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of the Pennsylvania Osteopathic Medical Association
June 2016

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See inside for a complete wrap-up of the POMA 108th Annual Clinical Assembly!

POMA Clinical Writing Contest Winners

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THE Journal OF THE PENNSYLVANIA OSTEOPATHIC MEDICAL ASSOCIATION

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Anthony E. DiMarco, D.O., Installed as 105th President of the POMA

Dr. Anthony E. DiMarco, was recently installed as POMA's 105th president.

Anthony E. DiMarco, D.O., F.A.C.O.F.P., was installed as POMA's 2016-2017 president during the Annual State Banquet, held May 6, 2016, at the Radisson Valley Forge and Valley Forge Event Center in King of Prussia, Pennsylvania.

Dr. DiMarco has been a member of the association for 26 years. A past speaker of the POMA House of Delegates, he is a member of the Board of Trustees and the Executive Committee, as well as a past chairman of District 2.

A board certified family physician and a certified medical examiner, Dr. DiMarco is a managing physician at Parkesburg Family Medicine and associate medical director at LG Health Urgent Care in Parkesburg, Pennsylvania. An adjunct faculty member in the division of family medicine at the Philadelphia College of Osteopathic Medicine (PCOM) and Penn State University College of Medicine in Hershey, he is a Level 1 faculty member at Christiana (Pa.) Health System.

A graduate of Central High School and LaSalle University in Philadelphia, Dr. DiMarco received his D.O. degree from PCOM. He completed a rotating internship and family practice residency at Metropolitan Hospital — Springfield Division.

A fellow of the American College of Osteopathic Family Physicians, Dr. DiMarco is chairman of the POMA Foundation and a member of the American Osteopathic Association and the Pennsylvania Osteopathic Family Physicians Society.

A transcript of Dr. DiMarco's presidential speech follows:

There is an old saying, "May you live in interesting times," and in medicine, the times are certainly interesting and changing all of the time. Nothing exemplifies this more than the tremendous increase in technology and devices affecting the doctor-patient relationship.

There is another saying that I often use, and that is, "The truth usually lies in the middle." We have an interesting dichotomy in medical teaching, and that is that often the physician doing the teaching is over 50 years old and hardly had to take a computer course in college, while the student being taught uses not one but multiple devices daily and constantly. Which way is the correct way? The answer, I believe, is in the middle. It would be almost impossible to function as a high-quality physician today without technology. Conversely, if you are a physician who is completely dependent on technology, then you may not be doing your patients any favors. There is no getting away from it — technology is here to stay, but we need to use it wisely.

A hundred and twenty-five years ago, there was a medical debate about whether the telephone should be used extensively in medicine. Could we imagine practicing today without the use of a telephone, and by extension, our computers, smart phones, email, twitter, etc.?

The advantages of technology are many. The adoption of the electronic medical record was frustrating (when I first tried EMR I cursed more than the last time I shot over a hundred in golf), but when learned and used properly, technology can result in better communication among the treating physicians, decreased health care costs, and better patient safety. The gathering of information and management of that information leads to better coordination of care. Diagnostic technology has been tremendously advanced in both accuracy and speed in the last 10 years. These are all good things.

There are also dangers with technology. I am talking particularly of the internet. The endless streaming of medical knowledge on the net is not necessarily a good thing. Websites like WebMD can be great resources for our patients, but it should never be used to take the place of your physician. I have

experienced many times in my career a patient who comes to my office with a fistful of printouts from some little known website or the journal of the obscure. He or she at this point is convinced that the mild ache they are experiencing is some life-threatening matter and are disappointed when I assure them that they are alright. Technology should never be used to replace your physician. Self diagnosing is a dangerous track to follow because, on one hand, the patient can turn a mole into a mountain and cause themselves a lot of anxiety and stress. On the other hand, the patient can misdiagnose themselves and cause serious damage to their health and well-being. The internet provides an excuse to not go to the doctor.

What is the answer? "The truth lies in the middle." We want our patients to be well informed and a participant in their care. But we have to establish the doctor-patient relationship and good will and trust to the point where our conclusions help the patient and the patient trusts us to sift through the mountains of materials on the internet, most of which are not reliable, to better serve their health and well being.

Those of us who are older physicians have to embrace the technology and use it properly, and those of you who don't get out of bed without checking your iPhone first need to rely more on the education and skills that have taken you about a decade to acquire. Patients will not seek you out or become your patient because you have better devices than the next physician. They seek you out by reputation and word of mouth. They are putting their trust in you!

Albert Einstein said, "Technology is out pacing our humanity." Remember that the more educated you become, the more skilled you become, the more dependent on technology you become, the more likely you are to lose your humanity, your compassion, and the more likely you will ignore your instincts. Don't let this happen to you. Use technology as a tool, don't let it control how you treat patients. Computers don't look at patients as a whole, we do. Computers don't put their hands on patients and diagnose with touch, we do. And computers never made a diagnosis or successfully treated a patient, we have. We have to meet in the middle for the sake of our patients.

Technology can also help a trade organization like POMA. I want to improve membership relations, especially with the younger physicians coming on board. At POMA, we will put forth initiatives to better use technology for our members. It will not happen fast, nothing worthwhile ever does, but it will happen. Dr. Zawisza the current president of POMA, myself as president-elect, and Dr. Vermiere, our vice president, realize that one year is not a lot of time to get multiple initiatives going. Therefore, we decided to work together. Dr. Zawisza addressed complacency and getting more young physicians involved in his year. I want to continue that. I believe that the technology divide between the millennials and the baby boomers is often the reason why we cannot get on the same page. We need to solve that. We will solve that no matter who we have to drag kicking and screaming. We have to change the culture.

In conclusion, always remember our patients come to see us, not the MRI or the CT scan. Never lose your humanity.

Dr. DiMarco presented his presidential speech during the POMA House of Delegates meeting on Wednesday evening.

POMA 108th Annual Clinical

Scenes and Highlights from the 108th Annual Pennsylvania Osteopathic Medical Association Clinical Assembly

The POMA Clinical Assembly once again attracted a huge crowd! The 108th Annual Assembly drew over 1,650 registered osteopathic physicians, residents, interns and students to the Radisson Valley Forge and Valley Forge Event Center in King of Prussia, Pennsylvania. Held May 4-7, 2016, the four days of educational sessions, workshops, meetings, exhibits and social functions were well received.

The Clinical Assembly's extraordinary success was largely thanks to the efforts of Ernest R. Gelb, D.O., general convention chairman; Kieren P. Knapp, D.O., convention vice chairman; and the POMA Convention Committee. A full schedule of educational sessions was complimented with social functions, including the Clinical Writing Contest Awards Luncheon, the Pennsylvania Osteopathic Family Physicians Society's (POFPS) President's Installation Luncheon and the Annual President's Reception and State Banquet.

Excellent Educational Programs

This year's program offered a wide range of medical and practice-related sessions. Topics included cardiology, diabetes, dermatology, pediatrics, low back pain amd medical record keeping, as well as an osteopathic manipulative medicine (OMM) workshop featuring instructors from the Philadelphia College of Osteopathic Medicine (PCOM). Important lectures on child abuse recognition and reporting, telemedicine, end-of-life care, medical errors, and Pennsylvaia and Florida licensure law were also presented, along with many other topics of interest.

On Wednesday morning, Bethany Yeiser and Karen S. Yeiser, R.N., opened the Clinical Assembly with the Michael F. Avallone, D.O., Opening Session describing "A Journey through Schizophrenia, Homelessness and Recovery." American Osteopathic Association (AOA) President-elect Boyd R. Buser, D.O., then presented the S. Lawrence Koplovitz, D.O., Address, which focused on "Creating Our Future in Osteopathic Medicine."

POMA's top-notch schedule of lectures was put together by Educational Program Chairman Kenneth J. Veit, D.O., Program Vice Chairman Michael A. Venditto, D.O., and educational session coordinators/moderators John W. Becher, D.O., Craig A. Frankil, D.O., Jeffrey S. Freeman, D.O., David Kuo, D.O., Richard A. Pascucci, D.O., and Michael E. Ryan, D.O.

Photos (top to bottom):
POMA Convention Chairman Ernest R. Gelb, D.O. (right), bestowed an Award of Appreciation to AOA President-elect Boyd R. Buser, D.O. Dr. Buser presented Wednesday's S. Lawrence Koplovitz, D.O., Keynote Address.

Attendees lined up early to receive their registration packets.

Members of POMA's Gavel Club inducted their newest member, Michael J. Zawisza, D.O., on Thursday morning.

POMA's educational program was well received — physicians filled the lecture room with record crowds every day.

Assembly Wrap-up

Resident Leadership Forum

Saturday morning featured POMA's first resident leadership forum, designed to help young physicians navigate important issues they will face as they begin their medical careers.

The program included discussions on professional opportunities, financial planning, work/life balance, avoiding the legal pitfalls of contracts, and a practice options and opportunities roundtable.

Sessions were put together by members of the POMA Committee on Professional Guidance/Young Physicians, including Kenneth J. Veit, D.O. committee chairman; Pamela S.N. Goldman, D.O., east region coordinator; Lisa A. Witherite-Rieg, D.O., west region coordinator; and Joseph M.P. Zawisza, D.O., central region coordinator.

