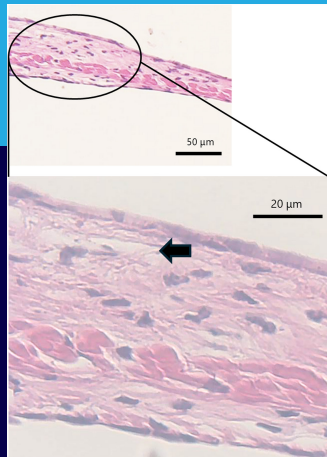


The Journal of International Advanced Otology



Histological study of the regenerated tympanic membrane. With-CGF group. Arrow shows neovascularization.

Official Journal
of the European
Academy of
Otology and
Neurotology

Volume 21 • Issue 1 • 2025

The Journal of International
Advanced Otology is fully
sponsored and owned by



European Academy of
Otology & Neuro-Otology



Indexed In



SCI EXPANDED

www.advancedotology.org



JIAO The Journal of International Advanced Otology

EDITOR

O. Nuri Özgirgin

Department of Otolaryngology-Head and Neck Surgery, Bayındır Hospital, Ankara, Türkiye

ASSOCIATE EDITORS

Francisco Cabral

Department of Surgery, ENT, University School of Medicine of UFRN, Natal, Brazil

Froukje Gals

Radboud University Medical Center, Nijmegen, Netherlands

Chunfu Dai

Eye Ear Nose & Throat Hospital, Fudan University, Shanghai, China

Arun Gadre

University of Louisville, Louisville, USA

ORCID ID: 0000-0002-7784-5533

Arata Horii

Niigata University, Niigata City, Japan

Ja-Won Koo

Seoul National University Bundang Hospital, Seongnam-si, Korea

Shakeel R. Saeed

University College London Ear Institute, London, UK

Bülent Satar

University of Health Sciences, Gülhane Medical School, Ankara, Türkiye

ORCID ID: 0000-0002-1079-2393

Morgana Sluydts

Sint-Augustinus Antwerp European Institute For ORL, Wilrijk, Belgium

The Journal of International Advanced Otology
is fully sponsored and owned by



European Academy of
Otology & Neuro-Otology



Address for correspondence

Mailing address: 2610 Antwerp,

Oosterveldlaan 24, Belgium

URL: www.advancedotology.org

E-mail: jjao@advancedotology.org

The Journal of International Advanced Otology
(J Int Adv Otol)

E ISSN 2148-3817

Founded by MSOA



ADMINISTRATIVE ADVISORY BOARD

Manohar Bance
University of Cambridge, Cambridge, UK

Maurizio Barbara
Sapienza University, Sant'Andrea Hospital, Rome, Italy

Rubens de Brito
University of Sao Paulo, Sao Paulo, Brazil

Arnaud Deveeze
Clinique Clairval, Marseille, France

Neil Donnelly
Spire Cambridge Lea Hospital, Cambridge, UK

Arun Gadre
University of Louisville, Louisville, USA

Karl-Bernd Huttenbrink
University of Koln, Köln, Germany

Dan Jiang
The London Bridge Hospital, London, UK

Mohan Kameswaran
Madras Ear Nose Throat Research Foundation, Chennai, India

Thomas Lenarz
Medizinische Hochschule Hannover, Hannover, Germany

Simon Lloyd
University of Manchester, Manchester, UK

Jacques Magnan
Causse Ear Clinic, Beziers, France

Jef Mulder
Radboud University Hospital, Nijmegen, The Netherlands

Codruta Neumann
One Ashford Hospital, Ashford, UK

Gerry O'Donoghue
Queens Medical Centre, Nottingham, UK

F. Erwin Offeciers
Sint-Augustinus Hospital University, Wilrijk, Belgium

Seung Ha Oh
Seoul National University Hospital, Seoul, South Korea

Milan Profant
Department of Otorhinolaryngology, Bratislava University, Bratislava, Slovakia

