Recent Advances in Tonsils and Mucosal Barriers of the Upper Airways
Recent Advances in Tonsils and Mucosal Barriers of the Upper Airways

Volume Editor

Yasuaki Harabuchi  Asahikawa

Co-Editors

Tatsuya Hayashi  Asahikawa
Akihiro Katada  Asahikawa

43 figures, 18 in color, and 17 tables, 2011
Contents

IX Preface
   Harabuchi, Y. (Asahikawa)
XI Symposium Organization

Lectures

1 Clinical Manifestations and Pathogenesis of Tonsillar Focal Diseases: IgA Nephropathy and Palmoplantar Pustulosis
   Harabuchi, Y. (Asahikawa)

6 Moving Towards a New Era in the Research of Tonsils and Mucosal Barriers
   Yamanaka, N. (Wakayama)

20 Immune Functions of Nasopharyngeal Lymphoid Tissue
   Brandtzaeg, P. (Oslo)

25 Elicitation of Mucosal Immunity by Proteins of Streptococcus pneumoniae
   Briles, D.E. (Birmingham, Ala.); Miyaji, E. (São Paulo); Fukuyama, Y. (Birmingham, Ala.);
   Ferreira, D.M. (São Paulo/Liverpool); Fujihashi, K. (Birmingham, Ala.)

28 Mucosal Immune Barrier and Antigen-Presenting System in Human Nasal Epithelial Cells

31 Craniofacial Mucosal Immune System: Importance of Its Unique Organogenesis and Function in the Development of a Mucosal Vaccine

37 Tonsillectomy with Steroid Pulse: A Curative Therapy for IgA Nephropathy
   Hotta, O. (Sendai)

Clinical Effects of Tonsillectomy for IgA Nephropathy

40 Recent Advances in IgA Nephropathy – The Glomerulopodocytic-Tubular Communication
   Lai, K.N.; Tang, S.C.W.; Leung, J.C.K. (Hong Kong)

45 Immunomodulatory Agents against IgA Nephropathy
   Tang, S.C.W.; Leung, J.C.K.; Lai, K.N. (Hong Kong)

50 Indication Criteria for Tonsillectomy in IgA Nephropathy Patients
   Akagi, H. (Okayama); Doi, A. (Kochi); Kosaka, M.; Hattori, K.; Kariya, S.; Fukushima, K.; Okano, M.;
   Nishizaki, K.; Masuda, Y. (Okayama)
53 Periodontal and ENT Therapy in the Treatment of Pediatric Henoch-Schönlein Purpura and IgA Nephropathy

57 Tonsillectomy Combined with Steroid Pulse Therapy Induces Clinical Remission of IgA Nephropathy
Komatsu, H.; Fujimoto, S. (Miyazaki)

Pathogenesis of IgA Nephropathy

60 Aberrant Glycosylation of IgA1 and Anti-Glycan Antibodies in IgA Nephropathy: Role of Mucosal Immune System
Novak, J.; Moldoveanu, Z.; Julian, B.A. (Birmingham, Ala.); Raska, M. (Birmingham, Ala./Olomouc); Wyatt, R.J. (Memphis, Tenn.); Suzuki, Y.; Tomino, Y. (Tokyo); Gharavi, A.G. (New York, N.Y.); Mestecky, J. (Birmingham, Ala.); Suzuki, H. (Birmingham, Ala./Tokyo)

64 Reevaluation of the Mucosa-Bone Marrow Axis in IgA Nephropathy with Animal Models

68 IgA Nephropathy and Aberrant Glycosylation of Tonsillar, Serum and Glomerular IgA1
Hiki, Y. (Aichi); Ito, A. (Kanagawa); Yamamoto, Y.; Yamamoto, K. (Aichi); Iwase, H. (Kanagawa)

