



Ajou University
School of Medicine

DEPARTMENT
OF

OTOLARYNGOLOGY

2002 - 2003
ANNUAL REPORT



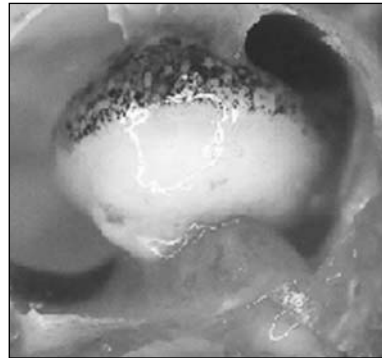


OTOLARYNGOLOGY

AJOU UNIVERSITY SCHOOL OF MEDICINE

SUWON, KOREA

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



Experimentally Induced Cholesteatoma in the EAC of Mongolian Gerbil

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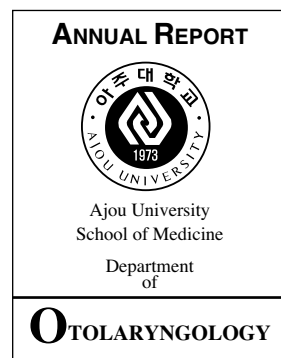
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Ajou Otolaryngology Symposium

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Ajou University Hospital, Suwon, Korea

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Last Update : May 2, 2003

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First Departmental Homepage : April, 1997

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INTRODUCTION

This year marks the 30th anniversary of Ajou University and the 15th anniversary of School of Medicine. Two years have passed since we had the hard time because of a nation-wide doctor's strike and an entanglement inside Ajou University. Also, this year the social atmosphere has become very unflexible due to political unrest. However, we expect the conflict to have been settled by now though the struggle seems to last longer than anticipated.

Interest has continued to grow in this annual report ever since it was first published in 1995. It is hoped that, through the active effort by all members in the department, the annual report of this year will provide an excellent information of the department for furthering patient care, research, and education as well as other service to the community. The department strives to grow continuously with a spirit of pioneerism and cooperation, and to maintain its high standard of education, research, and medical service. This year new faculties and new staff members have been also recruited to enhance the department's productivity. We have to establish new relationship of trust and mutual support with our new faculties and staff members.

The loyal assistance of our full-time faculties and resident doctors, as well as our nursing staffs and laboratory technicians, is acknowledged with gratitude. We also appreciate the support from the School of Medicine and the University in helping us to achieve our goals.

Respectfully,

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

Chairman

Department of Otolaryngology

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Society Memberships, University and Hospital Committee
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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.

Ph.D. Yonsei University, 1982.

Otology, Neurotology

E-mail : parkkh@madang.ajou.ac.kr

Sung-Kyun Moon, M.D. Assistant Professor

M.D. Yonsei University 1989.

Ph.D. Yonsei University 2000.

Otology, Neurotology

E-mail : Smoon@madang.ajou.ac.kr

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

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

M.D. Ajou University, 1996.

Ph.D. Ajou University, 2001.

Otology, Neurotology & Skull base surgery

E-mail : yhc@madang.ajou.ac.kr

Chul-Ho Kim, M.D. Assistant Professor

M.D. Inha University, 1993.

M.S. Inha University, 2000.

Head & Neck Oncological Surgery, Rhinology

E-mail : ostium@madang.ajou.ac.kr

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

M.D. Chonnam University, 1973.

Ph.D. Chonnam University, 1985.

Hyung Bo Shim, M.D. Clinical Professor

M.D. Chonnam University, 1980.

Jeong Bae Kim, M.D. Clinical Associate Professor

M.D. Chung-Ang University, 1981.

Ph.D. Chung-Ang University, 1990.

Jung Ha Suh, M.D. Clinical Professor

M.D. Chung-Ang University, 1982.

Ph.D. Chung-Ang University, 1992.

Keun Soo Hyun, M.D. Clinical Associate Prof.

M.D. Chung-Ang University, 1984.

Ph.D. Chung-Ang University, 2000.

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

M.D. Soonchunyang University, 1987.

Ju-Hyun Eum, M.D. Clinical Assistant Prof.

M.D. Yonsei University, 1987.

M.S. Ajou University, 1996.

Deuk Moon Ma, M.D. Clinical Assistant Prof.

M.D. Chosun University, 1989.

Jee-Won Kang M.D. Clinical Assistant Prof.

M.D. Yonsei University, 1989.

M.S. Yonsei University, 1996.

Man Soo Kim, M.D. Clinical Assistant Prof.

M.D. Korea University, 1990.

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

M.D. Yonsei University, 1990.

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.

Jeong Tai Kim, M.D. Clinical Professor

M.D. Catholic University, 1969.

Ph.D. Catholic University, 1997.

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.

Ph.D. Hanyang University, 1986.

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

M.D. Yonsei University, 1983.

M.S. Yonsei University, 1986.

Sung Woo Park, M.D. Clinical Associate Prof.

M.D. Korea University, 1986.

Ph.D. Korea University, 1996.

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

M.D. Inje University, 1986.

