From Open Vascular Surgery to OEIS and Beyond- A Personal Journey

Sam S. Ahn, MD
OEIS Annual Meeting
April 20, 2018
Scottsdale, AZ
Disclosure

- Founder and CEO of Vascular Management Associates, which helps doctors set up and manage outpatient angiosuites
## Evolution of Vascular Surgery

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Antiquities and reparative surgery</em></td>
<td><em>Direct and reconstructive surgery</em></td>
<td><em>Endovascular Surgery</em></td>
</tr>
</tbody>
</table>
Modern Vascular Surgery

Era 1- antiquity and reparative surgery

1564- Ambrose Pare (France) uses ligation to stop bleeding
1785- Hunter ligates femoral artery for repair popliteal aneurysm
1759- Hallowell repairs lacerated artery
1897- John B. Murphy performs first arterial anastomosis in a human
1929- Reynaldo dos Santos performs translumbar aortogram

1912- Alexis Carrel develops triangulated suture technique and receives Nobel Prize for work in vascular suture and vessel and organ transplantation

1940- Heparin touted as one of the greatest advances in vascular surgery
**Modern Vascular Surgery**

Era 2: Direct and reconstructive surgery

- **1947** - Cid dos Santos pioneered aortoiliac thromboendarterectomy
- **1949** - Kunlin documents first reverse saphenous bypass graft for fem/pop occlusive disease
- **1950s** - Arteriosclerosis identified as the primary cause of arterial occlusive disease
- **1951** - Dubost performs first direct AAA repair with homograft
- **1952** - Voorhees develops first prosthetic graft for AAA
- **1953** - Carotid endarterectomy pioneered by Michael DeBakey

**Korean War (1950-1953)** - Arterial repair and limb salvage vs. amputation championed by Michael DeBakey, MD

**1950s** - Arteriosclerosis identified as the primary cause of arterial occlusive disease**
SVEN IVAN SELDINGER- Radiologist

- Seldinger Technique 1953
- Femoral Artery Puncture
- Needle in
- Wire in
- Needle out
- Catheter in
DR THOMAS FOGARTY - Vascular Surgeon
Worked as scrub technician at
Good Samaritan Hospital, Cincinnati, Ohio
Invented Fogarty embolectomy catheter
in 1958
DR CHARLES DOTTER - Radiologist
University Of Oregon Portland
First Vascular Angioplasty 1964
Dilation of SFA stenosis using sequentially larger catheters
Dr. ANDREAS GRUENTZIG - Interventional Cardiologist

Disciple of Dr. Zeitler, Nuremberg, Germany

Added balloon to Dotter catheter, creating balloon angioplasty catheter in 1974

First coronary angioplasty in 1977 in Zurich, Switzerland
JULIO PALMAZ - Interventional Radiologist

Born in Argentina in 1945
Inspired by Gruentzig in 1978
Invented a intravascular coronary stent approved for use in 1991
JUAN PARODI - Vascular Surgeon

Born in Argentina in 1942.

Parodi performed the first endovascular AAA repair in 1990 in Buenos Aires.

He covered a Palmaz stent with a dacron graft, and delivered to the aorta using a large bore catheter through the femoral arteries.

It was the first time that endovascular procedures for AAA were brought to the OR, and changed the world of vascular surgery, ushering in Era 3 of Vascular Surgery-Endovascular Surgery.
1992

Samuel S. Ahn, Darwin Eton, Lawrence R. Yeatman, Larry-Stuart Deutsch, Wesley S. Moore,
Intraoperative Peripheral Rotary Atherectomy: Early and Late Clinical Results, Annals of Vascular Surgery, Volume 6, Issue 3, 1992, Pages 272-280, ISSN 0890-5096,
https://doi.org/10.1007/BF02000274.
(http://www.sciencedirect.com/science/article/pii/S0890509606605530)
Educational Activity

- 1986- Gave first angioscopy course in the country at UCLA
- 1987- Gave first vascular laser course in the country at UCLA
- 1989- Gave first Annual Endovascular Surgery course in the country at the Beverly Hilton Hotel, Beverly Hills
- 1992- Gave endovascular training course for Dutch Vascular Surgery Society
- 1997- Coordinator: Course on Endovascular Surgical Techniques with Hands-on Workshop- European Society for Vascular Surgery
- 1995-1999- Chaired and organized endovascular training course for SVS Annual Meeting
Special Article

The Endovascular Training Model for Continuing Medical Education Courses

SAMUEL S. AHN, M.D.
WESLEY S. MOORE, M.D.
TERRY L. KAJURA
MARTEN D. SHICKMAN, M.D.
Division of Vascular Surgery
University of California, Los Angeles