Exhibitors Enjoy Physician Interaction

Physicians and exhibitors enjoyed a chance to meet outside the demands of the office during the three days of exhibiting. Attendees were able to gather important information, ask questions and view the most current medical technology available. Some companies even reserved their booths for next year!

POMA exhibit chairman Bernard I. Zeliger, D.O., would like to thank all of the companies who supported the Clinical Assembly by setting up exhibit booths. A special thank you is also extended to those companies who contributed to the Assembly's educational program. *(See box on page 9 for a complete list of exhibitors and program sponsors.)*

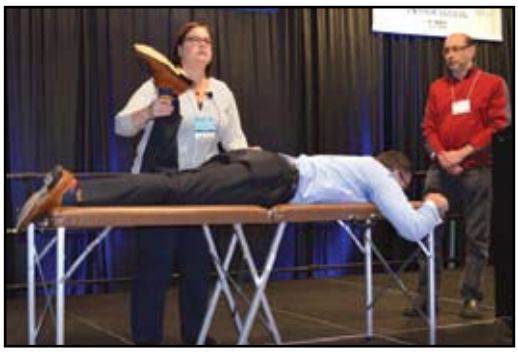
Photos (top to bottom, left to right): **This year's clinical assembly included something new — a Resident Leadership Forum. A panel discussion on "Practice Options and Opportunities Roundtable" was presented by *(left to right)* Jennifer A. Lorine, D.O.; Lisa A. Witherite-Rieg, D.O.; Joseph M.P. Zawisza, D.O.; and Pamela S.N. Goldman, D.O.**

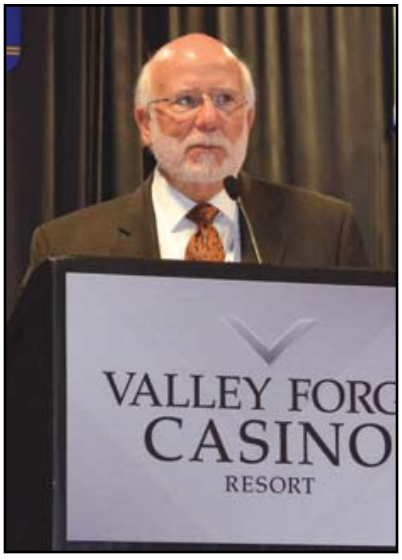
Richard E. Moses, D.O., also presented a session on "Contracts — Avoiding Legal Pitfalls.'

Osteopathic manipulative medicine instructors from the Philadelphia College of Osteopathic Medicine reviewed techniques during Friday afternoon's workshop. Physicians also had the opportunity to practice and perfect their skills.

Mary K. Brigandi, D.O., presented a lecture on "Using Osteopathic Manipulation to Treat Low Back Pain."

Richard A. Pascucci, D.O., moderated Thursday afternoon's sessions.





2016-2017 Officers Elected

Chosen by the POMA House of Delegates to lead the association for the coming year were: George D. Vermeire, D.O., president-elect; Joan M. Grzybowski, D.O., F.A.C.O.F.P., vice president; William A. Wewer, D.O., F.A.C.O.F.P., secretary/treasurer; Jeffery J. Dunkelberger, D.O., speaker of the House of Delegates; and Gene M. Battistella, D.O., vice speaker of the House. Anthony E. DiMarco, D.O., F.A.C.O.F.P, was installed as president later in the week.

Board certified in family medicine and a certified medical examiner, Dr. DiMarco is a managing physician at Parkesburg (Pa.) Family Medicine and associate medical director at LG Health Urgent Care in Parkesburg. An adjunct faculty member in the division of family medicine at the Philadelphia College of Osteopathic Medicine (PCOM) and Penn State University College of Medicine in Hershey, he is a Level 1 faculty member at Christiana (Pa.) Health System. A fellow of the American College of Osteopathic Family Physicians (ACOFP,) he serves a board member of the POMA Foundation, a delegate to the AOA, and is a member of the POFPS. *(See page 4 for Dr. DiMarco's speech to the House of Delegates.)*

Dr. Vermeire is medical director in the Northeast Region for Aetna, Inc., in Blue Bell, Pennsylvania. He is also the Aetna liaison to the AOA. A member of the POMA executive committee ad the POMA Foundation board of directors, he is board certified in family medicine. Dr. Vermeire is a delegate to the AOA and a member of the ACOFP and the POFPS.

Dr. Grzybowski is a physician with PCOM's Roxborough Healthcare Center in Philadelphia. A member of the POMA executive committee and the POMA Foundation board of directors, she serves as a delegate to the POMA, the AOA and the ACOFP. Board certified in family medicine, she is a member of the board of directors of the American Osteopathic Board of Family Physicians and a fellow of the ACOFP. Dr. Grzybowski is a past president of the POFPS.

Dr. Wewer has served as secretary/treasurer of the POMA for over 25 years. A fellow of the ACOFP, he is a partner of Family Practice Center, P.C., in Steelton, Pennsylvania. A past president of the POFPS, Dr. Wewer is an active staff member at PinnacleHealth System in Harrisburg. He is a member of the POMA Foundation board of directors and serves POMA as a delegate to the AOA.

Dr. Dunkelberger is board certified in family medicine and osteopathic manipulative medicine. A family physician at Enola (PA.) Family Practice, he is a team physician for East Pennsboro Area School District. Dr. Dunkelberger is a member of the POMA board of trustees, and serves as a delegate to the AOA. He is also a member of the POFPS, the ACOFP and the Pennsylvania Interscholastic Athletic Association.

Board certified in internal medicine, Dr. Battistella is a co-owner and physician at West Hills Medical Providers, Inc., in McKees Rocks, Pennsylvania. He is also vice chairman of the board of directors and past president of the medical staff at Pittsburgh's Ohio Valley General Hospital in McKees Rocks. Treasurer of POMA District 8 and a member of the POMA exective committee and the POMA Foundation board of directors, he serves as a delegate to the AOA.

National Dignitaries Address POMA Delegates

The POMA House of Delegates and board of trustees also held meetings during the Association's 108th Annual Clinical Assembly. The meetings included election of officers, special reports, review of the 2016-2017 budget, and discussion on a resolution. Between business matters, the House welcomed special guests John W. Becher, D.O., American Osteopathic Association (AOA) president; Boyd R. Buser, D.O., AOA president-elect; Adrienne W. White-Faines, M.P.A., CEO of the AOA; Bruce R. Hironimus, POMA legislative consltant/lobbyist; Pamela L. Kolinski, president of the Advocates for the AOA (AAOA); and Caryn Helhowski, president of the Advocates for the POMA (APOMA).

Photos (top to bottom, left to right):
POMA's 2016-2017 officers and trustees were sworn in during Thursday morning's House meeting.

POMA delegates stood to recite the Osteopathic Oath at the start of Wednesday's House meeting.

AOA President John W. Becher, D.O., brought greetings from the national association.

AOA President-elect Boyd R. Buser, D.O., addressed members of the POMA House of Delegates.

AAOA President Pamela L. Kolinski spoke to the POMA House.

2016 POMA Exhibitors List

AbbVie, Inc.
Allergan, Inc.
Amarin Pharma, Inc.•
Arbor Pharma., LLC
Astellas Pharma US, Inc.
AstraZeneca Pharmaceuticals, L.P.
Cancer Treatment Centers of America, Inc. •
CardioDx Inc.
Correct Care Solutions, LLC
Coverys
Daiichi Sankyo Company, Ltd.
Diadexus, Inc.
ECR/Valeant Pharmaceuticals International, Inc.
Eli Lilly and Company
Ideal Protein
Iroko Pharmaceuticals, LLC
Janssen Pharmaceutical Companies
Kowa Pharma., Inc.
Lake Erie College of Osteopathic Medicine
Main Line Health
MD Anderson Cancer Center at Cooper
MEDA Pharma., Inc.
MEDENT Community Computer Service, Inc.
Mercer-Bucks Orthopaedics
Merck & Co., Inc.
Mid Atlantic Resource Group, LLC
Millennium Health
Mission Pharmacal Company
National ACO, LLC
NORCAL Mutual Insurance Company
Novartis Pharmaceuticals Corporation •
Patient First •
Pennsylvania Army National Guard
Pernix Therapeutics
Pfizer, Inc.
Philadelphia College of Osteopathic Medicine
PNC Financial Services Group
Purdue Pharma, L.P.
Quest Diagnostics, Inc.
Reading Health System
Seabrook House, Inc. •
Sterling Investment Advisors, Ltd.
Takeda Pharma. U.S.A., Inc.
TD Bank, N.A.
Teva Pharmaceutical Industries, Ltd.
TriValley Primary Care
Wolters Kluwer Health

• companies who also provided a grant and/or support for the POMA program.

The following also provided educational grants or conference support:
Abbott Nutrition
Bristol Myers Squibb Company
Mid Penn Bank
S. Lawrence Koplovitz, D.O., Foundation

POMA would like to thank all of the pharmaceutical companies, medical equipment suppliers, educational exhibitors and others who helped to make this year's Clinical Assembly such a great success. A complete list of exhibitors and sponsors appears on the left-hand side of this page.