Angel Ramos
University Hospital Insular, Las Palmas, Spain

Jay T. Rubinstein
Virginia Merrill Bloedel Hearing Research Center, Washington, USA

Shakeel Saeed
University College London Ear Institute, London, UK

Masafumi Sakagami
Hyogo College of Medicine, Hyogo, Japan

Bülent Satar
University of Health Sciences, Gülhane Medical School, Ankara, Türkiye

Samuel H Selesnick
Weill Cornell Medical College, New York, USA

Graziela Souza Queiroz Martins
University of Sao Paulo, Sao Paulo, Brasil

Holger Sudhoff
Bielefeld Academic Teaching Hospital, Muenster University, Bielefeld, Germany

Per Caye Thomasen
Gentofte University Hospital, Hellerup, Denmark

Franco Trabalzini
University of Siena, Siena, Italy

Robby Vanspauwen
Department of Ear Nose Throat, Sint-Augustinus Antwerp European Institute For ORL, Wilrijk, Belgium

Andrzej Zarowski
Sint-Augustinus Antwerp European Institute For ORL, Wilrijk, Belgium

Ashley Wackym
Ear and Skull Base Institute, Portland, Oregon, USA

EDITORIAL CONSULTANTS

Fatthi Abdel Baki
University of Alexandria, Alexandria, Egypt

Mehmet Ada
University of Istanbul, Istanbul, Türkiye

Hemant Ahluwalia
ENT Institution - Uttar Pradesh University of Medical Sciences, Etawah, India

Songül Aksoy
Department of Audiology, Hacettepe University School of Medicine, Ankara, Türkiye

Mesut Akyol
Yıldırım Bayazıt University, Ankara, Türkiye

Aynur Aliyeva
Otology-Neurotology Clinical Fellow, The Catholic University of the Korea St. Mary Hospital, Seoul, South Korea

Cüneyt Alper
University of Pittsburg, Pennsylvania, USA

Fazıl Necdet Ardiç
Pamukkale University, Denizli, Türkiye

Miguel Aristegui
Hospital General Universitario Gregorio Marañon, Madrid, Spain

Bernard Ars
University of Antwerp, Antwerp, Belgium

Nenad Arsovic
Belgrade Otorhinolaryngology Clinic, Belgrade, Serbia

Asım Aslan
Celal Bayar University, Manisa, Türkiye

Ahmet Ataş
Istanbul University, Istanbul, Türkiye

Paul Avan
Université d'Auvergne, Clermont-Ferrand, France

Manohar Bance
University of Cambridge, Cambridge, UK

Maurizio Barbara
Sapienza University, Sant'Andrea Hospital, Rome, Italy

Saba Battelino
University Medical Centre, Ljubljana, Slovenia

Yıldırım Bayazıt
Medipol University, Istanbul, Türkiye

Aziz Belal
Alex Ear Center, Alexandria, Egypt

Ricardo Bento
University of Sao Paulo, Sao Paulo, Brazil

Daniele Bernardeschi
GH Pitié Salpêtrière, Paris, France

Dirk Beutner
HNO-Universitätsklinik Köln, Köln, Germany

Anirban Biswas
Neurotology Center, Kalkota, India

Bruce Black
Royal Children's Hospital, Brisbane, Australia

Srecko Branica
University of Zagreb, Zagreb, Croatia

Robert Briggs
Royal Victorian Eye and Ear Hospital, Melbourne, Australia

Italo Cantore
Asl Roma 1, San Filippo Neri Hospital, Rome, Italy

Augusto Casani
Pisa University, Pisa, Italy

Ricardo Ceballos-Lizarraga
ABC Medical Center, Cuajimalpa, Mexico

Carlos Cenjor Espanol
Fundacion Jimenez Diaz - Clinica Nuestra Senora Concepcion, Madrid, Spain

