.D.
Head, Department of Human Communication Sciences and Devices, House Ear Institute, Los Angeles, U.S.A.
“Hearing in noise test (HINT)” (May 31, 2003)
- Sang Heun Lee, M.D.
Professor, Department of Otolaryngology, Kyungpook National University College of Medicine
“Recent advances in evaluation tools for profound SNHL” (May 31, 2003)
“CI in clinical cases with inner ear anomalies” (May 31, 2003)
- Ho-Ki Lee, M.D.
Associate Professor, Department of Otolaryngology, Yonsei University College of Medicine
“CI in clinical cases with cholesteatoma” (May 31, 2003)
- Young-Myoung Chun, M.D.
Director, Soree Ear Clinic
“CI in clinical cases with COM” (May 31, 2003)
- Woong-Hee Lee, M.D.
Director, LJ Urology Clinic
“Andrology” (Jun 11, 2003)
- Tae-Young Jang, M.D.
Professor, Department of Otolaryngology, Inha University College of Medicine
“Basic approach for rhinoplasty” (Jun 13, 2003)
- Hyung-Jong Kim, M.D.
Professor, Department of Otolaryngology, Hallym University College of Medicine
“Pathogenesis of cholesteatoma” (Jun 27, 2003)
- Young-Hwa Choi, M.D.
Assistant Professor, Department of Pulmonology, Ajou University School of Medicine
“Antibiotics therapy at Otolaryngology” (Jul 9, 2003)

- Chul Hee Lee, M.D.
Professor, Department of Otolaryngology, Seoul National University College of Medicine
“Endoscopic sinus surgery” (Sep 17, 2003)
- Kyung Tae, M.D.
Associate Professor, Department of Otolaryngology, Hanyang University College of Medicine
“Chemoprevention and genetic susceptibility of head and neck cancer” (Oct 17, 2003)
- Chae-Seo Rhee, M.D.
Assistant Professor, Department of Otolaryngology Seoul National University College of Medicine
“Allergen independent immunostimulatory sequency oligodeoxynucleotide(ISS-ODN) therapy attenuates experimental allergic rhinitis” (Nov 28, 2003)
- Sung-Chul Hwang, M.D.
Associate Professor, Department of Pulmonology, Ajou University School of Medicine
“Peroxiredoxins and oxidative signal transduction” (Feb 5, 2003)

PATIENT CARE**PATIENT CARE(CONT'D)**

Outpatient Visits	Total	50,371
include	New	11,009
	Old	39,362
Inpatients		2,525
Emergency Room Visits		1,023
Operative Cases (procedures)	Total	2,857(3,595)
include	Ear	857(1,028)
	Nose	523(996)
	Head & Neck	1,477(1,571)
Audiology	Total	16,331
include	Pure tone audiogram	6,518
	Impedance audiogram	3,678
	Tinnitusgram	175
	Brain stem auditory evoked potential	608
	Speech audiogram	2,845
	Otoacoustic emission	1,637
	E-tube function test	53
Hearing Aid		146
CI Mapping		238
Vestibular Function Test		1134
Vocal Dynamic Lab. Examination		101
Speech Therapy		1,577
Allergy Clinic		743
H & N Clinic		572
Promontory Test		4

Operative Procedure

EAR	Total	1,028
include	Atticosinoplasty	35
	Canaloplasty	1
	Cochlear implantation	28
	Dental roll apply	2
	Explotympanotomy	20
	Fistulectomy	48
	Foreign body removal	2
	Intact canal wall mastoidectomy	28
	Mass excision	19
	Meatoplasty	5
	Myringoplasty	31
	Myringotomy	2
	Open cavity mastoidectomy	92
	Ossiculoplasty	124
	Otoplasty	1
	Patch graft	8
	Radical mastoidectomy	6
	Revision mastoidectomy	1
	Simple mastoidectomy	24
	Sebaceous cyst excision	2
	Stapedotomy	5
	Tympanoplasty	220
	Temporal bone resection	1
	V-tube insertion	323

All totals are for the period Mar 1, 2003 through Feb 29, 2004.

NOSE	Total	996
include	Angiofibroma excision	2
	Bleeder ligation	2
	Caldwell-Luc op.	8
	Closed nasal bone reduction	13
	Conchotomy	85
	Dura repair	2
	Excisional biopsy	9
	Foreign body removal	8
	Frontal sinusotomy	110
	Laser conchotomy	5
	Mass excision biopsy	2
	Maxillectomy	2
	Endoscopic sinus surgery	411
	Septoplasty	137
	Septorhinoplasty	31
	Sphenoidotomy	21
	Submucosal resection	20
	Transsphenoidal pituitary approach	6
	Turbinoplasty	122