Bong Ki Hong, M.D. Clinical Assistant Prof.

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-il Park, M.D. Clinical Assistant Prof.

M.D. Pusan University, 1991.

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

M.D. Yonsei University, 1991.

Hee Sub Chung, M.D. Clinical Instructor

M.D. Inje University, 1993.

Residents

FOURTH YEAR

Ho Seok Choi, M.D.

M.D. Yonsei University, 1994

Jeong-Min Chun, M.D.

M.D. Soonchunhyang University, 1996

THIRD YEAR

Joon 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

SECOND YEAR

Jinseok 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

FIRST YEAR

Jang Woo Lee, M.D.

M.D. Ajou University, 2001

Jung Yoon Mo, M.D.

M.D. Ajou University, 2001

Research Fellow

Alexander Raynov, M.D.

M.D. Sophia University, Bulgaria, 1996

Sung Ook Kang, M.D.

M.D. Yonsei University, 2001

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 Park, R.N.

NURSE AID

Eun-Young Cho

Seon-Young Han

Kyeong-Ae Choi

Yang-Soon Kim

Yoon-Joo Jung

AUDIOLOGICAL LABORATORY

Young-Sook Kang

Hyoung Ah Mun

VESTIBULAR LABORATORY

Mi-Yoo Koh

VOCAL DYNAMIC & SPEECH LABORATORY

Hyun-Kyung Jung

MOLECULAR BIOLOGY LABORATORY

Hye-Jin Lim

SECRETARY

Soo-Jin Na

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 Acadmy of Otolaryngology-Head and Neck Surgery

Collegium Oto-Rhino-Laryngologicum Amicitiae Sacrum

Ajou University Vision Committee

The 6th International Conference on Immuno-and Molecular Biology in Otorhinolaryngology,

General Secretary

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

Bioengineering Comittee

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

Korean Medical Association

Korean Dental Association

Korean Otolaryngological Association

The Korean Otology Study Group

Korean Society of Medical Biochemistry and Molecular Biology

The Korean Society of Medical Education

Korean Tissue Engineering Society

Chul-Ho Kim, M.D.

Korean Medical Association
 Korean Otolaryngological Association
 The Korean Head and Neck Study Group
 The Society of Korean Logopedics & Phoniatics
 The Korean Society for Head & Neck Oncology
 Korean Society of Medical Biochemistry and Molecular Biology
 Korean Tissue Engineering Society

TRAVELKeehyun Park, M.D.

- The 20th Allergy and Immunology Meeting of Japanese Otolaryngological Society (Izumo City, Japan : Mar 7-9, 2002)
- 2002 Meeting of Collegium Oto-Rhino-Laryngologicum Amicitiae Sacrum (Noordwijk, Netherland : Aug 25-28, 2002)
- The 6th International Academic Conference on Immuno - and Molecular Biology in Otorhinolaryngology (Jeju Island, Korea : Oct 17-20, 2002)

Sung-Kyun Moon, M.D.

- The 26th International Congress of Audiology (Melbourne, Australia : Mar 18-21, 2002)
- Wullstein International Symposium on Bilateral Cochlear Implant (Würzburg, Germany : Dec 9-13, 2002)
- The 26th Midwinter Meeting of Association for Research in Otolaryngology (Daytona beach, Florida, U.S.A : Feb 23-27, 2003)

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

- Lateral Skull Base Surgery Course, Gruppo Otologico, AINOT (Piacenza, Italy : Oct 21-28, 2002)
- 5th Annual Meeting of the Tissue Engineering Society International. (Kobe, Japan : Dec 8-10, 2002)

Chul-Ho Kim, M.D.

- Head and Neck Course 2002 : Thyroid and Salivary Gland (Queen Mary Hospital, Hong Kong : Jun5-8, 2002)
- 2002 AAO-HNSF Annual Meeting & Oto Expo Instruction Course (San Diego, U.S,A : Sep 20-27, 2002)

PRESENTATIONKeehyun Park, M.D.

- The 9th Korea-Japan Joint Meeting of Otorhinolaryngology Head and Neck Surgery (Seoul : Apr 25, 2002)
“Study on the 3-dimensional structure of the human ossicle using micro-CT”
“Differential diagnosis of ear canal mass”
- The 8th Korean Combined Otolaryngological Congress (Seoul : Apr 26-27, 2002)
“Decision analysis for early diagnosis of small vestibular schwannoma (Panel)”
“Middle ear anomaly (Symposium)”
- 2002 Yonsei Clinical Otology and Neurotology Symposium (Seoul : Jun 9, 2002)
“Tympanoplasty (Panel)”
- 2002 Meeting of Collegium Oto-Rhino-Laryngologium Amicitiae Sacrum (Noordwijk, Netherland : Aug 25-28, 2002)
“Expression of β -defensin in human middle ear cholesteatoma”
- The 76th Annual Congress of Korean Society of Otolaryngology (Seoul : Oct 25-26, 2002)
“Sudden deafness in vestibular schwannoma”
“Treatment result in sudden sensorineural hearing loss according to different protocols”
“Micro-CT study on 3-dimensional structure of ossicles destructed by cholesteatoma”
“Surgical and imaging pathology of temporal bone (Instruction course)”
- The 25th Annual Meeting of Korean Otology Study Group (Seoul : Nov 2, 2002)
“Treatment of otitis media with effusion (Panel)”

Sung-Kyun Moon, M.D.