Udi Cinamon
Edith Wolfson Medical Center, Cholon, Israel

Marcel Cosgarea
University of Medicine and Pharmacy "Iuliu Hatieganu", Cluj-Napoca, Romania

Vincent Cousins
The Alfred Hospital, Melbourne, Australia

Sebahattin Cüreoğlu
University of Minnesota, Minneapolis, USA

Onur Çelik
Celal Bayar University, Manisa, Türkiye

Chunfu Dai
University of Shanghai, Shanghai, China

Vincent Darrouzet
Hopital Pellegrin, Bordeaux, France

Rubens de Brito
University of Sao Paulo, Sao Paulo, Brazil

Olivier Deguine
University of Toulouse, Toulouse, France

Angel Ramos de Miguel
Las Palmas University, Las Palmas de Gran Canaria, Spain

Antonio della Volpe
Santobono Paediatric Hospital, Naples, Italy

Arnaud Deveeze
Clinique Clairval, Marseille, France

İrfan Devranoğlu
İstanbul University, İstanbul, Türkiye

Aarno Dietz
Kuopio University Hospital, Kuopio, Finland

Norbert Dillier
University Hospital Zürich, Zurich, Switzerland

Neil Donnelly
Spire Cambridge Lea Hospital, Cambridge, UK

John Dornhoffer
UAMS Medical Center Little Rock, USA

Bruce M. Edwards
University of Michigan, Ann Arbor, USA

Antonio Lopez Escamez
Universidad de Granada, Granada, Spain

Mario Faralli
University of Perugia, Perugia, Italy

Jose Fayad
Saudi Aramco, Dhahran, Saudi Arabia

Roberto Filipo
Sapienza University, Rome, Italy

Peter Franz
Rudolfstiftung Teaching Hospital, Vienna, Austria

Bernard Fraysse
University of Toulouse, Toulouse, France

Henning Frenzel
Universitätsklinikum Schleswig-Holstein, Lübeck, Germany

Arun Gadre
University of Louisville, Louisville, USA

Michael Gaihede
Aarhus University, Aarhus, Sweden

Valeria Gambacota
Department of Otolaryngology, University of Perugia, Perugia, Italy

Aydan Genç
Department of Audiology Hacettepe University School of Medicine, Ankara, Türkiye

Imre Gerlinger
Department of Ear Nose Throat University Pécs, Pécs, Hungary

Mislav Gjuric
SINTEZA Health Center, Zagreb, Croatia

Wilko Grolman
University of Utrecht, Utrecht, Netherlands

Kemal Görür
Mersin University, Mersin, Türkiye

Jean-Philippe Guyot
University of Geneva, Geneva, Switzerland

Enis Alpin Güneri
Dokuz Eylül University İzmir, Türkiye

İbrahim Hızalan
Novomet Ear Nose Throat Center, Bursa, Türkiye

Margriet A. Huisman
Leiden University, Leiden, The Netherlands

Malou Hultcrantz
University of Karolinska, Stockholm, Sweden

Karl-Bernd Huttenbrink
University of Köln, Köln, Germany

Yukiko Iino
Jichi Medical University Saitama Medical Center, Saitama, Japan

Armağan İncesulu
Eskişehir Osmangazi University, Eskişehir, Türkiye

Adrian James
The Hospital for Sick Children, Ontario, Canada

Herman Jenkins
University of Colorado, Aurora, USA

Daniel Jiang
St Thomas' Hospital, London, UK

Seiji Kakehata
Yamagata University, Yamagata, Japan

Mohan Kameswaran
Madras Ear Nose Throat Research Foundation, Chennai, India

Daniel Kaplan
Ben Gurion University, Beer Sheva, Israel

Herman Kingma
University of Maastricht, Maastricht, The Netherlands

Tayfun Kirazlı
Ege University, Izmir, Türkiye

Mete Kiroğlu
Çukurova University, Adana, Türkiye

Hiromi Kojima
Jikei University, Tokyo, Japan

Nazım Korkut
İstanbul University, İstanbul, Türkiye

Sergey Kosyakov
Russian Medical Academy for Postgraduate Education, Moscow, Russia