Physicians enjoyed the chance to mingle with exhibitors, exchange ideas and learn about the latest breakthroughs and offerings. A wine and cheese reception was held on Wednesday to allow exhibitors and physicians a chance to unwind and socialize.

A poster exhibit, featuring 27 entries, was sponsored by PCOM MEDNet on Thursday.

Clinical Writing Contest Awards Luncheon

A large crowd of convention attendees gathered for this year's Clinical Writing Contest Awards Luncheon, held on Thursday, May 5. The 2016 Golden Quill Award was presented to Jennifer E. Carson, D.O. Dr. Carson's winning entry, "Correlation and Impact of Autoimmune Thyroid Disease and Celiac Disease," appears on page 17 of this issue of *The Journal of the POMA*. This year's second place award was awarded to Meredith A. Marcincin, D.O., for her paper, "Isolated Horner's Syndrome: A Diagnostic Challenge," which appears on page 22. Third place was awarded to Matthew L. Hintz, D.O., for "A Look at Aggressive Play and Intent to Injure among Male Junior Hockey Players of the OHL," and an honorable mention was presented to Patrick Fessler, D.O., for "Injury Underreporting in Collegiate and Professional Athletes." Articles by Dr. Hintz and Dr. Fessler will appear in the September 2016 issue of *The Journal of the POMA*.

POFPS Presidential Installation Luncheon

The POFPS gathered on Friday, May 6, to install Richard A. Ortoski, as their 2016-2018 president. The 2016 Raymond J. Saloom, D.O., Award of Merit was also presented to an outstanding Pennsylvania family physician during the POFPS President's Installation Luncheon.

Board certified in family medicine with certificates of added qualification in adolescent and young adult medicine, Dr. Ortoski is regional dean, chair of the primary care education department, and a clinical professor of family medicine and human sexuality at the Lake Erie College of Osteopathic Medicine (LECOM). He is also clinical director of the LECOM Primary Care Scholars Pathway and faculty advisor for the LECOM Chapter of the American College of Osteopathic Family Physicians (ACOFP). A certified HIV specialist, Dr. Ortoski also serves as the HIV medical director of the Northwest Pennsylvania Rural AIDS Alliance and is chairman of the Erie County Board of Health. A fellow of the ACOFP, Dr. Ortoski has served as a member of the POFPS board of trustees for eight years and as co-chairman of the annual POFPS CME Symposium.

Photos (top to bottom, left to right):
Alice J. Zal, D.O. (left), posed with Jennifer E. Carson, D.O., the Clinical Writing Contest Golden Quill Award winner.

Dr. Zal presented second place in the Clinical Writing Contest to Meredith A. Marcincin, D.O.

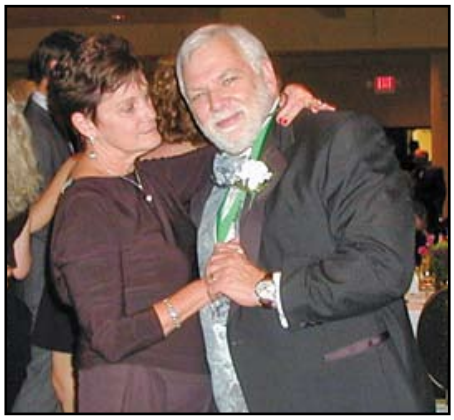
Dr. Zal presented third place to Matthew L. Hintz, D.O..

Patrick Fessler, D.O., received an honorable mention in the POMA Clinical Writing Contest.

POFPS 2014-2016 President Harry J. Morris, D.O. (left), installed Richard A. Ortoski, D.O., as POFPS' 2016-2018 president during Friday's luncheon.

Dr. Morris received the POFPS President's Award in recognition of his service as 2014-2016 president.

POFPS' new officers and trustees were installed during Friday's luncheon. From left to right: Ernest R. Gelb, D.O.; Peter F. Bidey, D.O.; Cynthia L. Lubinsky, D.O.; and Deanne S. Endy, D.O.



He received the POFPS 2013 Family Physician of the Year Award and the POFPS 2004 Frederick J. Solomon, D.O., Award of Merit.

Harry J. Morris, D.O., F.A.C.O.F.P., was presented with the POFPS Raymond J. Saloom, D.O., Award of Merit in recognition of his untiring efforts to promote the art of family medicine and preserve the integrity of the osteopathic profession Board certified in family medicine, Dr. Olson maintained a practice in Shamokin Dam for over 25 years. Past president of the medical staff and chairman of the Graduate Medical Education Steering Committee at Evangelical Community Hospital in Lewisburg, he also served as a member of the board of directors and medical advisor to the American Red Cross — SUN Area Chapter. Past president of the Pennsylvania Osteopathic Medical Association (POMA) and past chairman of POMA's District 6, Dr. Olson serves as chairman of the POMA Legislative Committee. A delegate to the POMA and the American Osteopathic Association, he is a member of the POFPS and the American College of Osteopathic Family Physicians.

APOMA Members Meet

Members of the APOMA gathered together on May 6, 2015, at the Radisson Valley Forge and Valley Forge Event Center, in conjunction with the POMA Clinical Assembly. AAOA President Pamela L. Kolinski brought greetings to the APOMA. A cooking demonstration was held with a Radisson chef, followed by socializing and refreshments. A silent auction was also held by the APOMA on May 4-5, 2016. The event raised over $3,251 to aid students at PCOM and LECOM.

Looking Ahead

Plans for next year's Assembly, scheduled for April 26-29, 2017, at the Radisson Valley Forge and Valley Forge Event Center in King of Prussia, are already underway. The POMA Convention Committee is currently busy making arrangements for another outstanding Assembly, so mark your calendar now!

Photos (top to bottom, left to right):

POMA Incoming President Anthony E. DiMarco, D.O. (left), was installed by AOA President John W. Becher, D.O.

POMA Outgoing President Michael J. Zawisza, D.O., received the Presidential Award.

As usual, the Polish American String Band provided plenty of props for everyone to enjoy.

The Polish American String Band played several favorites, including the Mummer's Strut, during their performance.

POMA Convention Chairman Ernest R. Gelb, D.O., and his wife Barbara enjoyed the evening's entertainment.

Banquet attendees crowded the floor as To the Max provided dancing entertainment.

The APOMA raised funds for osteopathic students through their silent auction.

FROM THE EDITOR'S DESK

Alice J. Zal, D.O., F.A.C.O.F.P.

Alie J. Zal, D.O.
Editor-in-Chief

In Pennsylvania, it has now become mandatory that physicians receiving/renewing their licenses must take a child abuse course. This is so that physicians are more aware of the signs of abuse and how to effectively report them. At the 108th Annual POMA Clinical Assembly, such a course was offered to satisfy the Act 31 training requirement for all persons applying for an initial license or licensure renewal. This has been a silent cry from abused children forever, and it is now being substantially supported by the Commonwealth of Pennsylvania.

In 1970, Lisa Richette wrote a book called *The Throwaway Children*. Every nursing student was mandated to read it. It was only 341 pages, and should be a required read for medical students. It makes you acutely aware of some of the horrors with which young children have to live. It also tunes you in to some questions that health care professionals should ask and be attuned to when doing a yearly physical on a child, or when they come in for a "sick visit." A complete exam and asking pointed questions, especially when the caregiver/parent is out of the room, is essential. Often, a physician may get a call from the school nurse or other professional, and they should be taken seriously every time. No cry for help should fall on deaf ears. Every whisper should be listened to. Children are very scared of adults, especially if they are threatened that if they tell anyone, x, y, and z will happen to them or someone they love.

I can still vividly recall a young lady in her teens coming into my office, and I noticed that she significantly fell off her growth curve. When I asked her why she was dieting, she said that if she stayed small she wouldn't get "boobs" or "that bloody thing." I asked her why getting more mature bothered her, and she started rocking and crying. She said that her sister and mother told her to stay small. Apparently her father had abused her sister and threatened her mother constantly. I then spoke with the school nurse, who was also wondering why her grades started plummeting. Family counseling was then started. The father refused to cooperate, but at least he was aware that his daughter was no longer alone to suffer at his hands.

The above is just one of more than a dozen times that I professionally interjected myself in the total care of my patients. How many of you have had similar experiences? How many of you have interacted with school counselors, nurses or teachers? Have you taken the time out of your busy schedules to protect these vulnerable young patients? If not, why not?

(The CHILD ABUSE HOTLINE NUMBER IS 1-800-932-0313)

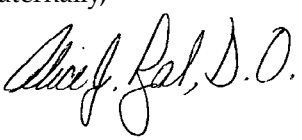
Now to a more uplifting note — I would like to congratulate my classmate, Anthony E. DiMarco, D.O., F.A.C.O.F.P., on becoming POMA's 2016-2017 president at the 108th Annual Clinical Assembly. I would also like to recognize Ernest R. Gelb, D.O., F.A.C.O.F.P., for his successful endeavor with this convention, which saw over 1,650 physicians register for the outstanding lectures and events.

Once more, the POMA Clinical Writing Contest was made possible by the great judges on my committee (Mark B. Abraham, D.O.; Bernard J. Bernacki, D.O.; John R. Gimpel, D.O.; Eric J. Milie, D.O.; Christopher D. Olson, D.O.; and Silvia M. Ferretti, D.O.). The awards went to:

First Place — Golden Quill
Jennifer E. Carson, D.O.
Second Place
Meredith A. Marcincin, D.O.
Third Place
Matthew L. Hintz, D.O.
Honorable Mention
Patrick Fessler, D.O.