- The 8th Korean Combined Otolaryngologic Congress (Seoul : Apr 26-27, 2002)
“Conservation of β -defensin upregulation by inflammatory stimuli in human middle ear epithelial cell line”
- The 8th Ajou Otology Symposium (Suwon : Jun 1, 2002)
“Significance of newborn hearing screening program”
- The 6th International Academic Conference on Immuno-& Molecular Biology in Otorhinolaryngology (Jeju Island : Oct 17-20, 2002)
“Conservation of mucous epithelial characteristics in the human middle ear epithelial cell line”
- The 76th Congress of Korean Society of Otolaryngology (Seoul : Oct 25-26, 2002)
“Efficiency and cost-effectiveness of newborn hearing screening program”

- The 25th Annual Meeting of Korean Otology Study Group (Seoul : Nov 2, 2002)
“Antimicrobial molecules in tubotympanum”
- The 26th Midwinter Meeting of Association for Research in Otolaryngology (Daytona beach, Florida, U.S.A : Feb 23-27, 2003)
“Comparative analysis of green fluorescent protein-labeled connexin 26 in the wild type and mutation”

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

- The 8th Korean Combined Otolaryngological Congress (Seoul : Apr 26)
“Clinical characteristics and diagnostic classification of vertigo in children”
“A Case of metallic foreign body penetrated into posterior ethmoid sinus through orbit”
- The 8th Ajou Otology Symposium (Suwon : Jun 1, 2002)
“Functional study of GJB2 in hereditary hearing loss”
- 2002 Yonsei Clinical Otology and Neurotology Symposium (Seoul, Jun 9, 2002)
“Treatment results of sudden sensorineural hearing loss according to different protocols”

Chul-Ho Kim, M.D.

- The 8th Korean Combined Otolaryngological Congress (Seoul : Apr 26-27, 2002)
“Analysis of voice function after vertical partial laryngectomy”
- The 76th Congress of Korean Society of Otolaryngology (Seoul : Oct 25-26, 2002)
“Clinical characteristics of treatment of parapharyngeal space abscess”
“Clinical review of acute epiglottitis”

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

- Choung YH, Moon SK, Park HJ : Functional study of GJB2 in hereditary hearing loss. Laryngoscope 112:1667-1671, 2002
- Moon SK, Lee HY, Jian-Dong Li, Mitsuyoshi Nagura, Kang SH, Chun YM, Fred H. Linthicum, Tomas Ganz, Ali Andalibi, David J. Lim : Activation of a Src-dependant Raf-MEK1/2-ERK signaling pathway is required for IL-1 α -induced upregulation of β -defensin 2 in human middle ear epithelial cells. Biochemica et Biophysica Acta 1590:41-51, 2002
- Chun YM, Moon SK, Lee HY, Webster P, Brackmann DE, Rhim JS, Lim DJ : Immortalization of normal adult human middle ear epithelial cell using a retrovirus containing the E6/E7 genes of human papillomavirus type 16. Ann Otol Rhinol Laryngol 111(6):507-517, 2002
- Jin S, Moon SK, Gu xx, Ueyama S, Rhim JS, Lim DJ : Immortalization of rat eustachian tube epithelial cells by adenovirus 12-simian virus 40 hybrid virus. Ann Otol Rhinol Laryngol 111(10):919-25, 2002
- Suh KS, Park HS, Nahm DH, Kim YK, Lee YM, Park K: Role of IgG, IgA, and IgE antibodies in nasal polyp tissue: their relationship with eosinophilic infiltration and degranulation. J Korean Med Sci 17:375-380, 2002
- Park K : Management of early cholesteatoma. J Clinicial Otolaryngol 13:13-19, 2002
- Park K, Moon SK, Choung YH, Choi HS : Congenital ossicular anomaly with intact tympanic membrane. Korean J Otolaryngol 45:925-956, 2002
- Moon SK, Park HJ, Park K : Significance of newborn hearing screening program using TEOAE. Korean J Audiol 6:9-13, 2002
- Moon SK, Park HJ, Kim YJ, Park MS, Choung YH, Park K: Results and cost-effectiveness of newborn hearing screening program in Ajou University Hospital. Korean J Otolaryngol 45:1052-1056, 2002