Rudi Kuhweide
A.Z. St.-Jan Brugge A.V., Bruges, Belgium

Roland Laszig
University of Freiburg, Freiburg, Germany

Thomas Lenarz
Medizinische Hochschule Hannover, Hannover, Germany

Thomas Linder
University of Luzern, Luzern, Switzerland

Simon Lloyd
University of Manchester, Manchester, UK

Daniela Lucidi
University Hospital of Modena, Modena, Italy

Jacques Magnan
Causse Ear Clinic, Beziers, France

Mans Magnusson
University of Lund, Lund, Sweden

Marco Mandala
University of Siena, Siena, Italy

Antonino Maniaci
Departement of Medical, Surgical Sciences and Advanced Technologies, ENT Unit, University of Catania, Catania, Italy

Manuel Manrique
University of Pamplona, Pamplona, Spain

Salah Mansour
Lebanese University, Beirut, Lebanon

Daniele Marchioni
University of Verona, Verona, Italy

Paul Merkus
VU University Medical Center Amsterdam, Amsterdam, The Netherlands

Hidemi Miyazaki
Kyosai Hospital, Tokyo, Japan

Constantino Morera
University of Valencia, Valencia, Spain

Badr Eldin Mostafa
Ain-Shams University, Cairo, Egypt

Jef Mulder
Radboud University Hospital, Nijmegen, The Netherlands

Marcus Neudert
Technische Universität Dresden, Dresden, Germany

Thomas Nikolopoulos
University of Athens, Athens, Greece

Daniel Nuti
Universita degli Studi di Siena, Siena, Italy

JIAO

The Journal of International Advanced Otology

Gerry O'Donoghue
Queens Medical Centre, Nottingham, UK

Michael Joseph O'Leary
Senta Clinic, California, USA

Stephen O'Leary
University of Melbourne, Melbourne, Australia

Onur Odabaşı
Adnan Menderes University, Aydın, Türkiye

F. Erwin Offeciens
Sint-Augustinus Hospital University, Wilrijk, Belgium

Seung Ha Oh
Seoul National University Hospital, Seoul, South Korea

Levent Olgun
Izmir Bozyaka Hospital, İzmir, Türkiye

Carlos A. Oliveira
University of Brasília Medical School, Brasília, Brazil

Ewa Olszewska
Medical University of Białystok, Białystok, Poland

Eva Orzan
Audiology and Otorhinolaryngology Institute for Maternal and Child Health IRCCS "Burlo Garofolo", Trieste, Italy

Levent Naci Ozluoğlu
Başkent University, Ankara, Türkiye

Blake Papsin
University of Toronto, Toronto, Canada

Ronen Perez
Shaare Zedek Medical Center, Jerusalem, Israel

Nicolas Perez Fernandez
University of Navarra, Navarra, Spain

Stefan Plontke
University Hospital Halle, Saale, Germany

Milan Profant
Department of Otorhinolaryngology University of Bratislava, Bratislava, Slovakia

Angel Ramos
University Hospital Insular, Las Palmas, Spain

Giampietro Ricci
University of Perugia, Perugia, Italy

John Rutka
Toronto General Hospital, Toronto, Canada

Ayşe Sanem Sahli
Department of Audiology Hacettepe University School of Medicine, Ankara, Türkiye

Masafumi Sakagami
Hyogo College of Medicine, Hyogo, Japan

Issam Saliba
University of Montreal, Quebec, Canada

Mario Sanna
Gruppo Otologico, Piacenza, Italy

Pascal Senn
University of Geneva, Geneva, Switzerland

Avi Shupak
Technion - Israel Institute of Technology, Haifa, Israel

Henryk Skarzynski
World Hearing Center, Warsaw, Poland

Ad Snik
University of Nijmegen, Nijmegen, The Netherlands

Thomas Somers
Sint-Augustinus Hospital University, Wilrijk, Belgium

Holger Sudhoff
Bielefeld Academic Teaching Hospital, Muenster University, Bielefeld, Germany