Thank you to everyone as I transition into the role as editor.

Fraternally,



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A STUDENT'S VOICE

Elisa Giusto, OMS-II, and Olivia Hurwitz, OMS-II

Ending Step 2 CS and Level 2 PE

Elisa Giusto
PCOM OMS-II

Olivia Hurwitz
PCOM OMS-II

In 2004, the USMLE and COMLEX added a clinical skills and physical exam assessment exam to medical students in America, Step 2 CS and Level 2 PE, respectively, in order to protect the public and enhance patient safety. State laws require that D.O. and M.D. physicians pass Step 2 and Level 2 respectively for licensure, so Step 2 CS and Level 2 PE were automatically incorporated into this requirement. Most medical students take this exam during their third year of medical school, along with the written version of Step 2 and Level 2. The COMLEX Level 2 PE seven-hour exam involves 12 standardized patient encounters to test physician-patient communication, interpersonal skills, medical history-taking, osteopathic principles, physical examination skills and documentation skills. Each patient encounter lasts 14 minutes and includes a variety of clinical presentations with diverse ages, genders, ethnicities and cultural backgrounds. The score reports are made available to the medical students and their dean approximately eight to 10 weeks from the examination date.

While the creation of Step 2 CS and Level 2 PE may seem to be well-intended, medical students around the country have come to find the exam as redundant, unnecessary and just another financial burden. A petition to end Step 2 CS and Level 2 PE, started by Harvard Medical School in February of this year, has already received over 15,000 signatures from over 130 American medical schools, and it raises legitimate concerns. First of all, over 90 percent of medical schools currently administer an Objective Structured Clinical Examination (OSCE) or variant on this principle, and 74 percent of medical schools require a passing score for graduation. Second, the registration fee for Step 2 CS is $1,275 and is only offered in five cities, while the Level 2 PE costs $1,290 and will be offered in two cities starting this August. A recent study suggested the true cost for detecting a single "double failure," a student who failed the Step 2 CS two to three times and failed to graduate medical school, is as high as $1,100,000. Third, despite the 11 years since the Step 2 CS and Level 2 PE was added as a requirement to American medical students, there is no data to support even a causal link between these exams and improved patient outcome. Studies have actually found weak correlations between Step 2 CS and end-of-year evaluations of internal medicine interns' communication skills, without controlling for other effects such as school-required clinical skills. Fourth, the Step 2 CS and Level 2 PE exams are only a pass/fail grade and provide no feedback to the medical students. OSCE exams by individual medical schools can provide medical students with a more comprehensive assessment, as well as targeted feedback to improve upon communication, history taking, physical exam and clinical reasoning.

So what are medical students doing to actually end Step 2 CS and Level 2 PE? In addition to this petition, we have written a resolution that was presented at the American Medical Association (AMA) Annual Meeting in Chicago this month resolving, "That our AMA work with the Federation of State Medical Boards (FSMB) and state medical boards to advocate for elimination of the USMLE Step 2 CS and the COMLEX Level 2 PE as a requirement for LCME-accredited and COCA-accredited medical school graduates who have passed a school-administered, clinical skills examination." Furthermore, medical students are presenting similar resolutions to individual state societies throughout the year. There has been encouraging support thus far as the resolution has passed in Michigan and Massachusetts. We also plan to present this resolution to the Pennsylvania Medical Society House of Delegates meeting in October and, hopefully, to the American Osteopathic Association in the near future.

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LECOM DEAN'S CORNER

Lake Erie College of Osteopathic Medicine

Silvia M. Ferretti, D.O.
LECOM Provost,
Vice President and
Dean of Academic Affairs

The Lake Erie College of Osteopathic Medicine (LECOM) has long espoused the tenet that a great leader's courage to fulfill his vision is derived from passion and committed to purposeful results. That closely held belief once again was proven to be true as LECOM Regional Dean Richard A. Ortoski, D.O., was installed as president of the Pennsylvania Osteopathic Family Physicians Society (POFPS) at the Pennsylvania Osteopathic Medical Association (POMA) Annual Clinical Assembly earlier this month. The Pennsylvania Osteopathic Family Physicians Society is a noteworthy organization that represents family physicians who hold the Doctor of Osteopathic Medicine degree.

As a LECOM leader, Dr. Ortoski also serves as chair of the Primary Care Education Department and is clinical director of the Primary Care Scholars Pathway.

Dr. Ortoski was appointed POFPS president during the Installation Luncheon held by the organization at the POMA Clinical Assembly in King of Prussia, Pennsylvania.

Dr. Ortoski has served on the board of trustees for POFPS for eight years; as co-chair of the POFPS Annual Continuing Medical Education (CME) Symposium; and as chairman of the POFPS Mentor Committee. He is a fellow of the American College of Osteopathic Family Physicians (ACOFP), which is the corresponding national organization to POFPS.

As POFPS president, Dr. Ortoski will work with osteopathic family physicians across Pennsylvania. His responsibilities include guiding the organization and the board as it, in turn, offers recommendations to all of the osteopathic family physicians in Pennsylvania. Those recommendations provide guidance to physician practices and assists them in meeting licensing requirements.

The U.S. Department of Health and Human Services is investing American tax dollars into new primary care programs that place the focus squarely upon primary care physicians. As a result of this investment, Dr. Ortoski hopes to see a more positive future for the practice of those medical practitioners, especially those serving in Pennsylvania.

The guiding force offered by capable and highly-respected leaders, such as Dr. Ortoski, will further advance primary care and medical outcomes throughout the state and, indeed, throughout the nation.

The majority of LECOM graduates become primary care physicians, and *U.S. News & World Report* ranks LECOM sixth among medical colleges for graduating physicians who choose the field of primary care for practice.

LECOM offers the Primary Care Scholars Pathway (PCSP), one of five of the only three-year medical degree programs in the nation. Dr. Ortoski serves as the clinical director of the PCSP, which encourages medical students to pursue a career as a primary care physician and to address the national shortage.

In addition to his being installed as president of POFPS, Dr. Ortoski was recently re-elected as the chair of the Erie County Board of Health. Dr. Ortoski has worked with the Erie County Health Department since 1992, serving in various roles, including assistant medical director, public health officer, and as STD clinic physician.

Dr. Ortoski serves as a trustee for the National Board of Osteopathic Medical Examiners (NBOME), guiding the evaluation of osteopathic students and residents in protecting the public safety through patient care.

The importance of primary care in the current health care climate cannot be overstated. LECOM lauds the distinctive and extraordinary attainments of Dr. Richard Ortoski, a leader who serves as an exemplar of the constant and ready character that keeps LECOM ever in the vanguard of first-rate health care education.

PCOM DEAN'S CORNER

Philadelphia College of Osteopathic Medicine

Kenneth J. Veit, D.O.
PCOM Provost, Senior Vice President for Academic Affairs and Dean

As part of our institutional mission, PCOM is committed to the advancement of knowledge and intellectual growth through teaching and research, and to the well-being of the community through leadership and service. In April, PCOM hosted a first-of-its-kind event that aimed to further those commitments.

On April 16, 2016, the college, in partnership with the Pennsylvania Medical Society, hosted a CME event that focused on transgender medicine for those who work in primary care. The daylong event brought together local and national experts in the field of transgender medicine (including PCOM alumni A.C. Demidont, D.O., the program co-chair and director of transgender medicine at the CIRCLE CARE Center in Norwalk, Connecticut; Christine McGinn, D.O., founder of the Papillion Gender Wellness Center in New Hope, Pennsylvania; and PCOM faculty, such as Sherman Leis, D.O., professor and chair, plastic and reconstructive surgery, and founder of the Philadelphia Center for Transgender Surgery, to lecture on a variety of health care topics of critical importance to this population.

These topics included continuity of care, counseling services, hormone therapy and surgical options for those seeking gender confirmation. The goal of the event was to provide participants with a better understanding of the unique needs of this often underserved population, in order to provide more effective treatment.

This population, while growing, is indeed underserved. A study performed by Lamda Legal — the nation's oldest and largest legal organization focusing on the civil rights of the LGBTQ community — found that 70 percent of transgender respondents reported feeling discriminated in health care. Another study, conducted by the National Center for Transgender Equality and the National LGBTQ Task Force, found that 28 percent of respondents avoided getting needed treatment, and 33 percent had either never received or delayed primary care because of past negative experiences with doctors.

As these statistics suggest, there is an immediate need for primary care providers to become better educated about this population. As an osteopathic institution, our focus on preventive and primary care imbues our educational philosophy. To that end, it makes sense that we would take the lead on educating primary care providers on the needs of this population. After all, many transgender men may still need preventive services such as pap smears or mammograms, and many transgender women may still need prostate screenings.

Across PCOM, we are taking steps to make our campuses in Philadelphia and Georgia more welcoming to transgender individuals who want to practice medicine — research tells us that patients are more likely to trust a clinician who shares their background. These steps include lectures held by the Office of Diversity and Compliance to better educate our students on the needs of the transgender community; the establishment of the LGBTQIA subcommittee of the President's Diversity Council; the establishment of Safe Zones across our campuses; and the construction of gender-neutral restrooms.