- Kim YH, Yang HK, Park MS, Moon SK : Newborn Hearing Screening : 3 Years of Experience. Korean J Neonatol 9(1):99-104, 2002
- Choung YH, Park K, Ryu SJ, Cho MJ, Kim YJ, Lee SJ : Compressive technique for treatment of auricular hematoma using dental impression material. Korean J Otolaryngol 45:569-573, 2002
- Choung YH, Park K, Moon SK, Ryu SJ : Clinical characteristics and diagnostic classification of vertigo in children. Korean J Otolaryngol 46:105-109, 2003
- Choi EC, Kim CH, Lim YC, Son EJ : Surgical treatment of cancer of the orbit with lymph node metastasis of parotid gland. Korean J Otolaryngol 45:273-278, 2002
- Choi EC, Kim CH, Shin SH, Lim JY, Yang HD, Kim KM : Supraglottic partial laryngectomy is contraindicated in patients elder than 70 years old? Korean J Otolaryngol 45:383-386, 2002

ABSTRACTS

1. International Meeting

- 2002 Meeting of Collegium Oto-Rhino-Laryngologicum Amicitiae Sacrum (Noordwijk, Netherland : Aug 25-28, 2002)

“Expression of β -defensin in human middle ear cholesteatoma”

Background : Human immune system consists of innate and adaptive immunity. Innate immunity ensures prompt and nonspecific defensive response. Physical barriers (skin, mucosa), macrophages, complement and wide scope of antimicrobial peptides are the major components of innate immune system. In comparison, adaptive immunity acts specifically and potently, ensuring Ab-dependent and cell-mediated cytotoxicity. Defensins are members of a peptide family with broad spectrum of antimicrobial activity. Recent reports suggest that human β -defensin(hBD) 1 is an important component of the mucosal innate immune response towards pathogen colonization. Middle ear cholesteatoma is composed of stratified squamous epithelium (matrix) surrounded by well-vascularized granulation tissue (perimatrix). The invagination theory of the genesis of cholesteatoma considers negative pressure and recurrent episodes of inflammation in middle ear cavity as pathogenetical prerequisites for attic retraction pocket, with subsequent attic cholesteatoma development. Study Design : This study aimed, using immunohistochemical techniques and RT-PCR, to establish the eventual presence of human β -defensins in middle cholesteatoma and paired retroauricular skin samples, obtained during the surgical treatment. It could be hypothesized that β -defensin 1, 2 & 3 are up-regulated in cholesteatoma in comparison with retroauricular skin. Results : The immunohistochemical study demonstrated stronger hBD-2 positive staining in middle ear cholesteatoma in comparison with retroauricular skin. No significant differences in hBD-1 expression was detected between cholesteatoma and skin samples. RT-PCR established elevated expression of hBD-2 and hBD-3 mRNA in middle ear cholesteatoma. hBD-1 mRNA was constitutively expressed in cholesteatoma and retroauricular specimens.

Conclusion : Preliminary experimental results gave us ground to conclude that human β -defensins could play an important role in the chronic inflammatory state of middle ear cholesteatoma.

- The 9th Korea-Japan Joint Meeting of Otorhinolaryngology-Head and Neck Surgery (Seoul, Korea : Apr 25, 2002)

“Study on the Three dimensional Structure of the Human Ossicle using Micro CT”

Background and Objectives : 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, thickness, strength and angle. Materials and Method : The structure of ossicles obtained from 3 cadavers were analyzed through micro CT 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-AnalyzerTM and AntTM. Based on the results, the strength, length and angle of each ossicle were measured. Result : 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 strength of ossicles, was higher in the portion close to the articular surface. Conclusion : Our preliminary data of ossicular structure analysed by micro CT scan will be helpful for elucidation of ossicles' s structure and further development of artificial prosthesis.

“Differential Diagnosis of Ear Canal Mass”

Introduction : Some middle ear pathologies can extend into the external ear canal. These pathologies are required to underline the importance of their inclusion in the differential diagnosis of the ear canal mass. Moreover, taking a biopsy of these pathologies in the outpatient clinic without proper radiological study is sometimes hazardous. Purpose : The purpose of this study is to familiarize the otologists with the ear canal masses. Materials and Methods : We analyzed middle ear lesions extending to the external ear canal and lesions peculiar to the external ear canal. These lesions were documented by photographing ear canal and operation finding including radiographic materials(temporal bone CT and MRI). Results : In this study, We experienced 10 middle ear lesions extending to the external ear canal (ear polyps, granulation tissues, tuberculosis, leukemia, Langerhan' s cell histiocytosis, fibrous dysplasia, chondromyxoid fibroma, papillary adenoma, trigeminal schwannoma, squamous cell carcinoma) and 10 lesions peculiar to the external ear canal (ear canal cholesteatoma, traumatic cholesteatoma, iatrogenic cholesteatoma, cholesterol granuloma, osteoma, wart, ear canal bone fracture, foreign body, facial schwannoma, squamous cell carcinoma). Conclusion : In conclusion, We experienced that very rare conditions including skull base tumors could be presented as an ear canal mass.