Witold Szyfter
Poznan University of Medical Sciences, Poznan, Poland

Bülent Şerbetcioğlu
İstanbul Medipol University, İstanbul, Türkiye

Rinze A. Tange
University of Utrecht, Utrecht, The Netherlands

George Tavartkiladze
National Research Centre for Audiology and Hearing Rehabilitation, Moscow, Russia

Per Caye Thomasen
Gentofte University Hospital, Hellerup, Denmark

Michael Tong
St. Joseph's Health Inc., New York, USA

Tetsuya Tono
Miyazaki Medical College, Miyazaki, Japan

Vedat Topsakal
University of Utrecht, Utrecht, The Netherlands

Franco Trabalzini
University of Siena, Siena, Italy

Eric Truy
University of Lyon, Lyon, France

Nina Bozanic Urbancic
University Medical Centre Ljubljana, Ljubljana, Slovenia

Cem Uzun
Trakya University, Edirne, Türkiye

Paul Van de Heyning
University of Antwerp, Antwerp, Belgium

Frederic Venail
CHU Montpellier, Montpellier, France

Christophe Vincent
Lille University Hospital, Lille, France

Magnus von Unge
Akershus Universitetssykehus, Nordbyhagen, Norway

Sertac Yetişer
Anadolu Hospital, İstanbul, Türkiye

Orhan Yılmaz
Clinic of Otorhinolaryngology, University of Health Sciences Dışkapı Yıldırım Beyazıt Training and Research Hospital, Ankara, Türkiye

Robin Youngs
Gloucestershire Royal Hospital, Gloucestershire, UK

Diego Zanetti
University of Milano, Milano, Italy

Nicola Quaranta
University of Bari, Bari, Italy

Ashley Wackym
Ear and Skull Base Institute, Portland, Oregon, USA

Stephen Wetmore
University West Virginia Medical Center, Morgantown, USA



General Manager
Ali ŞAHİN

Journal Managers
Deniz KAYA
Irmak BERBEROĞLU

Publications Coordinators
Derya AZER
Nisanur ATICI
Şeref Mert GÜCÜN
Lütfiye ÇETİN

Publications Technologies
Coordinator
Ayça Nur SEZEN

Project Assistants
Batuhan KARA
Ozan ŞAHİN

Contact
Address: Büyükdere Cad. 199/6,
34394, Şişli, İstanbul, Türkiye
Phone: +90 212 217 17 00
E-mail: info@avesyayincilik.com

About The Journal of International Advanced Otology

The Journal of International Advanced Otology (J Int Adv Otol) is a peer-reviewed, open-access, online-only journal published by the European Academy of Otology and Neurotology and the Politzer Society.

The Journal of International Advanced Otology is a continuously published journal in English. The journal has moved to continuous publication by volume from Volume 21. The journal will continue its publication in the same period and will be published bimonthly. Each new article will be included in the issue as it is published.

Continuous publication model allows articles to be immediately released online rather than waiting for other articles in the issue to be completed. This model enhances the visibility and accessibility of the latest developments in the field.

Journal History

As of 2009, the journal has changed its title to Journal of International Advanced Otology.

Current Title (2009 - ...)

Journal of International Advanced Otology

EISSN: 2148-3817

Previous Titles (2005 - 2008)

Mediterranean Journal of Otology

ISSN: 1305-5267

Abstracting and Indexing

The Journal of International Advanced Otology is covered in the following abstracting and indexing databases;

- Web of Science-Science Citation Index Expanded
- PubMed/Medline
- PubMed Central
- CNKI
- EBSCO
- PROQUEST
- DOAJ
- SCOPUS

All content published in the journal is permanently archived in Portico.