Abstract: Today's CME programs are mainly in lecture format and lack the hands-on learning experience that is so important in acquiring the skills connected with current technologic innovations. To fill this void, we have developed the life-like Endovascular Training Model, which can be used to practice various endovascular procedures. The model has been used in two CME courses with positive results. We present this model as a useful educational tool in vascular surgery CME courses.
1988- Coined the term “Endovascular Surgery”

Invited discussant at the Third Annual Western Vascular Society meeting in Monterrey, CA, September 1988
1989 - first textbook on endovascular surgery

now in its 4th Edition
Reporting standards for lower extremity arterial endovascular procedures
Samuel S. Ahn, MD, Robert B. Rutherford, MD, Gary J. Becker, MD, Anthony J. Comerota, MD, K. Wayne Johnston, MD, Gordon K. McClean, MD, James M. Seeger, MD, S. Timothy String, MD, Rodney A. White, MD, Anthony D. Whittemore, MD, and Christopher K. Zarrins, MD, Los Angeles, Calif.
Endovascular surgery credentialing and training for vascular surgeons*

White, Rodney A. et al.
Journal of Vascular Surgery, Volume 17, Issue 6, 1095 - 1102
1992- laparoscopic aorto-bifemoral bypass graft

February 1993 - UCLA - first AAA endograft case in the country under an approved FDA protocol
Endovascular Femoropopliteal Bypass: Early Human Cadaver and Animal Studies

Samuel S. Ahn MD, Vincent A. Reger MD, Terry L. Kaiura BS.
Pivotal study- 2006


Changing pattern of surgical revascularization for critical limb ischemia over 12 years: endovascular vs. open bypass surgery.

Kudo T¹, Chandra FA, Kwun WH, Haas BT, Ahn SS.
Results in 233 limbs
Trend of Primary and Subsequent Procedures
Results
-Endo vs. Bypass—

- Complications
  - Endo group: 1% (2/148)
  - Bypass group: 8% (6/85)

- Technical success
  - Endo group: 98.4%
  - Bypass group: 100%

\[ P^* = .037 \]

\[ \text{NS} \]

*Chi-square test.
Endo vs. Bypass
Primary Patency Rates

Cumulative Rates (%)

Time (months)

Endo group
Bypass group

$P = .39$
Endo vs. Bypass Assisted Primary Patency

Cumulative Rates (%)

Time (months)

Endo group

Bypass group

\[ P = 0.09 \]
Endo vs. Bypass Secondary Patency Rates

Cumulative Rates (%) vs. Time (months)

Endo group
Bypass group

P = .12
Endo vs. Bypass
Limb Salvage

P = .44

Cumulative Rates (%)

Time (months)
Results
-Endo vs. Bypass—

• Hospital stay
  • Endo group: 1.3 ± 0.91 days
  • Bypass group: 7.9 ± 8.6 days

*Chi-square test.

$P^* = .011$
Nationwide Statistics: Endo vs. Open

Endo

Open (bypass, CEA, AAA)
In-Hospital Mortality

% of Deaths

<table>
<thead>
<tr>
<th>Year</th>
<th>Open</th>
<th>Endo</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>3.55</td>
<td>1.14</td>
</tr>
<tr>
<td>2002</td>
<td>4.21</td>
<td>0.8</td>
</tr>
<tr>
<td>2003</td>
<td>4.5</td>
<td>0.6</td>
</tr>
</tbody>
</table>

P-values:
- P=0.0018
- P<0.0001 (for each year compared to the previous year)
Turning point to outpatient

- Made transition (open to endo) while in the hospital setting
- NOT motivated by money (on an academic salary)
- Chief motivation was that it was better for the patient: fewer complications, shorter hospital stay, less trauma, better tolerated
- Secondary motivation was that it was more efficient, more predictable schedule
April 1, 2006- Founded University Vascular Associates, the first outpatient office-based angiosuite in the country
September, 2006

- Set up second angiosuite in the country in Fairfax, VA for Cardiac, Thoracic, Vascular Surgical Associates - CTVSA
January, 2007

- Founded Vascular Management Associates
March 2007- Set up third outpatient angiosuite for DFW Vascular Group- Dallas, TX
Evolution of outpatient angiosuites in U.S.

- **2005**: CMS approves payment for outpatient office-based angioplasty
- **2007**: 6
- **2006**: 2
- **2010**: CMS approves payment for outpatient office-based stents
- **2011**: 30
- **2013**: CMS approves payment for outpatient office-based atherectomy
- **2015**: 400
- **2016**: CMS approves IVUS for outpatient
- **2017**: 600
The Need for a Society

Number of outpatient angiosuites accelerated
+ Potential for abuse
+ Multiple disciplines
+ Very sick patients
+ No single resource for defining quality standards

Potential disaster
Medicare Payments Surge for Stents to Unblock Blood Vessels in Limbs

By JULIE CRESWELL and REED ABELSON    JAN. 29, 2019

RECENT COMMENTS

bagels    January 30, 2019
This is akin to the surge in the price of colonoscopies. Suddenly, everyone needed proofoil and that meant anesthesiologists (so?) needed to...