71 Abnormalities of Glycogenes in Tonsillar Lymphocytes in IgA Nephropathy

75 Microarray Analysis of Tonsils of IgA Nephropathy Patients

Tonsil-Related PPP or Other Diseases

79 Reactive Arthritis Induced by Tonsillitis: A Type of ‘Focal Infection’
Kobayashi, S. (Saitama); Ichikawa, G. (Tokyo)

83 Tonsil-Related Skin Diseases and Possible Involvement of T Cell Co-Stimulation in Chronic Focal Infection
Kobayashi, S. (Tokyo)

86 Clinical Outcome of Tonsillectomy for Palmoplantar Pustulosis and Etiological Relationship between Palmoplantar Pustulosis and Tonsils
Takahara, M. (Asahikawa)

89 Triggering Role of Focal Infection in the Induction of Extra-Palmoplantar Lesions and Pustulotic Arthro-Osteitis Associated with Palmoplantar Pustulosis
Yamamoto, T. (Fukushima)

Innate Immunology

93 Role of Biofilms in Chronic Inflammatory Diseases of the Upper Airways
Calò, L.; Passalì, G.C.; Galli, J.; Fadda, G.; Paludetti, G. (Rome)
97 Regulation of Microbiota by Antimicrobial Peptides in the Gut

100 Evidence of the Local Immune Status in the Human Larynx
Nakashima, T.; Tomita, H.; Chitose, S. (Kurume)

103 Short Review on Sublingual Immunotherapy for Patients with Allergic Rhinitis: from Bench to Bedside

107 Differential Properties of Mucous Glycoproteins Produced by Allergic Inflammation and Lipopolysaccharide Stimulation in Rat Nasal Epithelium
Shimizu, T.; Shimizu, S. (Otsu)

110 Nasal-Associated Lymphoid Tissue Immunity and Vaccine Development
Kodama, S.; Suzuki, M. (Yufu)

113 Intranasal Therapy with CpG DNA Alone for the Control of Allergic Rhinitis

Mucosal Defense Mechanism to Bacteria in the Upper Airways

116 Airway Bacterial Interactions and Impact on Host Immune Responses
Kyd, J.; Krishnamurthy, A.; McGrath, J.; Browne, J. (Rockhampton, Qld.);
Vahedi, F. (Rockhampton, Qld./ Mashhad)

121 Protection of Pneumococcal Infection by Maternal Intranasal Immunization with Pneumococcal Surface Protein A
Hotomi, M.; Kono, M. (Wakayama); Hollingshead, S.K.; Briles, D.E. (Birmingham, Ala.);
Yamanaka, N. (Wakayama)

126 Heat-Shock Protein ClpL/HSP100 Increases Penicillin Tolerance in Streptococcus pneumoniae
Tran, T.D.-H.; Kwon, H.Y.; Kim, E.H. (Suwon); Kim, K.-W. (Sangju);
Briles, D.E. (Suwon/Birmingham, Ala.); Pyo, S.; Rhee, D.-K. (Suwon)

Clinical Manifests and Pathogenesis of Tonsillitis

129 Immunologic Impact of Tonsillopharyngitis Associated with Group A Streptococci
Kaplan, E.L. (Minneapolis, Minn.)

132 Influence of Waldeyer’s Ring Hypertrophy on Snoring and Sleep Apnea
Passàli, D. (Siena); De Benedetto, M. (Lecce); Lauriello, M. (L’Aquila); Passàli, F.M. (Rome)

136 Tonsils Diseases, Past, Present and Future and the Impact in Clinical Practice in Brazil
Endo, L.H. (São Paulo)

Medical and Surgical Treatments of Pharyngotonsillitis

139 Clinical Scoring System of Acute Pharyngotonsillitis

142 Clinical Guideline on Adenotonsillectomy: The Italian Experience
Bellussi, L.M. (Siena); Marchisio, P. (Milan); Materia, E.; Passàli, F.M. (Roma)
Mucosal Vaccine