- The 26th Midwinter Meeting of Association for Research in Otolaryngology
(Daytona beach, Florida, U.S.A : Feb 23-27, 2003)

“Comparative analysis of green fluorescent protein-labeled connexin 26 in the wild type and mutations”

Introduction : Connexin 26 (Cx26), one of gap junction proteins, is a critical molecule of potassium recycling between perilymph and endolymph of the cochlea. Mutation of Cx26 causes congenital profound sensorineural hearing loss and it is the major mutant gene of non-syndromic hereditary deafness. In our previous study we showed the differences in the subcellular distribution and the function between the wild type and the mutation of Cx26. The purpose of this study is to demonstrate the difference in the trafficking and assembly of green fluorescent protein (GFP)-labeled Cx26 between the wild type and the mutation in the living mammalian cells. Materials : Coding sequences of connexin 26 were cloned from the genomic DNA of normal subjects and connexin 26 mutation-related deaf patients and inserted into GFP expressing vector to express GFP-labeled chimeric connexin 26 (Cx26-GFP). The vector construct was transfected into Hela cells using cationic lipid. The expression of GFP tagged connexin 26 was traced in the living cells under the fluorescent microscope. Results: Fluorescence microscopy showed that the wild type Cx26-GFP chimeras were expressed and assembled into the cell membrane. In contrast, mutated Cx26-GFP chimeras were expressed, however, localized only in the cytosol. Conclusions : Our preliminary data shows the different trafficking and assembling patterns between the wild type and the mutated Cx26 in the living cells. This experimental system using GFP can allow us to do further functional analysis of Cx26 and to prepare the basic data for the gene therapy.

2. Domestic Meeting

- The 8th Korean Combined Otolaryngological Congress
(Seoul : Apr 26-27, 2002))
 - “Conservation of β -defensin upregulation by inflammatory stimuli in human middle ear epithelial cell line”
 - “Newborn hearing screening program using TEOAE”
 - “Middle ear anomaly”
 - “Voice analysis after vertical partial laryngectomy”
 - “Correlation between allergic skin test and ECP concentration of middle ear effusion in serous otitis media”
 - “The pattern of electronystagmography in BPPV”
 - “Two cases of traumatic cholesteatoma”
 - “Clinical characteristics and diagnostic classification of vertigo in children”
 - “A case of metallic foreign body penetrated into posterior ethmoid sinus through orbit”

- The 8th Ajou Otology Symposium
(Suwon : June 1, 2002)
 - “Significance of newborn hearing screening program”
 - “Functional study of GJB2 in hereditary hearing loss”
- The 76th Congress of Korean Society of Otolaryngology
(Seoul : October 25-26, 2002)
 - “Treatment result in sudden sensorineural hearing loss according to different protocols”
 - “Micro-CT study on 3-dimensional structure of ossicles destructed by cholesteatoma”
 - “Effeciency and cost-effectiveness of newborn hearing screening program”
 - “Clinical analysis of vestibular schwannoma with initial presentation of sudden deafness”
 - “Clinical characteristics deep neck infectionin in parapharyngeal space”
 - “Hearing aid update”
 - “Surgical and imaging pathology of the temporal bone (Instruction course)”
 - “Hereditary hearing loss”
 - “A case of glomus tympanicum”
 - “A clinical significance of AAO-HNS guidelines for Meniere’ s disease”
 - “A case of nasal angioleiomyoma”
 - “A case of maxillary cancer treated with radical maxillectomy by lateral facial approach and orbital rim reconstruction with temporalis muscle - coronoid process flap”
 - “Clinical review of acute epiglottitis”
- The 25th Annual Meeting of Korean Otology Study Group
(Seoul : Nov 2, 2002)
 - “Antimicrobial molecules in tubotympanum”
 - “Treatment of otitis media with effsion (panel)”

GRANTS RECEIVED

- Functional analysis and gene therapeutic application of fluorescent protein-tagged connexin26, funded by Department of Medical Sciences, the Graduate School, Ajou University
- Characterization of gene regulatory elements of antibacterial peptides, funded by Korea Research Foundation
- Connexin expression in human cholesteatoma epithelium, funded by Ajou University School of Medicine
- Preservation and Histological changes of injectable material after vocal fold injection of autologous fibroblast, funded by Ajou University School of Medicine

Education 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.

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 3rd Saturday 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 8th symposium was held in Jun 1, 2002. The title of the Symposium was "Hereditary hearing loss." This symposium consisted of 6 presentations ① Genetic understanding of hearing loss ② Significance of newborn hearing screening program ③ Responsible genes for Japanese non-syndromic autosomal dominant sensorineural hearing loss ④ Connexin 26 mutation in Korea hereditary hearing loss ⑤ Functional Study of GJB2 in hereditary loss ⑥ Detection of mitochondrial mutations and polymorphisms associated with Korean hereditary hearing loss by two-dimensional gene scanning(TDGS)), Special lecture(Genetic aspects of sensorineural hearing loss).

Ajou Hearing Rehabilitation Meeting : Our Department provides regular programs and meetings several times in a year, and gives informations about hearing rehabilitation to the patients and their families. The 3rd Ajou Hearing Rehabilitation Meeting was held in May 11, 2002. The title of the meeting was "About Artificial Cochlea" This meeting consisted of 4 topics ① Rehabilitation of profound hearing loss ② Wisdom of tiding over difficult situation ③ Plan of government grant for artificial cochlea ④ Event of painting and meeting of parents & teachers for hearing rehabilitation.