Rob L777    January 30, 2019
From the article: “Dr. Aashish Pat, a cardiologist in DeSoto, Fla., who says he was one of the early heart doctors to branch out and begin...

Ceset    January 30, 2019
White collar crime should receive hard prison time. Note that the cardiologist who’s already settled only had to refund a fraction of his...
Florida Cardiologist and His Practice Pay Millions and Agree to Three Years of Exclusion to Resolve Alleged False Billings for Unnecessary Procedures and Illegal Kickbacks

An Orlando, Florida, cardiologist, Dr. Asad Qamar, and his practice, the Institute of Cardiovascular Excellence (ICE), will pay $2 million, plus release any claim to $5.3 million in suspended Medicare funds, to resolve a lawsuit alleging that they improperly billed Medicare, Medicaid and TRICARE for medically unnecessary procedures, and paid kickbacks to patients by waiving Medicare copayments irrespective of financial hardship, the Justice Department announced today. Dr. Qamar also agreed to a three-year period of exclusion from participating in any federal health care program followed by a three-year Integrity Agreement with the Department of Health and Human Services Office of the Inspector General (HHS-OIG). The settlement relates to two consolidated lawsuits in which the United States intervened on Dec. 22, 2014.
PRESIDENTIAL ADDRESS

From the Society for Vascular Surgery

“Better” (sometimes) in vascular disease management

Peter F. Lawrence, MD, Los Angeles, Calif

In January 2015, The New York Times reported on a physician in Florida who collected $18 million in 1 year from Medicare, of which $13 million was received for performing arterial interventions on legs. The reporter questioned whether the lack of oversight in office-based procedural centers was leading to patients being subjected to too many vascular procedures, both venous and arterial. Of course, that physician denied there was any relationship between the lack of oversight and overtreatment, using as evidence that he had the lowest amputation rate in the entire country. He completely missed the point—this article was not about his technical skills or outcomes—it was about the appropriateness of his indications and whether he was overtreating patients with a high-cost procedure, when they may only have needed an exercise program—or even nothing. It’s easy to get great results in a patient who needs nothing done!

Representing the views of the Society for Vascular Surgery (SVS), I provided a 175-word statement to The New York Times. We decided to take on the elephant in the
- 2005-2013
- Decrease in coronary procedures
- Moderate increase in peripheral arterial intervention
- Steep rise in venous procedures

Rising percentage of atherectomy performed as office-based procedures

2006-2011: Trends in settings for PVI

December 2013 - Incorporation

OUTPATIENT ENDOVASCULAR
AND INTERVENTIONAL SOCIETY
September 2013 - Organizational meeting at the Admiral Club at the DFW Airport
OEIS

- First Annual Meeting- Austin, TX - May 2014
- Second Annual Meeting - Chicago, IL - April 2015
- Third Annual Meeting - Miami, FL - April 2016
- Fourth Annual Meeting - Santa Monica, CA - March 2017
- Fifth Annual Meeting- Scottsdale, AZ - April 2018
OEIS Quality Initiatives: SCOCAP in the OIS

- Safety
  - Accreditation
- Credentialing
- Outcomes Measures
  - Registry
- Compliance
- Appropriateness
- Peer Review
OEIS- making strides

- First registry for outpatient endovascular procedures- approved by CMS for quality reporting
- Setting up our own accreditation system for outpatient angiosuites
- Setting up peer review system based on registry and accreditation
- June 2018 SVS annual meeting joint session of SVS and OEIS
Current OEIS Membership - Specialty Breakdown
N=472

- Active: 348
- Associate: 49
- Charter: 59
- Corporate: 3
- Founder: 13
Current OEIS Membership- Specialty Breakdown
N=472

Cardiology, 257
Interventional Radiology, 63
Interventional Nephrology, 5
Administrator/Other, 30
How to get involved in OEIS

- Join OEIS
- Serve on committees
- Attend meetings
- Participate in registry
- Contribute to CV Coalition
- Become accredited- safety first
- Participate in peer review: educational, not punitive
- Learn from each other and each other’s mistakes
- Six sigma culture of perfection
- Practice good medicine in an ethical and responsible manner
- Obtain and present data: data drives the day
Treatment outcomes and lessons learned from 5134 cases of outpatient office-based endovascular procedures in a vascular surgical practice. 