Aims, Scope, and Audience

The Journal of International Advanced Otology aims to publish studies of the highest scientific and clinical value and encourages the submission of high-quality research that advances in otology and neurotology.

The Journal of International Advanced Otology covers a wide range of topics related to otology, neurotology, audiology (excluding linguistics) and skull base medicine. The journal is interested in publishing original research that addresses important clinical questions and advances the understanding and treatment of these conditions. This may include studies on the effectiveness of different treatments, new diagnostic tools or techniques, and novel approaches to preventing or managing orthopedic and traumatic conditions.

The Journal of International Advanced Otology publishes clinical and basic research articles, case reports, reviews, systematic reviews and meta-analyses, short reports, video reports and letters to the editor. Conference proceedings may also be considered for publication.

The target audience of the journal includes physicians and academics who work in the fields of otology, neurotology, audiology and skull base medicine.

JIAO

The Journal of International Advanced Otology

Open Access Policy

The Journal of International Advanced Otology is an open access publication.

Starting on April 2019, all content published in the journal is licensed under the Creative Commons Attribution-NonCommercial (CC BY-NC) 4.0 International License which allows third parties to use the content for non-commercial purposes as long as they give credit to the original work. This license allows for the content to be shared and adapted for non-commercial purposes, promoting the dissemination and use of the research published in the journal.

The content published before April 2019 was licensed under a traditional copyright, but the archive is still available for free access.

All published content is available online, free of charge at <https://www.advancedotology.org/EN>.

Authors retain unrestricted copyrights and publishing rights in The Journal of International Advanced Otology.

When using previously published content, including figures, tables, or any other material in both print and electronic formats, authors must obtain permission from the copyright holder. Legal, financial and criminal liabilities in this regard belong to the author(s).

Copyright Policy

A Copyright Agreement and Acknowledgement of Authorship form should be submitted with all manuscripts. By signing this form, authors agree that the article, if accepted for publication by The Journal of International Advanced Otology, will be licensed under a Creative Commons Attribution-Non Commercial 4.0 International License (CC BY-NC 4.0) which permits third parties to share and adapt the content for non-commercial purposes by giving the appropriate credit to the original work.

When using previously published content, including figures, tables, or any other material in both print and electronic formats, authors must obtain permission from the copyright holder. Legal, financial and criminal liabilities in this regard belong to the author(s).

Authors retain unrestricted copyrights and publishing rights in The Journal of International Advanced Otology.

Publication Fee Policy

The Journal of International Advanced Otology is funded by the European Academy of Otology and Neurotology and the Politzer Society. Authors are not required to pay any fees during the evaluation and publication process.

Disclaimer

The statements or opinions expressed in the manuscripts published in the journal reflect the views of the author(s) and not the views of the editors, editorial board, and/or publisher. The editors, editorial board, and publisher are not responsible for the content of the manuscripts and do not necessarily endorse the views expressed in them. It is the responsibility of the authors to ensure that their work is accurate and well-researched, and the views expressed in their manuscripts are their own. The editors, editorial board, and publisher simply provide a platform for the authors to share their work with the scientific community.

You can find the current version of the Instructions to Authors at <https://www.advancedotology.org/en/instructions-to-authors-1016>.