MEDICAL STUDENTS EDUCATIONKeehyun Park, M.D.

- Introduction of ENT : lecture for junior students (Feb 8, 2002)
- Structure & function of hearing organ : lecture for junior students (Feb 8, 2002)

Sung-Kyun Moon, M.D.

- Hearing impairment, otorrhea, otalgia : lecture for junior students (Feb 15, 2002)
- Audiology, rehabilitation of hearing : lecture for junior students (Feb 22, 2002)
- Physical examination in Otolaryngology : lecture for sophomore students (Oct 31, 2002)

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

- Vertigo, Tinnitus, Otologic emergency : lecture for junior students (Mar 8, 2002)
- Nose & PNS : Anatomy & Physiology : lecture for junior students (Mar 15, 2002)
- Oral cavity & Pharynx problem : lecture for junior students (Mar 15, 2002)
- Salivary Gland Disease : lecture for junior students (Mar 29, 2002)
- Broncho-Esophagology : lecture for junior students (Mar 29, 2002)
- Deep Neck Infection : lecture for junior students (Mar 29, 2002)
- Nose, PNS tumor : lecture for junior students (Mar 29, 2002)

Chul-Ho Kim, M.D.

- Nose & PNS disease, Septorhinoplasty : lecture for junior students (Mar 22, 2002)
- Structure & Function of Larynx : lecture for junior students (Apr 12, 2002)
- Trauma of Larynx : lecture for junior students (Apr 12, 2002)
- Hoarsness, Paralysis of Larynx : lecture for junior students (Apr 12, 2002)
- Neck mass : lecture for junior students (Apr 12, 2002)
- Pediatric Otolaryngology : lecture for junior students (Apr 12, 2002)
- Dx & Tx of Head & Neck tumor : lecture for junior students (Apr 19, 2002)

RESIDENTS EDUCATIONKeehyun Park, M.D.

- Cholesteatoma pathogenesis (Mar 23, 2002)
- Surgical and imaging anatomic pathology of temporal bone (Sep 28, 2002)

Sung-Kyun Moon, M.D.

- Cochlear implantation (Apr 13, 2002)
- Writing biomedical papers & reference managing software(EndNoteTM) (Oct 26, 2002)

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

- Lateral skull base surgery (vestibular schwannoma) (Nov 16, 2002)
- Migraine-associated vertigo (May 25, 2002)

Chul-Ho Kim, M.D.

- Neck dissection (June 29, 2002)
- Surgical treatment of tongue cancer (Jan 11, 2002)

Thesis for Master's DegreeJun Ho Lee, M.D.

- Study on the three dimensional structure of the human ossicle using Micro CT

OTHERSKeehyun Park, M.D.

- Tuberculous otitis media : case presentation at nine medical school joint meeting (Yonsei University Medical Center, Seoul : Mar 7, 2002)
- Management of middle ear cholesteatoma : lecture for ENT practitioners in Shinchon area (Shinchon Severance Hospital, Seoul : Apr 4, 2002)
- Moderator at middle ear surgery session of the 9th Korea-Japan Joint Meeting of Otorhinolaryngology-Head and Neck Surgery (Seoul : Apr 25, 2002)
- Moderator at middle ear research session of the 8th combined Otolaryngological Congress (Seoul : Apr 26, 2002)
- Moderator at special lecture of the 8th Ajou Otology Symposium (Suwon : June 1, 2002)
- Audiological Society (Daegu : June 22, 2002)

- Recent trend of cholesteatoma management : lecture for ENT practitioners in Anahm area (Korea University Hospital, Seoul : Sep 26, 2002)
- Moderator at middle ear plenary session of the 6th International Academic Conference on Immuno-and Molecular Biology in Otorhinolaryngology (Jeju Island : Oct 19, 2002)
- Moderator at inner ear disease session of the 76th Annual Congress of Korean Society of Otolaryngology (Seoul : Oct 26, 2002)

Sung-Kyun Moon, M.D.

- Audiologic rehabilitation : lecture at resident education workshop by Korean Otolaryngological Society (Seoul : Apr 14, 2002)
- Hearing aid update : lecture for ENT practitioner in Chungcheong area (Daejun : May 18, 2002)
- ENT disease : lecture for nursing students at Ajou University
- Diagnosis and treatment of hearing impairment in children : lecture for ENT practitioner at Yongdong area (Yongdong Severance Hospital, Seoul : Jun 27, 2002)
- Hearing aid overview : lecture for Audiologist Workshop (Seoul : Aug 14, 2002)
- Hearing aid update : lecture for ENT practitioner (Daegu : Sep 14, 2002)
- Genetic hearing loss-basic understanding and clinical trial : Instruction Course at 76th Congress of Korean Society of Otolaryngology (Seoul : Oct 25-26, 2002)
- Newborn hearing screening program : lecture for ENT practitioner in Shinchon area (Seoul : Nov 14, 2002)

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

- Embryology, anatomy, and disease of Ear : lecture for residents in Dental department, Ajou University Hospital (Suwon, Jun 27, 2002)
- Ear nose throat : Lecture for nurses in operating room, Ajou University Hospital (Suwon, Dec 14, 2002)

Chul-Ho Kim, M.D.