146 Diversity of Mucosal Immune Responses in Upper Respiratory Organs and Its Application for Mucosal Vaccine
Kurono, Y.; Miyashita, K.; Makise, T.; Nagano, H. (Kagoshima)

149 Nasal Submucosal Administration of Antigen-Presenting Cells Induces Effective Immunological Responses in Cancer Immunotherapy

Viral Infection of Tonsil and Upper Airways

153 Respiratory Syncytial Virus Infection and the Tight Junctions of Nasal Epithelial Cells

157 A Novel Immune Evasion Mechanism of LMP-1, an EBV-Primary Oncogene, in Nasopharyngeal Carcinoma
Yoshizaki, T. (Kanazawa)

Otitis Media and Upper Airways

160 Otitis Media and Tonsils – Role of Adenoidectomy in the Treatment of Chronic Otitis Media with Effusion
Park, K. (Suwon)

164 Otitis Media and Immunological Alterations of Waldeyer’s Ring
Cassano, P.; Cassano, M. (Foggia)

170 Role of Nontypeable Haemophilus influenzae in Otitis Media and Chronic Obstructive Pulmonary Disease
Thanavala, Y.; Lugade, A.A. (Buffalo, N.Y.)

176 Recent Changes in Nasopharyngeal Flora of Children in Japan

Abstracts

179 Mucosal Defense Mechanism and Vaccine
190 IgA Nephropathy
201 Tonsil-Associated Skin Diseases
205 Bacterial and Viral Infection
214 Allergy
217 OSAS and Tonsillectomy

225 Author Index
229 Subject Index
As a president of the 7th International Symposium on Tonsils and Mucosal Barriers of the Upper Airways (ISTMB), I had the great pleasure and honor to organize the symposium held in Asahikawa City, Japan, July 7–9, 2010. I am sure that the 7th symposium was extremely fruitful and successful for all of the participants.

Over the past few decades, since the 1st meeting of this symposium held in Kyoto in 1987, the various aspects of tonsils and mucosal immunity of upper airways have kept attracting both researchers and clinicians from all over the world. The symposium was designed to provide updates on information concerning tonsils and mucosal immunity as well as to build good friendships among all the participants.

In this 7th symposium, we had 154 presentations and over 250 participants from all over the world. This was twice the number of the past symposium and was highest of all the symposiums held so far. The topics extended widely to both basic and clinical research areas of tonsils and upper airways such as: (1) immunology and mucosal defense systems, (2) bacteriology and virology, (3) mucosal vaccine for upper airway infections, (4) MALT, NALT and LALT, (5) clinical manifests and pathogenesis of tonsil-related diseases such as IgA nephropathy, palmoplantar pustulosis, reactive arthritis, and other diseases, (6) association of tonsils with otitis media, (7) allergic diseases in the upper airways, (8) obstructive sleep apnea syndrome, and (9) medical and surgical treatments of tonsillar diseases. These proceedings mark the summary of topics presented in the 7th ISTMB. I am sure that the proceedings will provide new interests in this area.

Finally, I wish to sincerely express my appreciation to all of the participants, members of the organizing committee, and my colleagues at the Department of Otolaryngology-Head and Neck Surgery, Asahikawa Medical University. The 8th symposium will be organized by Professor David Nadal and held in Zürich, Switzerland, in 2013. I hope that basic and clinical scientists in this area from all over the world will join the meeting.