Editorial Office: Prof. Dr. O. Nuri Ozgirgin

Address: Bayındır Hospital, Söğütözü, Ankara, Türkiye

Tel: +90 312 287 90 00 - int: 7811

Fax: +90 312 284 42 76

e-mail: ozgirgin@icloud.com

Publisher: AVES

Address: Büyükdere Cad. 199/6, 34394, Şişli, İstanbul, Türkiye

Phone: +90 212 217 17 00

Web page: avesyayincilik.com

E-mail: info@avesyayincilik.com

Contents

Original Articles

- | Canal Wall Down Tympanoplasty with Partial Mastoid Obliteration in Children and Adults Affected by Chronic Otitis Media with Cholesteatoma
Mariapaola Guidi, Mario Ciniglio Appiani, Federica Pollastri, Marella Reale, Luca Leone, Saverio Caini, Franco Trabalzini
- | Efficacy of Concentrated Growth Factors in Treating Tympanic Membrane Perforation in Guinea Pigs
Takahiro Hanari, Masahiro Okada, Takahiro Nakata, Sawa Asoh, Eriko Nishihara, Masato Teraoka, Naohito Hato
- | Investigation of Eustachian Tube Dysfunction by Tubomanometry in Patients Undergoing Tympanoplasty for Chronic Otitis Media
Mehmet Özgür Pınarbaşı, Tankut Uzun, Hamdi Çaklı, Melek Kezban Gürbüz, Ercan Kaya, Şaziye Armağan Incesulu
- | Postoperative Management of Tympanoplasty with ChatGPT-4.0
Aynur Aliyeva, Elvin Alaskarov, Elif Sari
- | Histopathological Evaluation of the Effect of Bromelain on Myringosclerosis in Rats
Meryem Dilek Acar, Dogukan Özdemir, Arzu Erdal, Seda Koc Sahin
- | The Utility of Contrast-Enhanced 3D-Real Inversion Recovery Magnetic Resonance Imaging in the Diagnosis of Endolymphatic Hydrops—A Retrospective Study of a Newly Implemented Clinical Service at a Tertiary Center
Jawad Abdulla, Yasmin Abbas, Sofia Otero, Simon Morley, Susan Jawad, Charlotte Agrup, Hala Kanona
- | Evaluation of Safety and Effectiveness of the LISTENT LCI-20PI Cochlear Implant in Post-Lingually Deafened Individuals
Qiang Du, Zengjun Sun, Weijia Kong, Hao Wu, Yun Li, Qi Huang, Chunfu Dai
- | Effect of Pycnogenol on Noise-Induced Hearing Loss in Rats
Seher Yılmaz, Caner Yatmaz, Furkan Büyükkal, Alev Cumbul, Işıl ÖZ, M. Bülent Şerbetçioğlu

Review

- | Hearing Loss and Turner Syndrome: A Scoping Review
Andrea Migliorelli, Andrea Ciorba, Marianna Manuelli, Virginia Corazzi, Francesco Stomeo, Chiara Bianchini, Stefano Pelucchi, Daniele Monzani, Elisabetta Genovese, Silvia Palma

Original Articles

- | Association Between Obstructive Sleep Apnea and Hearing Loss Using 2019-2021 Korea National Health and Nutrition Examination Survey Data
Jungmin Ahn, Seung-Eun Hong, Brian Kim, Byeong-Cheol Lee, Myung-Chul Lee, Ik Joon Choi
- | Analysis of L1 Cell Adhesion Molecule and Fucosyltransferase 8 Expression in Cells After Stretch and Human EACSCC Tissue
Naotaro Akiyama, Tomomi Yamamoto-Fukuda, Hiromi Kojima

Case Reports

- | A Case Report of Auditory Neuropathy Due to TWNK Gene Mutations
Tufatulin G.Sh, Garbaruk E.S, Lalayants M.R, Markova T.G, Mefodovskaya E.K, Koroleva I.V, Ryzhkova O.P, Orlova M.D, Shatokhina O.L, Sugarova S.B, Levin S.V
- | An Extensive Bruise on the Hemiface: CARE Clinical Case
Mathilda Rausch, Raphaële Quatre
- | A Case of McCune–Albright Syndrome with External Auditory Canal Stenosis Treated with Image-Guided Surgery System-Assisted Temporal Bone Surgery
Takaomi Kurioka, Tatsuya Takenaka, Shingo Yasutake, Yoshiaki Inuzuka, Motohiro Sato, Kunio Mizutari