Head & Neck	Total	1,571
include	Adenoidectomy	86
	Bleeder ligation	16
	Bronchoscopy	Bouginage 1
		Diagnostic 9
		Foreign body removal 4
		Granulation tissue removal 2
	Double opposing Z-plasty	1
	Esophagoscopy	Diagnostic 8
		Foreign body removal 1
	Excision	Congenital neck mass 16
		Oral cavity mass 39
	Excisional biopsy of neck mass	17
	Explo-neck	1
	Frenotomy	87
	Frontolateral laryngectomy	1
	Hematoma evacuation	1
	Incision & drainage for deep neck infection	19
	Laryngomicrosurgery	142
	LAUP	12
	Major reconstruction	
	Regional flap	Pectoralis major myocutaneous 1
		Gastricpull-up 1
	Free flap	Forearm 2
	Mass excision	21
	Marsupialization of ranula	14
	Neck dissection	
		Radical 10
		Modified radical 3
		Lateral 21
		Supraomohyoid 4
		Central 1
	Parotidectomy	Superficial 12
		Total 2
	Primary closure	5
	Sistrunk operation	12
	Stomoplasty	9
	Submandibular gland excision	23
	Supracricoid partial laryngectomy	2

FACILITIES & EQUIPMENTS(CONT'D)

Thyroidectomy	17
Thyroplasty	3
Tonsillectomy	198
Tonsillectomy & Adenoidectomy	540
Total laryngectomy	10
Total laryngopharyngoesophagectomy	1
Tracheotomy	116
Tracheal end to end anastomosis	1
T-tube insertion	4
T-tube removal	2
Uvulopalatopharyngoplasty	67
Tracheal granulation tissue removal	3
Vertical partial laryngectomy	2
Wide excision	
Tongue cancer	3

FACILITIES & EQUIPMENTS

1. OUTPATIENT CLINIC

1) ENT unit and chair	
Reliance (Models 425/ 525)	7
Reliance (Models 7000LFC/HFC)	7
2) Audiological Laboratory	
Audio Booth	
Single room (Delta 143-A)	1
Double room (RS 253-B)	1
Pure Tone Audiometry	2
Virtual model 322	
Macintosh LC/475	
Style writer II	
Madsen Orbiter 922 version 2	
Otoacoustic Emission	1
ILO 92	
Samsung sync master 3G	
Intercom (Samsung 486 Green Computer)	
Hewlett Packard deskjet 5550	
Auditory Brain Stem Response Audiometry	1
Navigator (Bio-Logic)	
Biologic Samtron monitor	
Hewlett Packard paintjet	
Impedance Audiometry	2
Macintosh LC/475	
Style writer II	
Madson 20 DIAC 901	
Siemens Hearing Analyzer, Real Ear Measurement	1
Hyunju monitor	
Hyunju computer	
HiPRO	
Hewlett Packard deskjet blok	
GSI Audio Screener	1
Nucleus 3.0/NRT/Software (Nucleus)	
Soundware/Accessory (Clarion)	
Audiobooth(Kwangwoo medics)	
Aurical (Madsen Electronics)	1
3) Vestibular Function Laboratory	
Computerized ENG system (Micromedical Technologies INC.)	1
Digital light bar (Model 15003)	

Samsung sync master 3G	
Intercom (Samsung 486 Green Computer)	
Hewlett Packard laserjet 4	
Rotation Chair System (Micromedical Technologies INC.)	1
Rotatory chair (System 2000)	
Drum	
Controller (Model 300)	
Samsung sync master 3G	
Intercom (Samsung 486 Green Computer)	
Samsung Magic Station CP20	1
Brookler-Grams Closed loop caloric irrigator	1
Water Caloric Stimulation (NCI-480) (ICS medical)	1
Video Eye Movement Recorder (ICS medical)	1
4) Vocal Dynamic Laboratory	1
Bruel & Kjaer Rhino-Larynx Stroboscope 4914	
CCD camera (Toshiba)	
Camera controller (Toshiba)	
VCR (Panasonic SVHS. AG-1970)	
Color monitor (Sony Trinitron)	
Color printer (Sony CVP-M3)	
Nasometer (YK Science)	
Visi-Pitch III (YK Science)	
Speech-Viewer III (Hanabro)	
5) Low Power Laser (Felas Medical Laser HN12)	1
6) Emergency kit	1
7) Autoclave	1
8) Operating microscope	2
Carl Zeiss OMPI 111	
Carl Zeiss OMPI 99	
9) Nebulizer	1
10) OES Video System	1