That said, the primary care clinician is operating on the front lines of this emerging patient population, and — as with any population — needs to be equipped with the education to provide his or her patient with the proper screenings and care.

Fraternally,
Kenneth J. Veit, D.O.

ABOUT THE AUTHORS

Jennifer E. Carson, D.O.

Meredith A. Marcincin, D.O.

Jennifer E. Carson, D.O., received the 2016 POMA Golden Quill Award for her manuscript, *"Correlation and Impact of Autoimmune Thyroid Disease and Celiac Disease."* A second-year internal medicine resident at Millcreek Community Hospital in Erie, Pennsylvania, she received a Bachelor of Science degree from Purdue University in West Lafayette, Indiana, and an M.B.A. from Ball State University in Muncie, Indiana. In 2014, Dr. Carson received her D.O. degree from the Lake Erie College of Osteopathic Medicine. She is a resident representative to Millcreek Community Hospital's Graduate Medical Education Committee and House Staff, as well as LECOMT's Osteopathic Graduate Medical Education Committee.

Meredith A. Marcincin, D.O., was presented with second place in the 2016 POMA Clinical Writing Contest for her article on *"Isolated Horner's Syndrome: A Diagnostic Challenge."* A third-year ophthalmology resident from Millcreek Community Hospital, she is a graduate of Muhlenberg College in Allentown, Pennsylvania, and Boston University School of Medicine. Dr. Marcincin received her D.O. degree in 2013 from the University of New England College of Osteopathic Medicine in Biddeford, Maine, and recently obtained her Master's of Science degree in Medical Education from the Lake Erie College of Osteopathic Medicine in Erie. Her research interests include studying the impact of ocular disease on quality of life and patient safety.

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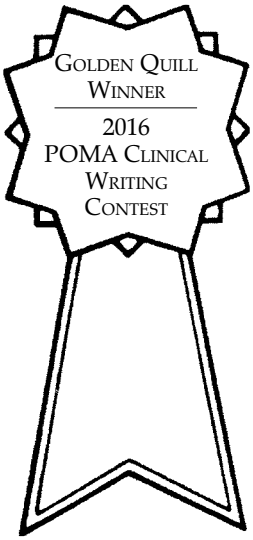
Medical Update
Correlation and Impact of Autoimmune Thyroid Disease and Celiac Disease

by Jennifer E. Carson, D.O.



Abstract

Celiac disease (CD) has become one of the most prevalent autoimmune diseases, affecting approximately 1 percent of the U.S. population. As with other autoimmune diseases, individuals with celiac disease suffer from a misguided attack on their own healthy cells. In response to this attack, antibodies are created to protect the healthy cells. As the immune system creates these antibodies, multiple organs can be affected. About 25 percent of patients diagnosed with autoimmune diseases have more than one type.[17] Current literature suggests a positive correlation between CD and autoimmune thyroid disease (ATD), but the pathogenesis is unknown. The identification and diagnosis of CD and ATD is important in the treatment and long-term prognosis. Early identification and treatment of CD may aid in the treatment for ATD and improve a patient's overall health.

Introduction

Celiac disease is an immune-mediated ailment, triggered by exposure to gluten. It is a chronic inflammatory disorder that has antibodies to gliadin, endomysium and transglutaminase 2, all of which are present in gluten. Upon consumption of gluten, the autoimmune response is triggered and antibodies attack the villi of the proximal small intestine. Over time, this leads to villous atrophy, mucosal inflammation and crypt hyperplasia, altering the absorption of nutrients and medications. Patients may present with symptoms such as diarrhea, weight loss and malnutrition. However, the disease may be silent, demonstrating no symptoms, leading to a delay in diagnosis and treatment.[1] Studies provide evidence that individuals diagnosed with CD are at an increased risk for future health complications, including neurological issues, cardiomyopathy, osteoporosis, infertility, and hematologic and neoplastic disorders.[2,3] The only treatment is a gluten-free diet — avoiding certain foods such as wheat, barley and rye.

Celiac disease shares a genetic predisposition with other autoimmune diseases. Individuals genetically susceptible to gluten inherit specific haplotypes that affect the antigen-presenting cells, in particular HLA-DQ2 and HLA-DQ8. Over 90 percent of individuals with known celiac disease possess these haplotypes.[4] When these haplotypes are presented with deaminated gluten particles, an immune response occurs and antibodies are produced. Transglutaminase 2 is essential to the deamination of gluten particles, thus antibodies to tissue transglutaminase are produced by the type 2 T-helper-cell system, known as anti-tTG.[2] These antibodies affect the arrangement of transglutaminase 2, interfering with its physiological function, and preventing apoptosis of double-stranded DNA. The presence of the double-stranded DNA catalyzes an immune event that starts with the release of certain tissue-specific proteins and inflammatory cytokines.[4] Previous research speculates that it is possible that this immune event stimulates inflammation in other organs by activation of transglutaminase that is present in those organs.

Anti-tTG antibodies bind to transglutaminase 2 in other organs, producing extraintestinal symptoms. Transglutaminase 2 is present in the cytosol and follicle lumen of thyroid tissue, thus making the thyroid susceptible to the anti-tTG antibodies. In a study produced by Nayer, samples of thyroid tissue from individuals with a confirmed diagnosis of celiac disease revealed a positive correlation between anti-tTG and anti-thyroid antibodies, suggesting that anti-tTG antibodies inflict damage in other organs.[2]

Celiac disease and autoimmune thyroid disease have other pathogenetic similarities. Both disorders are composed of the gene that encodes the cytotoxic T-lymphocyte-associated antigen-4 (CTLA-4), making individuals susceptible to these diseases. HLA-D8 and HLA-D2 are also associated with celiac disease and Hashimoto's thyroiditis.[5,6] Thyroid hormone is

an important regulator of gut mucosa growth and differentiation. Hyper- and hypothyroid states affect intestinal digestion and motility, mesenteric blood supply and appetite. Oral thyroid medication is absorbed in the small intestine, mainly in the jejunum. Thus, it is possible that gastrointestinal diseases can affect the absorption and bioavailability of synthetic thyroid hormones.[7]

CD should be considered in the clinical context of ATD. Early detection and treatment of both diseases can prevent future health complications. This paper reviews numerous studies that have been conducted concerning the prevalence of CD among individuals suffering from ATD, and the outcome that treating CD has on the prognosis of ATD. Based on current literature, I propose that there is a strong link between celiac disease and autoimmune thyroid disease. I propose that the treatment of celiac disease will assist in the treatment of thyroid symptoms.

Discussion

A study conducted by Sattar et al. between 2004-2009 at University Hospital at Stony Brook (N.Y.) showed evidence that there was a greater correlation between CD and ATD when compared to other studies concerning the prevalence of CD in the general population. Three hundred eighthy-seven children with known or suspected ATD consented to screening of serum anti-tTG antibodies. Of these children, 4.6 percent were found to have positive serum anti-tTG antibodies, and of those 4.6 percent, 54 percent were confirmed to have CD via the gold standard, small intestine biopsy results displaying villous atrophy. Thus, this study proved that there was an increased prevalence of CD among children with ATD (2.3 percent) compared to the prevalence of CD among the general pediatric U.S. population (0.3-1.25 percent).[8]

Another study by Sari et al., conducted in Turkey, showed similar results regarding the prevalence of CD in children with ATD. Between January 2005 and December 2006, the study compared 101 children with autoimmune thyroiditis (confirmed by positive serum antithyroid peroxidase and/or antithyroglobulin antibodies) to 103 healthy children. Serum samples for anti-tTG antibodies were obtained from each child. None of the healthy children had positive serum samples. Eight of the patients with ATD (7.9 percent) had positive serum samples for anti-tTG antibodies. Of those eight, seven consented to duodenal biopsy, and five of them were confirmed to have CD. Sari et al. predicted that the two with normal biopsies were at risk for developing CD in the future. Thus, results showed a higher prevalence (4.9 percent) of CD in children with ATD, compared to healthy children.[9]

A study led by Dr. Rossella Valentino in Italy sought to distinguish and compare the prevalence of CD among the different ATDs. The study consisted of 150 patients with ATD. Fifty-eight of these patients were previously diagnosed with Hashimoto's thyroiditis, 18 with Graves' disease, and 74 with multinodular euthyroid goiter. Thyroid antiperoxidase (TBO) and thyroglobulin antibodies (AbTG) were measured and all of the patients had high TBO titers, while only 69 had positive AbTG titers. They were screened for celiac disease by serum testing for IgA class antiendomysial antibodies (EmA). Five patients were positive for the antibody, and the diagnosis of CD was confirmed in all five patients through jejunal biopsy. Four of these five patients had Hashimoto's thyroiditis, one had Graves' disease, and all of these patients had high TBO and AbTG. The five patients were given instruction on a gluten-free diet, but only three of them (all with Hashimoto's thyroiditis) followed a strict gluten-free diet. At the six-month mark, these three patients showed overall improvement. Serum EmA antibodies disappeared, biopsy showed villous healing, and reduction in levothyroxine dosage and other hormonal therapy was noted.[10]