- Emergency in ENT department : lecture for intern in Ajou University Hospital (Suwon: May 26, 2002)
- Introduction of Head & Neck : lecture for nurses in Ajou Nursing School (Suwon, Jun 4, 2002)
- Multiple myoepithelioma in accessory parotid gland and minor salivary gland : case presentation at nine medical schools joint conference (Seoul : Sep 5, 2002)
- Two cases of occult-papillary thyroid ca misdiagnosed as a benign neck mass : case discussion in The 22th Korean Society of Head & Neck Surgeons (Pusan : Sep 14, 2002)
- Vocal register : lecture at study group of the Society of Korean Logopedics & Phoniatics (Seoul, Sep 14, 2002)

- Elective neck dissection in high risk skin cancer : Case discussion in The 23th The Annual Winter Meeting of Head & Neck Surgeons (Pyeongchang : Feb 21-22, 2003)

VISITING PROFESSORS

- Ho-ki Lee, M.D.
Assistant Professor, Department of Otolaryngology, Yonsei Univ. College of Medicine
"Molecular biology in otolaryngology" (Apr 4, 2002)
- Kyung-Su Kim, M.D.
Assistant Professor, Department of Otolaryngology, Yonsei Univ. College of Medicine
"New mechanism of NSAID' s anti-cancer effect : NSAID-activated gene-1" (Apr 19, 2002)
- Si-Young Chun, M.D.
Professor, Department of Otolaryngology, Kyungsang National Univ. College of Medicine
"Update and Surgical treatment of sinusitis" (May 17, 2002)
"Medical treatment of allergic rhinitis" (May 18, 2002)
- Hong-Shik Choi, M.D.
Professor, Department of Otolaryngology, Yonsei Univ. College of Medicine
"Voice analysis method" (Jun 15, 2002)
- Eun-Chang Choi, M.D.
Associate Professor, Department of Otolaryngology, Yonsei Univ. College of Medicine
"Update in hypopharynx ca treatment" (Jun 21, 2002)
- Sang-Heun Lee, M.D.
Professor, Department of Otolaryngology, Kyungpook National Univ. College of Medicine
"Cholesterol granuloma in the petrous apex" (Jul 6, 2002)
- Steven K.Juhn, M.D.
Professor, Department of Otolaryngology, University of Minnesota, College of Medicine, U.S.A.
"Aging effect on auditory function" (Jul 18, 2002)
- Min Sik Kim, M.D.
Professor, Department of Otolaryngology, Catholic Univ. College of Medicine
"Pediatric neck management" (Sep 14, 2002)
- Sigfrid D. Soli, Ph.D.
House Ear Institute, L.A., California, U.S.A.
"Development of Korean hearing in noise test" (Sep 30, 2002)

- Myung-Hun Sung, M.D.
Associate Professor, Department of Otolaryngology, Seoul National Univ. College of Medicine
"Increased expression of COX-2 in H & N cancer" (Oct 11, 2002)
- Pekka Karma, M.D.
Professor, Department of Otolaryngology, Helsinki Univ. College of Medicine, Helsinki, Finland
"Vaccination in otitis media" (Oct 15, 2002)
- Kenji Sujuki, M.D.
Professor, Department of Otolaryngology, Fujita Health University, Nagoya, Japan
"A patient with giant middle ear cholesteatoma requiring intracranial surgery"
"Development of new surgical blades of SonoSurg (Ultrasonic Surgical System:Olympus) for head and neck surgery" (Oct 15, 2002)
- Jong-Woo Jung, M.D.
Assistant Professor, Department of Otolaryngology, Ulsan Univ. College of Medicine
"Sound transduction mechanism in inner ear" (Nov 15, 2002)
- Jung-Gweon Lee, M.D.
Professor, Department of Otolaryngology, Yonsei Univ. College of Medicine
"Treatment of allergic rhinitis" (Nov 23, 2002)
- Joo-Hun Yoon, M.D.
Associate Professor, Department of Otolaryngology, Yonsei Univ. College of Medicine
"Human nasal epithelium : differentiation and secretion" (Nov 19, 2002)
- Si-Nae Park, M.D.
Assistant Professor, Department of Otolaryngology, Catholic Univ. College of Medicine
"Tinnitus & hyperacusis : pathophysiology & TRT" (Dec 20, 2002)

PATIENT CARE

Outpatient Visits	Total	48,651
include	New	13,199
	Old	35,452
Inpatients		1,661
Emergency Room Visits		909
Operative Cases (procedures)	Total	2,003(2247)
include	Ear	676(806)
	Nose	324(404)
	Head & Neck	1,003(1037)
Audiology	Total	14,982
include	Pure tone audiogram	6,424
	Impedance audiogram	3,781
	Tinnitusgram	191
	Brain stem auditory evoked potential	666
	Speech audiogram	2,602
	Otoacoustic emission	1,290
	E-tube function test	25
	Promontory test	3
Hearing Aids		133
CI Mapping		63
Vestibular Function Test		823
Vocal Dynamic Lab. Examination		144
Speech Therapy		1,154
Allergy clinic		386