Yasuaki Harabuchi
President, 7th International Symposium on Tonsils and Mucosal Barriers of the Upper Airways (ISTMB)
Professor and Chairman, Department of Otolaryngology-Head and Neck Surgery, Asahikawa Medical University
President

Yasuaki Harabuchi, MD, PhD

1982    Graduated from Asahikawa Medical University, Asahikawa, Japan
1985–1986  Research fellow, Department of Virology, Cancer Institute, School of Medicine, Hokkaido University, Sapporo, Japan
1990–1993  Research Instructor, Division of Infectious Diseases, Department of Pediatrics, State University of New York at Buffalo, USA
1998    Professor and Chairman, Department of Otolaryngology- Head and Neck Surgery, Asahikawa Medical University, Asahikawa, Japan
Symposium Organization

President
Yasuaki Harabuchi  Asahikawa, Japan

Honorary Presidents
Desiderio Passàli  Siena, Italy
Noboru Yamanaka  Wakayama, Japan

Executive Advisory Council
Akikatsu Kataura  Sapporo, Japan
Atsushi Komatsuzaki  Tokyo, Japan
Ginichiro Ichikawa  Tokyo, Japan

Scientific Advisory Council
Luisa Bellussi  Siena, Italy
Per Brandtzaeg  Oslo, Norway
David E. Briles  Birmingham, Ala., USA
Pasquale Cassano  Foggia, Italy
Paul B. van Cauwenberge  Ghent, Belgium
Luiza Hayashi Endo  São Paulo, Brazil
Howard Faden  Buffalo, N.Y., USA
Shigeharu Fujieda  Fukui, Japan
Roberto P. Garofalo  Galveston, Tex., USA
Naoyuki Hasebe  Asahikawa, Japan
Yoshiyuki Hiki  Toyoake, Japan
Tetsuo Himi  Sapporo, Japan
Osamu Hotta  Sendai, Japan
Hajime Iizuka  Asahikawa, Japan
Edward L. Kaplan  Minneapolis, Minn., USA
Hideyuki Kawachi  Shimane, Japan
Michio Kimura  Osaka, Japan
Hiroshi Kiyono  Tokyo, Japan
Yuichi Kurono  Kagoshima, Japan
Jennelle M. Kyd  Rockhampton, Australia
Kar Neng Lai  Hong Kong, China
David J. Lim  Los Angeles, Calif., USA
Hirofumi Makino  Okayama, Japan
Yu Masuda  Okayama, Japan
Jiri Mestecky  Birmingham, Ala., USA
Timothy F. Murphy  Buffalo, N.Y., USA
David Nadal  Zurich, Switzerland
Jan Novak  Birmingham, Ala., USA
Pearay L. Ogra  Buffalo, N.Y., USA
Ken Okamoto  Seki, Japan
Gaetano Paludetti  Rome, Italy
Keehyun Park  Suwon, Korea
Ruby Pawankar  Tokyo, Japan
Noriyuki Sato  Sapporo, Japan
Norimasa Sawada  Sapporo, Japan
Anne G. M. Schilder  Utrecht, Netherlands
Jaroslav Slipka  Plzen, Czech Republic
Jaroslav Slipka Jr.  Plzen, Czech Republic
Masashi Suzuki  Oita, Japan
Yusuke Suzuki  Tokyo, Japan
Hiroshi Takenaka  Osaka, Japan
Masatoshi Tateno  Asahikawa, Japan
Yasmin M. Thanavala  Buffalo, N.Y., USA
Helgi Valdimarsson  Reykjavik, Iceland
Michael R. Wessels  Boston, Mass., USA
Toshio Yamashita  Osaka, Japan
Shunpei Yokota  Yokohama, Japan

Program Committee
Hirofumi Akagi  Okayama, Japan
Keiji Fujihara  Wakayama, Japan
XII Symposium Organization

Tatsuya Hayashi  Asahikawa, Japan
Susan K. Hollingshead  Birmingham, Ala., USA
Muneki Hotomi  Wakayama, Japan
Satomi Kobayashi  Tokyo, Japan
Shigeto Kobayashi  Tokyo, Japan
Miki Takahara  Asahikawa, Japan
Hiroshi Tsubota  Sapporo, Japan