One study screened for the both the prevalence of CD in adults with previously diagnosed ATD and thyroid disease in adults with previously diagnosed CD. One hundred fifty-two patients with ATD were screened for CD by IgA-EmA serum testing: 100 patients had a diagnosis of Graves' disease, and 52 had autoimmune hypothyroidism. The presence of CD in adults with ATD was 3.29 percent (5 out of 152) and CD was confirmed in all of these patients via biopsy: three patients had a previous diagnosis of autoimmune hypothyroid, and two had a diagnosis of Graves' disease. These results were significantly higher compared to the less than 1 percent prevalence of CD in the general population. One hundred eighty-five adults with CD were screened for ATD by serum TSH, fT3 and fT4. Thirty-eight of these patients were positive for ATD, six of them were positive for hyperthyroidism, eight for hypothyroidism, and 24 for euthyroidism. Overall prevalence of ATD in adults with CD was 20.54 percent, compared to 11.17 percent in a control group of 170 healthy individuals.[11]

Numerous other studies have focused on the prevalence of ATD among individuals with known CD. Based on previous research by Meloni et al., hypothyroidism occurs in 5 to 15 percent of individuals with CD.[12] In a study from Sweden, 139 individuals with CD were tested for ATD. Eight of them tested positive for hypothyroidism, and seven tested positive for thyrotoxicosis. A study by Reunala and Collin, published in 1997, followed 383 patients with previously diagnosed CD for 10 years. Fourteen of them (3.7 percent) were found to have autoimmune hypothyroid disease, while nine (2.3 percent) were found to have autoimmune hyperthyroid disease.[5]

A prospective study in North England provided evidence that patients with CD have an increased risk for thyroid disease. One hundred seven patients previously diagnosed with CD consented to the study; serum thyroid function and antibodies were measured. Results showed that a significantly greater proportion of patients with CD had thyroid disease compared to a control group of healthy adults in the same area: hypothyroidism (10.3 percent vs.2 percent); hyperthyroidism in CD patients (3.7 percent vs. 1.5 percent); thyroglobulin antibodies in CD patients (11.2 percent vs. 3.9 percent); and thyroid microsomal antibodies in CD patients (15 percent vs. 14 percent). The mean age of individuals with CD and thyroid disease was older than the mean age of individuals with CD alone, implying a possibility that prolonged exposure to gluten can have damaging effects on thyroid tissue.[13] Regardless of the origin of CD vs. ATD, the impact that treating CD has on ATD should be considered.

A case study concerning a 58-year-old female with a history of autoimmune hypothyroidism and undiagnosed CD demonstrates the effect of a gluten-free diet. In the case study, the patient presented with fatigue and cold intolerance; she was diagnosed with primary hypothyroidism with a TSH level greater than 100 mU/L, free T4 less than 5.2 pmol/L, and positive thyroid microsomal antibodies. The patient was started on low-dose levothyroxine. At follow ups, the patient's symptoms resolved, but her TSH remained elevated despite medication compliance. Her levothyroxine was subsequently increased at each visit, ultimately to 200 μg/d, to maintain a TSH level of 0.72. Serum levels of anti-gliadin and anti-tTG were elevated and duodenal biopsy confirmed the diagnosis of celiac disease. After two months of a strict gluten-free diet, TSH levels were 0.05 and the dose of levothyroxine was decreased to 150 μg/d; three months after that, her dose was decreased to 125 μg/d. This case demonstrates the impact that gluten can have on nutrition and medication absorption in the small intestine.[14] A retrospective study by Collins et al. found similar results.

A study conducted at University of Vermont/Fletcher Allen Health Care identified 152 patients with CD: seven of these patients were diagnosed with ATD prior to diagnosis of CD. The seven patients with concomitant CD and ATD were compared to a control group of 200 individuals with thyroid disease only. The average initial dose of levothyroxine needed to attain a euthyroid state was significantly higher in the CD and ATD group at 154 μg/d, compared to 106 μg/d in the control group. The initial weight-based dose of levothyroxine needed to attain a euthyroid state was also higher in the CD and ATD group: 2.6 μg/kg compared to 1.3 μg/kg in the control group. Compliance with a gluten-free diet significantly reduced the therapeutic levothyroxine dose from 154 to 111 μg/d, and the mean weight-based dose from 2.6 to 1.9 μg/kg; however, these results were not significantly different from the control group. These results showed that dietary treatment of CD decreased the therapeutic dose of levothyroxine, providing evidence that untreated CD inhibits proper absorption of synthetic thyroid medication.[12] Although CD treatment improves the absorption of levothyroxine, there is conflicting evidence that a gluten-free diet prevents ATD.

A study conducted by Metso et al. focused on the impact of a gluten-free diet on the progression of autoimmune thyroiditis. Twenty-seven adults recently diagnosed with CD, and a control group of 27 adults without CD, were screened for ATD. Seven of the patients with CD had been previously diagnosed with ATD and three were newly diagnosed through the screening. Out of the patients in the control group, one had been previously diagnosed with ATD and two were newly diagnosed through the screening. Thyroid volume was obtained via ultrasound and TSH levels were obtained for baseline level. At the one year mark, 26 of the 27 patients with CD had a small intestine biopsy after adhering to a gluten-free diet; all showed mucosal improvement. Follow up thyroid ultrasounds revealed a median volume decrease (0.5cm) in patient with CD, and an increase (0.7cm) in the control group, providing evidence that the thyroid atrophied in the patients with CD and improved in the control group. Baseline TSH in patients with CD was 1.7 mU/l, compared to 1.5 mU/l in

the control group. At the one-year follow up, TSH levels were 1.7 in the CD group and 1.7 in the control group. The results of this study showed that ATD continued to progress in the patients diagnosed with CD and ATD, despite strict adherence to a gluten-free diet.[1] A similar study in children was conducted in Italy to study the effects of a gluten-free diet on the development of ATD in children.

Melloni et al. compared the prevalence of ATD in 324 Sardinian children with CD, ages 1-15, to a control group of 8,040 children without CD and ATD. Thirty-four of the 324 (10.5 percent) children with CD were found to have ATD. Eleven of these children were diagnosed with ATD at the onset of CD, while 23 of these children developed it later while adhering to a gluten-free diet. These results concluded that there is a higher prevalence of ATD in patients with CD, but the development ATD is most likely independent of a gluten-free diet.[15]

Opposing evidence that prolonged duration of exposure to gluten predisposes individuals with CD to ATD was revealed by Naiyer et al. The level of thyroid anti-thyroperoxidase antibodies in the serum of individuals with CD was significantly higher compared to the level of antibodies in a control group of individuals diagnosed with ATD without CD. Further testing revealed a positive correlation between anti-tTG and anti-TPO antibodies. The results also showed a higher age of patients diagnosed with CD and ATD, compared to the control group, providing evidence that prolonged exposure to gluten makes individuals with CD susceptible to ATD.[3] Additional evidence confirming that gluten exposure affects the thyroid function is supported by analysis of antithyroid anti-bodies in 16 patients with CD and autoimmune euthyroid. After one year, three of these patients adhered to a strict gluten-free diet and antithyroid anti-bodies normalized, compared to three patients who did not strictly adhere to a gluten-free diet and consequently developed subclinical hypothyroid disease.[16]

Conclusion

Evidence supports a positive correlation between CD and ATD, and studies point to a higher prevalence of autoimmune hypothyroid disease over autoimmune hyperthyroid disease in patients with CD. Current research leaves many questions unanswered. There is conflicting evidence regarding the origin of the diseases, whether CD increases the risk of ATD or vice versa, and the effect of a gluten-free diet on the progression of ATD. Further research and longitudinal studies concerning CD and ATD are needed to provide more answers. Nonetheless, the current research demonstrates the strong association of CD and ATD, and patients diagnosed with one autoimmune disease should be screened and treated for other autoimmune diseases to prevent disease progression and future health complications.

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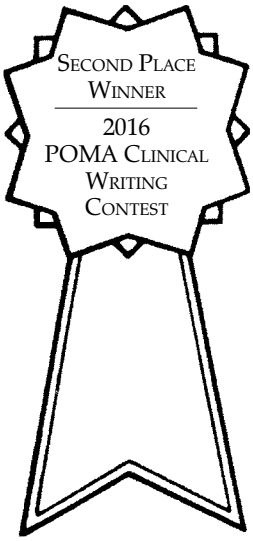
Medical Update
Isolated Horner's Syndrome: A Diagnostic Challenge

by Meredith A. Marcincin, D.O.



Abstract

Introduction. The presentation of an isolated Horner's syndrome poses a diagnostic challenge to the clinician. The causative lesion can exist at several different locations along the three-neuron oculosympathetic pathway. Horner's syndrome has been well characterized in the setting of brainstem ischemia, brain masses, spinal cord trauma, carotid dissections, aortic aneurysms, as well as a variety of malignant neoplasms. This case study reports a rare presentation of an isolated Horner's syndrome in the setting of an atrial myxoma. The aim of the study is to explore the rare etiologies of Horner's syndrome and aid clinicians in developing differential diagnoses in the setting of an isolated presentation.