First Published July 4, 2016 | Research Article | Check for updates

https://doi.org/10.1177/1708538116657506
Radial Artery Access for Peripheral Endovascular Procedures

Avnee J. Kumar, MD, Lauren E. Jones, MS, Kenneth R. Kollmeyer, MD, Robert W. Feldtman, MD, Craig A. Ferrara, DO, Michelle N. Moe, MD, Julia F. Chen, MD, Jasmine L. Richmond, MS, Sam S. Ahn, MD

New Vein Compression Entities in Patients with Unexplained Leg Swelling

Alaina Garrie, Lauren E. Jones, Julia F. Chen, Robert W. Feldtman, Kenneth R. Kollmeyer, Jasmine L. Richmond, Craig A. Ferrara, Pablo V. Uceda, Lelesse Mocio, Samuel S. Ahn


Presentation Information: This study was presented in part at the Texas Surgical Society’s 196th Fall Semi-Annual Meeting, Austin, Texas, September 15, 2015, and at the Outpatient Endovascular and Interventional Society Third Annual Meeting, Miami Beach, Florida, April 15, 2016.
Safety and Efficacy of Arterial Closure Devices in and Office Based Angiosuite

Lauren E. Jones, Keun-Ho Yang, Robert W. Feldtman, Pablo V. Uceda, Craig A. Ferrara, Joseph M. Caruso, Jasmine L. Richmond, Samuel S. Ahn

Annals of Vascular Surgery, in press

Presentation Information: This study was presented in part at the Outpatient Endovascular and Interventional Society Annual Meeting, Austin, TX, May 16, 2014, and at the VEITH Symposium 43rd annual Meeting, New York, NY, November 15, 2016.
Intraoperative Thrombolysis and Laser Atherectomy: Effective Treatment for TASC C and D Lesions in Critical Limb Ischemia

Ahn, Samuel S. MD; Uceda, Monica J. MD; Kollmeyer, Kenneth R. MD; Kliner, Cameron E. MS; Ferrara, Craig A. DO; Uceda, Pablo V. MD; Feldtman, Robert W. MD

DFW Vascular Group – Dallas, TX
Common Femoral Artery Stenting for Occlusive Disease: Midterm Results

Ahn, Samuel S. MD; Kollmeyer, Kenneth R. MD; Kliner, Cameron E. MS; Harrell, James E. MD; Richmond, Jasmine L. MS; Ferrara, Craig A. DO; Uceda, Pablo V. MD; Feldtman, Robert W. MD

1DFW Vascular Group, Dallas, TX
American College of Surgeons
Clinical Congress 2015
October 8th, 2015
Chicago, IL
Internal Jugular Vein Stenosis is Common in Patients Presenting with Neurogenic Thoracic Outlet Syndrome

Samuel S. Ahn, Travis J. Miller, Sheena W. Chen, Julia F. Chen


ISSN 0890-5096

https://doi.org/10.1016/j.avsg.2013.12.009
(http://www.sciencedirect.com/science/article/pii/S0890509614000442)
Percutaneous Transluminal Angioplasty for Thoracic Outlet Syndrome

Jones, Lauren E.; Richmond, Jasmine L.; Feldtman, Robert W.; Ahn, Samuel S.

Texas Surgical Society
April 2018, Houston, TX
### Future Direction of OEIS

<table>
<thead>
<tr>
<th>Action</th>
<th>Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grow</td>
<td>Grow membership</td>
</tr>
<tr>
<td>Increase</td>
<td>Increase registry participation</td>
</tr>
<tr>
<td>Establish</td>
<td>Establish accreditation process</td>
</tr>
<tr>
<td>Establish</td>
<td>Establish peer review process</td>
</tr>
<tr>
<td>Recruit</td>
<td>Recruit future leaders</td>
</tr>
<tr>
<td>Establish</td>
<td>Establish OEIS as the definitive resource for outpatient angiosuites</td>
</tr>
</tbody>
</table>
Conclusion

I feel very honored, lucky, humbled and grateful to stand before you today. The road here has not been easy. Many outstanding people have sacrificed and paved the way before us; that includes Interventional Radiologists Seldinger, Dotter and Palmaz; Vascular Surgeons Fogarty and Parodi; and Cardiologist, Gruentzig. Many people have supported us along the way including all the vendors and sponsors here today. We have endured several slings and arrows along the way. Many people have resisted and been critical of change. A few have abused the system and given us a bad name leading many to be critical of our efforts. We have many challenges ahead of us including government regulation, reimbursement issues, liability issues. Despite these challenges, we have accomplished a lot in a short time. We are a young society and we must rise to the occasion and address these issues or we will fall and fail. More than ever, we must get involved and engaged, so I appeal to you for your help! Join OEIS and get involved!
Uncle Sam Wants You
...to join OEIS

www.oeisociety.org