Local Organizing Committee
Masaru Aoyagi  Yamagata, Japan
Hideo Edamatsu  Tokyo, Japan
Satoshi Fukuda  Sapporo, Japan
Mitsuru Furukawa  Kanazawa, Japan
Nobuhiko Furuya  Maebashi, Japan
Kiyofumi Gyo  Toon, Ehime, Japan
Akira Hara  Tsukuba, Japan
Tamotsu Harada  Kurashiki, Japan
Shinichir Haruna  Shimotsuga, Tochigi, Japan
Katsuhiro Hirakawa  Hiroshima, Japan
Yasuhiro Hisa  Kyoto, Japan
Hiroshi Hosoi  Nara, Japan
Masamitsu Hyodo  Nangoku, Kochi, Japan
Keiichi Ichimura  Shimotsuke, Tochigi, Japan
Masahiro Iida  Isehara, Kanagawa, Japan
Yukiko Iino  Saitama, Japan
Katsuhisa Ikeda  Tokyo, Japan
Minoru Ikeda  Tokyo, Japan
Akira Inokuchi  Saga, Japan
Hidenori Inohori  Osaka, Japan
Hideki Hirabayashi  Shimotsuga, Tochigi, Japan
Kazuo Ishikawa  Akit, Japan
Yasuhiro Kase  Iruma, Saitama, Japan
Seiji Kishimoto  Tokyo, Japan
Hiroya Kitano  Yonago, Japan
Izumi Koizuka  Kawasaki, Kanagawa, Japan
Naoyuki Kono  Mitaka, Tokyo, Japan
Fumiyo Kudo  Chiba, Japan
Kiyonori Kuki  Arita, Wakayama, Japan
Sachiko Matsutani  Sendai, Japan
Hiroyuki Mineta  Hamamatsu, Japan
Takaki Miwa  Kanazawa, Japan
Soichiro Miyazaki  Otzu, Japan
Nozomu Mori  Kita, Kagawa, Japan
Keisuke Masuyama  Chuo, Yamanashi, Japan
Shingo Murakami  Nagoya, Japan
Kensei Naito  Toyoake, Aichi, Japan
Takashi Nakagawa  Fukuoka, Japan
Tadashi Nakashima  Kurume, Japan
Tsutomu Nakashima  Nagoya, Japan
Kenichi Nibu  Kobe, Japan
Shinich Nishi  Niigata, Japan
Kazunori Nishizaki  Okayama, Japan
Kaoru Ogawa  Tokyo, Japan
Yoshtaka Okamoto  Chiba, Japan
Toshio Okoshi  Tokyo, Japan
Koichi Omori  Fukushima, Japan
Masafumi Sakagami  Nishinomiya, Japan
Hiroaki Sat  Moro, Japan
Fumiaki Shido  Tomakomai, Japan
Takeshi Shimizu  Otsu, Japan
Hideichi Shinkawa  Hiroshi, Japan
Akihiro Shioda  Tokorozawa, Japan
Harumi Suzuki  Tokyo, Japan
Mamoru Suzuki  Tokyo, Japan
Kenji Suzuki  Nagoya, Japan
Hideaki Suzuki  Kitakyushu, Japan
Mikio Suzuki  Nakagami, Okayama, Japan
Sugata Takahashi  Niigata, Japan
Haruo Takahashi  Nagasaki, Japan
Kazuhiko Takeuchi  Tsu, Japan
Koichi Tomoda  Moriguchi, Osaka, Japan
Tetsuya Tono  Miyazaki, Japan
Shinich Usami  Matsumoto, Japan
Kensuke Watanabe  Koshiga, Japan
Yukio Watanabe  Toyama, Japan
Hideaki Yamabe  Hiroshi, Japan
Hideo Yamane  Osaka, Japan
Hiroyoshi Yamashita  Ube, Japan
Tatsuya Yamasoba  Tokyo, Japan
Toshio Yoshihara  Tokyo, Japan
Tomokazu Yoshizaki  Kanazawa, Japan
Nobuyuki Yoshizawa  Chofu, Tokyo, Japan