Case Presentation. A 49-year-old Caucasian male with a past medical history significant for coronary artery disease, hypertension, hyperlipidemia and chronic tobacco abuse, presented to the emergency department with a 10-day history of right eyelid swelling and anisocoria. On physical examination, the patient was discovered to have a right Horner's syndrome in the absence of any accompanying neurologic signs or symptoms. An extensive workup was initiated to locate the causative lesion, and a thoracic CT scan identified a filling defect in the left atrium. The patient was found to have an intracardiac mass along the posterolateral wall of the left atrium, and the mass was subsequently resected. The diagnosis of atrial myxoma was confirmed by histopathological study. No other evidence of pathology was identified on radiographs or laboratory investigation.

Conclusion. The differential diagnosis of Horner's syndrome is broad, and the clinical presentation of an isolated syndrome adds further complexity to localizing the causative lesion. In this case report, we describe a number of rare etiologies of Horner's syndrome that should be explored in the setting of an isolated presentation.

Introduction

In the present literature, Horner's syndrome has been well characterized in association with brainstem ischemia, brain masses, spinal cord trauma, carotid dissections, aortic aneurysms, as well as a variety of malignant neoplasms.[1] Lesions at any point along the three-neuron oculosympathetic system can result in the presentation of Horner's syndrome. The preganglionic system is comprised to two neurons — the first order neuron descending from the hypothalamus extending to the cervical spinal cord at the C8-T1 level, and the second order neuron coursing from the spinal cord to the superior cervical ganglion. The postganglionic third-order neuron originates from the superior cervical ganglion and synapses at the pupillary dilator muscle within the iris. The clinical features are classified into central, preganglionic and postganglionic types, depending on the anatomic location of the causative lesion *(Table 1)*.

The classic presentation of Horner's syndrome includes ptosis, miosis and facial anhidrosis. The loss of sympathetic innervation to Muller's muscle in the upper eyelid results in a 1-2mm loss of elevation on the side ipsilateral to the lesion. The relative miosis of the ipsilateral pupil is subsequent to the unopposed parasympathetic innervation of the iris constrictor muscle, and anhidrosis results from loss of sympathetic innervation of sweat glands supplying the ipsilateral hemiface. A key to localization of the causative lesion in Horner's syndrome is the accompanying systemic signs and symptoms at the time of presentation. This case report serves to expand upon the broad differential diagnosis of an isolated Horner's syndrome to include rare, underrepresented etiologies described in current literature.

Case Presentation

A 49-year-old Caucasian male presented to the emergency room with right eye swelling

of 10-day duration. His spouse noted his right pupil was smaller than the left, which prompted him to seek medical attention. The patient denied peri-orbital eye pain, pain with eye movement, headache, neck pain or trauma. He described a vague altered sensation over the right side of his forehead and anterior scalp, noted upon placing and removing his baseball cap. The patient denied changes in vision, loss of vision or diplopia. The patient had a known history of hypertension, hyperlipidemia and coronary artery disease. Two years prior to presentation, the patient had two non-ST segment elevation myocardial infarctions — the first requiring a two-vessel percutaneous coronary intervention, and the second treated with medical management. The patient had an episode of right upper extremity weakness two years prior, and magnetic resonance imaging at the time of presentation showed no evidence of an acute cerebral infarction. The patient made a full recovery with no residual neurological deficits. The patient admitted to being a current one pack-per-day tobacco smoker with a 40 pack-year history, drinking alcohol on occasion, and a remote history of cocaine and marijuana use.

At the time of presentation, the patient was in no acute distress with stable vital signs. Physical examination revealed ptosis of the right upper eyelid and reverse ptosis of the right lower eyelid resulting in an apparent right enophthalmos *(Figure 1)*. Marginal reflex distance from the upper eyelid measured 2mm in the right eye and 5mm in the left. The face was uniform in color with no lesions or rashes. There was no evidence of anhidrosis noted on exam. Extraocular movements were intact, and visual fields were full to confrontation. Best corrected visual acuity was 20/20 bilaterally at near and distance, with normal color vision. There was no conjunctival injection, chemosis or discharge. The right pupil measured 2mm and left pupil measured 3mm in ambient light. In dark, a dilation lag was noted on the right, with a slow dilation of the pupil to 3mm and a brisk dilation of the left pupil to 6mm. Both pupils were reactive to light, and there was no evidence of an afferent pupillary defect bilaterally. Slit lamp and fundus exams were unremarkable. Neurologic examination demonstrated that all cranial nerves were intact, and no limb weakness or paresthesias were identified.

Laboratory tests, including complete blood count, comprehensive metabolic panel, erythrocytes sedimentation rate, and c-reactive protein, were within normal limits. A chest radiograph with apical views was negative for a pancoast tumor or thoracic mass. Computed tomography angiography of the head and neck showed no evidence of intracranial hemorrhage, aneurysm or arterial dissection. Magnetic resonance imaging of the head showed no evidence of acute infarction, cavernous sinus pathology or orbital masses. Thoracic computed tomography demonstrated a 2 cm filling defect along the right lateral wall of the left atrium near the opening of the right inferior pulmonary vein *(Figures 2&3)*. A subsequent transesophageal echocardiogram to further define the finding demonstrated a left atrial mass attached to the inter-atrial septum measuring 1.8 cm x 1.6 cm. Due to the known association of atrial myxomas with embolic events, the decision was made to resect the atrial mass. Preoperative cardiac catheterization and coronary angiography found single vessel obstructive coronary disease of the left anterior descending artery; therefore, at the time of atrial mass resection, a single vessel coronary artery bypass graft was performed. The operative report described a 2.5 cm mass on the right side of the left atrium broadly attached to the posterior wall of the atrium close to the inferior border of the inferior right pulmonary vein. Pathology confirmed the mass as an atrial myxoma. The patient developed postoperative atrial fibrillation, but otherwise he made a full recovery without complications.

Discussion

Horner's syndrome is a well-recognized neurological syndrome consisting of ptosis,

Table 1 (below): *Horner's syndrome etiologies. The classification of lesions is divided into central, preganglionic and postganglionic types based on the location of the causative lesion.*

Central (First Order)	Preganglionic (Second Order)	Postganglionic (Third Order)
Hypothalamus • Stroke • Tumor **Brainstem** • Lateral medullary infarct • Demyelination • Tumor **Spinal cord** • Trauma • Demyelination • Myelitis	**Cervical spine disease** **Brachial plexus injury** **Pulmonary apical lesions** • Lung tumor • Mediastinal tumor • Cervical rib • Trauma • Iatrogenic **Subclavian artery aneurysm** **Thyroid tumors**	**Superior cervical ganglion** • Trauma • Iatrogenic **Internal carotid artery** • Dissection • Aneurysm • Trauma • Tumor **Cavernous sinus lesion** • Tumor • Thrombosis • Carotid aneurysm

pupillary miosis and facial anhidrosis, and a lesion site at any point along the three-neuron pathway can lead to this constellation of signs. The syndrome is classified according to the anatomic level of the lesion, categorized as central, preganglionic or postganglionic, and associated neurological signs and symptoms at the time of presentation are utilized in order to localize the causative lesion. In our case study, the patient was asymptomatic, and the sole presenting signs were apparent enophthalmos and miosis; therefore, an extensive workup with imaging of the entire oculosympathetic pathway was initiated to localize the etiology.

A number of etiologies have been documented in peer-reviewed literature, including pancoast tumors, aortic aneurysms, carotid dissections, cavernous sinus pathology and malignant thoracic neoplasms.[1] Therefore, in the setting of a new onset Horner's syndrome, a multitude of imaging studies must be performed in order to rule out central, preganglionic and postganglionic pathology. Our patient's history of significant coronary artery disease and chronic tobacco abuse necessitated a specific workup for an ischemic event or lung neoplasm. Vascular studies including angiography of the head, neck and chest were positive only for a left intracardiac mass, which was determined to be characteristic of a myxoma on subsequent imaging studies.

The association between intracardiac masses and Horner's syndrome is largely unreported in the current literature. In our literature search, we found a single case of a 50 year-old Chinese woman presenting with acute dyspnea and Horner's syndrome in the setting of a large symptomatic atrial myxoma. Gould reported a left atrial mass measuring 6 cm by 4.1 cm protruding across the mitral valve into the left ventricle.[2] The presence of this large atrial mass was suspected to have resulted in both compression of the left thoracic sympathetic chain causing a left Horner's syndrome, as well as mitral valve flow obstruction that led to the patient's dyspneic presentation. In contrast to the patient reported by Gould, our patient was asymptomatic from a cardiovascular standpoint, and the atrial myxoma was an incidental finding. In the absence of any identifiable intracranial, neck or spinal cord pathology contributing to the isolated Horner's syndrome, it may be suggested that the patient's presentation may have resulted from the left atrial tumor; however, the workup of our patient demonstrated no radiographic evidence of direct sympathetic chain compression or mass effect.