PATIENT CARE(CONT'D)

Operative Procedure		
EAR	Total	806
include	Atticoplasty	24
	Canaloplasty	4
	Cochlear implantation	17
	Dental roll apply	1
	Explo-tympanotomy	2
	Facial nerve decompression	19
	Fistulectomy	29
	Foreign body removal	4
	Intact canal wall mastoidectomy	22
	Mass excision	4
	Meatoplasty	3
	Modified radical mastoidectomy	1
	Myringoplasty	15
	Myringotomy	9
	Open cavity mastoidectomy	71
	Ossiculoplasty	64
	Patch graft	12
	Radical mastoidectomy	14
	Revision mastoidectomy	3
	Simple mastoidectomy	11
	Sebaceous cyst excision	2
	Stapedotomy	4
	Total enucleation of facial schwannoma	1
	Translabyrinthine approach	3
	Tympanoplasty	182
	V-tube insertion	285

All totals are for the period Mar 1, 2002 through Feb 28, 2003.

NOSE	Total	404
include	Bleeder ligation	1
	Caldwell-Luc op.	2
	Closed nasal bone reduction	8
	Conchotomy	46
	Endoscopic adenoidectomy	1
	Excisional biopsy	4
	Foreign body removal	3
	Frontal sinusotomy	3
	Laser conchotomy	1
	Mass excision biopsy	10
	Middle meatal antrostomy	30
	Packing removal	1
	Polypectomy	18
	Radical op. of maxillary & ethmoid sinus	85
	Radical op. of fronto & ethmoid sinus	22
	Radical op. of pansinus	14
	Septoplasty	51
	Septorhinoplasty	7
	Sphenoidotomy	3
	Submucosal resection	35
	Turbinectomy	7
	Turbinoplasty	52

Head & Neck	Total	1,037
include	Adenoidectomy	62
	Bleeder ligation	14
	Bronchoscopy	9
	Diagnostic	9
	Foreign body removal	4
	Granulation tissue removal	3
	Double opposing Z-plasty	1
	Esophagoscopy	7
	Diagnostic	7
	Foreign body removal	28
	Excision	18
	Congenital neck mass	18
	Oral cavity mass	24
	Excisional biopsy of neck mass	2
	Frenotomy	60
	Hematoma evacuation	3
	Incision & drainage for deep neck infection	9
	Hemilaryngectomy	1
	Hemiglossectomy	1
	Incision & drainage for deep neck infection	7
	Laryngomicrosurgery	130
	Laser cordectomy	3
	LAUP	6
	Lithotomy	4
	Major reconstruction	
	Regional flap	
	Lateral thigh	3
	Pectoralis major myocutaneous	1
	Gastric pull-up	1
	Free flap	
	Forearm	5
	Mass excision	16
	Marsupialization of ranula	2
	Neck dissection	
	Extended Radical	4
	Radical	6
	Modified radical	2
	Lateral	14
	Posterolateral	2
	Supraomohyoid	10
	Central	3

PATIENT CARE (CONT'D)

Parotidectomy	Superficial	8
	Total	2
Pharyngeal flap surgery		1
Primary closure		6
Sistrunk operation		4
Stomoplasty		1
Submandibular gland excision		9
Supraglottic laryngectomy		5
Thyroidectomy		
	Hemi	3
	Total	5
Tonsillectomy		140
Tonsillectomy & Adenoidectomy		227
Total laryngectomy		9
Total laryngopharyngectomy		2
Total laryngopharyngoesophagectomy		1
Tracheoesophageal fenestration & Provox insertion		1
Tracheotomy		82
Tracheal end to end anastomosis		1
Triple endoscopic biopsy		1
T-tube insertion		2
T-tube removal		7
Uvulopalatopharyngoplasty		35
Tracheal granulation tissue removal		1
Wide excision		
	Buccal cancer	1
	Lip cancer	2
	Mouth floor cancer	2
	Tongue cancer	3
	Hard palate cancer	1
	Tonsil cancer	3
	Skin cancer	2
	Sublingual gland cancer	1

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 505	
Auditory Brain Stem Response Audiometry	1
Navigator (Bio-Logic)	
Biologic Samtron monitor	
Hewlett Packard paintjet	
Impedance Audiometry	2
Virtual model 310	
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	
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)	
Brookler-Grams Closed loop caloric irrigator	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)	
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) 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)	
10) Camera system	1
Nikon 801	
11) Video Camcorder	
Sony DCR-TRV17	1
12) 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)	2
OMPI-CS-I S4	
OMPI-MDM	
Drill system surgical (Xomed-Treace)	9
APS	2
MPS-2000	3
New-MPS	4
Otoscope(Karl-Storz)	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
Scanner (Epson Perfection 1240U)	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

Keratosis 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)