11) Visual Education System	1
CCD camera (Toshiba)	
Camera control Unit (Hitachi)	
Sony digital video adapter (XV-D300)	
Telecam (Storz NTSC)	
VCR (Panasonic SVHS, AG-7350)	
Color monitor (Sony Trinitron)	
Color printer (Sony Mavigraph)	
12) Camera system	2
Nikon F801S	
Fuji Finepix S2pro	
13) Video Camcorder	1
Sony DCR-TRV17	
14) Plastic Model	3
Skull	1
Larynx	1
Ear	1
2. OPERATION ROOM	
Tonsillectomy set	4
T et A set	3
ENT prep.	3
Tympanoplasty set	3
V-tube set	2
Head rest set	1
Transtemporal supra-labyrinthine approach set	1
Microsurgery set	1
Nasal basic set	4
Nasal dressing set	4
Submucous resection set.	3
Intranasal antrostomy set.	2
Caldwell set	2
Antral douche set	2
Tracheostomy set	1
Excision set	1
Laryngectomy set	1
Endoscope set	2

Operating microscope (Zeiss)	3
OMPI-CS-I S4	
OMPI-MDM	
5PMICSI-S4(Combilux)	
Drill system surgical (Xomed-Treace)	9
APS	2
MPS-2000	3
New-MPS	4
Otoscope(Karl-Stroz)	1
Endoscopes	
Esophagoscope set	1
Bronchoscope set	2
Adult set	
Child set	
Laser Bronchoscope set	1
Laryngoscope set	2
Surgical head light system	2
Karl-Storz	
Nerve monitoring system (NIM2)	1
LASER system	2
Carbon Dioxide	
Contact YAG	
Visual education system	1
CCD camera & VCR system	
Color monitor (Anam)	
Debrider	
XOMED 2000	1

3. OA SYSTEM

Computer system & printer	
32 bit IBM PC (486)	2
32 bit IBM PC (586)	2
Hewlett Packard scanjet 3C	1
Laser printer IIG	1
Macintosh LC/475	2
Power Macintosh 7500/100	1
Printer (Epson stylus Photo EX3)	1
Printer (H & P Laser Jet 5000LE)	1
Printer (Sindo Ricoh Blackfoot LP 1900e)	1
Scanner (Epson Perfection 1240U)	1
Scanner (Epson Perfection 3200PHOTO)	1
QMS 1660E Printer system	1

Projector (Kodak)	2
5600 KK	
4600 KK	
Overhead projector (3M)	1
Beam Projector (Sindo Ricoh)	
Mrp-x12	1
Laser indicator	5
Copy machine	
(Korea Xerox XK-392)	1
(Sindo Ricoh NT-4040)	2
(Lotte Canon LC 6025M)	1
Video system	1

4. LABORATORY

Light Microscope (Olympus)	3
Microscope WILD M651 (Leica)	1
Microprobe(Fischer Biotech)	1
Temporal bone dissection set	1

5. VIDEO LIBRARY

Application of the contact laser in otorhinolaryngology and head & neck surgery	
Allergy in house dust mite	
Canal reconstruction procedure (Penrose production)	
Diffuse exostosis & osteoma of the external auditory canal	
Facial nerve surgery (Jack L. Pulec)	
Facial nerve & chronic ear surgery (James L. Sheehy)	
Interactive trip in otology (R. Vincent)	
IONOS Middle ear prosthesis operation	
Keratitis obturans (James L. Sheehy)	
KTP/ 532 Laser system in otorhinolaryngology	
Laser engineering Inc.	
Laser assisted uvulopalatoplasty	
Meniere's disease (Schuknecht)	
Microsurgery of the skull base (U. Fisch)	
Nasal allergy	
Nerve integrity monitor (Xomed-Treace)	
Nystagmus & caloric test analysis flexibility (Micromedical technologies)	
Provox (J.M. Hilger, J.M. Balm)	
Reconstruction of the ossicular chain (G. Geyer)	
Sinus surgery	
Stapes fixation (U. Fisch)	

Stapedectomy (Schuknecht)

Sinojet (ATOS)

Swift Laser system for office ENT procedures (LAUP, tonsils, turbinates)

Surgical anatomy of the temporal bone(Mario Sanna)

1. Surgical anatomy of the temporal bone (part I)
2. Surgical anatomy of the temporal bone (part II)
3. Topographic anatomy of the temporal bone
4. Surgical anatomy of the lateral skull base, The infratemporal fossa approach A
5. The infratemporal fossa approach B & C
6. The enlarged translabyrinthine approach
7. Middle fossa approach, etc.
8. The system of the modified transcochlear approach (part I)
9. The system of the modified transcochlear approach (part II)
10. The system of the modified transcochlear approach (part III)

Surgical technique of the temporal bone & skull base (Silverstein, Rosenberg)

1. Instrument set-up, etc.
2. Laser stapedotomy
3. Tympanoplasty
4. Revision mastoid-tympanoplasty
5. Combined retrolabyrinthine/retrosigmoid vestibular neurectomy
6. Singular neurectomy, Acoustic neuroma

Temporal bone dissector (N.H. Blevins)

The 5th international symposium on recent advances in otitis media (T. Kumazawa)