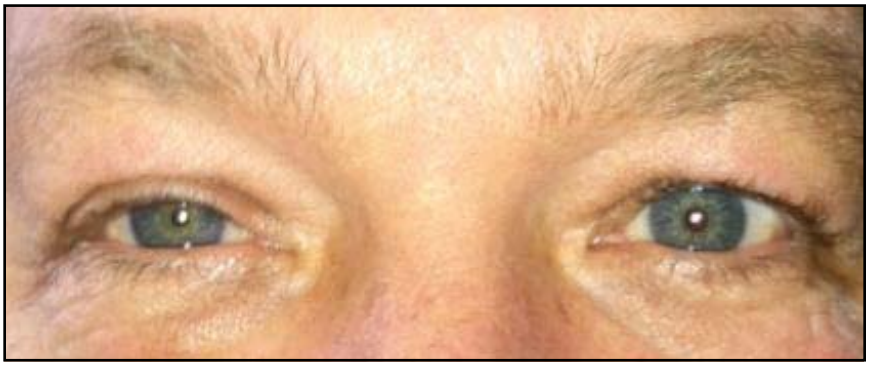
A rare etiology that has been previously described in the setting of an isolated Horner's syndrome is a small cervical syringomyelia. Kerrison, Biousse and Newman reported Horner's syndrome in a 76 year-old woman with an unremarkable neurological exam, and subsequent neuroimaging demonstrating a Chiari I malformation with a syrinx extending the C2 to C4 level.[3] Given that our patient had no history of cervical spinal cord trauma and an unremarkable neurological exam, we had a low suspicion of a potential syrinx. Our patient elected to undergo magnetic resonance imaging of the neck as an outpatient procedure, and to date the study has not been performed.

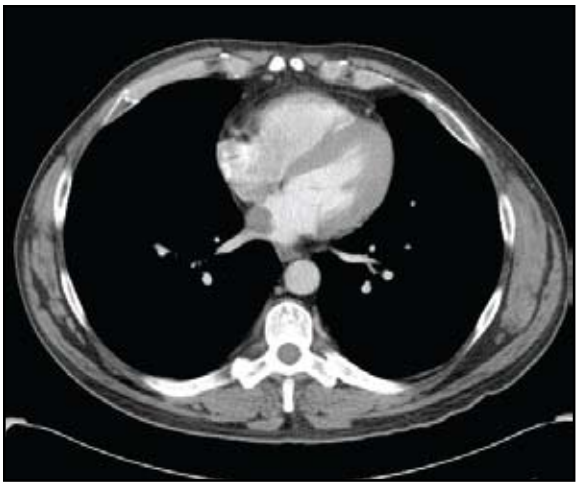
The presence of a spinal disc herniation is an additional rare etiology of Horner's syndrome that may have resulted in our patient's presentation. A number of cases of cervical herniated discs have been described in current literature, and Ma and Kim contributed two cases of upper thoracic

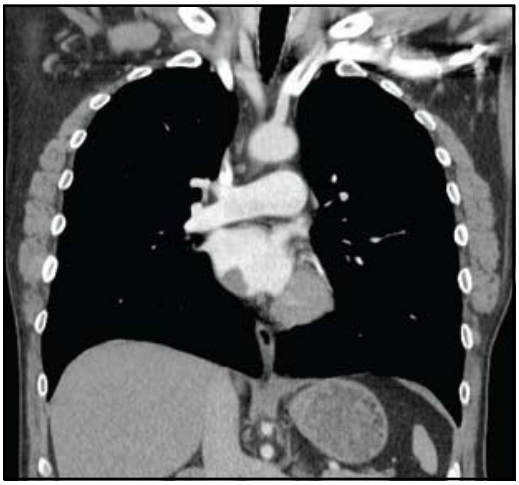
(from top, counterclockwise)
Figure 1. *Clinical presentation. Anisocoria with relative miosis of right pupil. Right upper eyelid ptosis with reverse ptosis of the lower eyelid.*

Figure 2. *Thoracic computed tomography, axial view. Intracardiac mass along the right lateral wall of the left atrium near the opening of the right inferior pulmonary vein.*

Figure 3. *Thoracic computed tomography, coronal view. Filling defect within the left atrium measuring two centimeters.*







disc herniation resulting in the presentation of Horner's syndrome. The presentation in this setting is postulated to be secondary to direct compression of the spinal cord producing an insult to the first-order neuron. In their case study, Ma and Kim report that their patients demonstrated no symptoms of neck pain, radiculopathy or myelopathy, but physical examinations performed by neurologic surgeons revealed focal neurologic deficits.[4] In retrospect, the presence of a cervical disc herniation should have been explored in our patient, given his history of right upper extremity weakness one year prior to presentation.

Another etiology that should be explored in the setting of an isolated Horner's syndrome is Lyme disease. The prevalence of Lyme disease in New England and the mid-Atlantic region is among the highest in the United States; therefore, within these endemic regions, Lyme disease should be included in the differential for any unexplained neurologic findings. The neurological manifestations of the disease vary widely, and may present months to years after the initial infection by *Borellia burgdorferi*. A small retrospective case study of 27 patients with known Lyme disease characterized the interval between onset of infection and occurrence of encephalopathy, polyneuropathy and leukoencephalitis, as well as the duration of these clinical manifestations. Within their patient subset, Logigian, Kaplan and Steere determined that chronic neurologic abnormalities began one month to 14 years after the onset of the disease, and lasted from three months to 14 years.[5] A single case has been reported of isolated Horner's syndrome as the sole manifestation of Lyme disease. Glauser, Brennan and Galetta reported a case of a 30 year-old man presenting with erythema migrans and an isolated Horner's syndrome after known tick exposure. The resolution of the patient's Horner's syndrome following completion of antibiotic therapy was suggestive of Lyme disease etiology.[6]

An idiopathic isolated Horner's syndrome cannot be excluded in our case study. A retrospective cohort study conducted by Almog, Gepstein and Kesler determined that in the absence of a known etiology, and when clinical information is insufficient to allow targeted imaging, an etiology is rarely discovered.[7] In one large case series of 450 patients with Horner's syndrome, Maloney, Young and Moyer found that 40 percent of cases had an unknown etiology, and the syndrome was presumed to be secondary to ischemic disease.[8] Given our patient's history of hypertension, hyperlipidemia, coronary artery disease and chronic tobacco abuse, an ischemic etiology was suspected at initial presentation. In the setting of chronic microvascular ischemic disease, the left atrial myxoma may have been an incidental finding unrelated to the isolated Horner's syndrome presentation.

Conclusion

As elucidated in this case study and literature review, the differential diagnosis of Horner's syndrome is broad, and the clinical presentation of an isolated syndrome adds further complexity to localizing the causative lesion. The goal of this case presentation is to aid clinicians in the evaluation of Horner's syndrome and specific diagnostic considerations in the setting of an isolated presentation.

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OUT OF MY MIND

Samuel J. Garloff, D.O.

Samuel J. Garloff, D.O.

It's easy to beat up Freud. After all, he's not here to defend himself. Remember id, superego and ego? You know, instinct and want, logic and morality, and compromise of the two? If you prefer, how about Bones, Spock and Kirk? Anyone for Eros and Thanatos? Repression? Sublimation? Oedipal complex? If no, I understand.

First, the social workers and psychologists ravaged him, now psychiatrists have joined in. Psychiatry now involves psycho-social assessments and receptor sites. Don't misunderstand me. I'll go head to head with anyone in a quick game of "Name That Receptor" or "CYP 450 Tag."

BUT, there's a beauty of the mind that we just don't think about. Pre-conscious thought, un-conscious thought, sub-conscious thought.

Shakespeare knew. Read *The Tempest*. Better, rent and watch *Forbidden Planet*, a great movie released in 1956 by MGM, starring Walter Pidgeon, Anne Francis, Leslie Neilsen and a host of great character actors. Prospero in space!

Dr. Morbius and his daughter Altaira are the only survivors of a scientific expedition to a far-off planet. The other scientists met their demise one by one by an unseen monster. Cmdr. Adams and his crew have been sent to investigate. Adams and Altaira fall in love and the monster returns. The monster is discovered to be from the unconscious mind of Dr. Morbius. Monsters from the ID!!

How about today? Are Shakespeare and Freud still relevant? How about our 24-hour cell phone users? Do they talk all day? No. They text, use social media and post. Convinced that the world needs to know they ate leftover pizza for breakfast, they announce it on Facebook. To add to their glory, they take a selfie of their pizza eating and post the gory sight online. Walking down the sidewalk, they stop and gaze at their phone screens oblivious to the people behind. After all, it's about them! What could be more important? They are so wrapped up in themselves, they ignore the people around them in elavators, buses, restaurants, etc. They might miss a grumpy cat picture!

Instinct and want. No compromise. Ethics and morality?

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Name _____

AOA # _____

1. Celiac disease is a chronic inflammatory disorder that has antibodies to which components of gluten?
   a. gliadin
   b. gliadin, endomysium, transglutaminase
   c. endomysium
   d. wheat

2. Antibodies to the components of gluten are produced by which immunological system?
   a. Type 2 T-helper-cell system
   b. complement system
   c. phagocytosis
   d. natural killer cells

3. Which of the following must the clinician include in the differential diagnosis of Horner's Syndrome? (Circle all that apply.)
   a. carotid artery dissection
   b. cerebrovascular accident
   c. pharmacologic exposure
   d. mediastinal tumor
   e. spinal cord injury

4. Neurologic manifestations of Lyme disease, including Horner's Syndrome, can present up to 10 years following initial tick exposure.
   True False

Answers to Last Issue's CME Quiz

1. c
2. a
3. true
4. false
5. d
6. f

(Questions appeared in the March 2016 Journal.*)*