The First Published Report on CAS in 1977: An Interesting Story - How Was It Received

Klaus Mathias, MD, PhD.
Professor of Radiology and Neuroradiology
AK St. Georg Hamburg / Germany

No conflict of interest in connection with this presentation.

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1964</td>
<td>Charles Dotter percutaneous transluminal angioplasty PAD</td>
</tr>
<tr>
<td>1974</td>
<td>Andreas Grüntzig balloon angioplasty PAD</td>
</tr>
<tr>
<td>1975</td>
<td>Felix Mahler (Andreas Grüntzig) selective angioplasty of renal artery</td>
</tr>
<tr>
<td>1975</td>
<td>Klaus Mathias renal artery kidney graft</td>
</tr>
<tr>
<td>1975</td>
<td>Why not supra-aortic arteries?</td>
</tr>
</tbody>
</table>

1975 - An Idea Is Born

1978 - Annual Congress of the German Society of Neuroradiology, Cologne

K.M. presents his animal experiments of carotid angioplasty

... first publication ...

... no enthousiastic reaction!
1976/77 – Animal Experiments

- artificial carotid stenosis
- balloon dilatation
- blood filtration
- cerebral perfusion

1976/77 – Animal Experiments

- artificial carotid stenosis
  - 3 different stenosis models
- balloon dilatation

Presentation is open for discussion

A white haired gentleman - at that time unknown to me - takes the microphone:

“That young man does not know how a diseased carotid bifurcation looks like! The work is nonsense. He will only create strokes!”

Somewhat arrogant answer of the young man:

“What I presented are the results of animal experiments. Until now we have not treated patients with balloon angioplasty of the carotid - and if we would not investigate something new we would be still in the medieval ages!”

The young man was 32. Today he would answer more elegantly. The gentleman - as I learned later - was Prof. Carstensen, Chief of Vascular Surgery at the Hospital Mühlheim/Ruhr.

Presentation and response had consequences!
My former chief received an official letter from the Section of Vascular Surgery of the German Surgical Society.*

Prof. Carstensen had informed the council of the Section of Vascular Surgery of my work.

*At that time Vascular Surgery was still part of general surgery and did not have an independent society - Today “German Society of Vascular Surgery and Vascular Medicine”.

At the assembly of the Section of Vascular Surgery several members applied formerly to discuss carotid angioplasty. All members performing carotid surgery uttered the opinion that this procedure will have an unjustifiable risk of iatrogenic stroke and is no alternative to carotid surgery....

1978 little evidence of carotid surgery.
NASCET and ECST 1991 - nearly 40 years after first CEA!

Prof. Volmar’s text book of Vascular Surgery:
There are some attempts to treat arterial stenosis and short occlusion with balloon catheters. That procedure will not achieve lasting results because the pathology is not removed.

My former chief called me, showed me the letter and said:
“Go on, but be very cautious. You will certainly encounter antagonism and adversaries.”

1979 - First Patient
32 yo woman
• fibromuscular dysplasia of right distal ICA from the bifurcation to the skull base

Balloon dilatation successful!
Patient came from Prof. V. Schlosser, Chief of Cardiovascular Surgery, University of Freiburg

1980 - Second Patient
Atherosclerotic Stenosis
68 yo man
• CAD
• 3 myocardial infarctions
• minor right mca stroke

Conference of neurologist, vascular surgeon, cardiologist and me decided to attempt endovascular tx.
Many invitation followed to speak at conferences and congresses of vascular surgery about CAS in the eighties. Vascular surgeons liked some entertainment and wanted to beat a black sheep... ... but I knew all their arguments.

1989 - First Patient With Stenting

- No dedicated devices
- 9F- peripheral Wallstent

1989 - First Patient With Stent

65 yo man with symptomatic ica stenosis >90%
intimal flap after balloon dilatation
What now?
peripheral Wallstent placed

1999 - Routinely Cerebral Protection

distal balloon
proximal balloon
filter

Cerebral Protection

J.D. (m) 74 yrs.
TIA
99% ICA stenosis
Wallstent: 8x27mm
EPI filter

Durability of CAS Results

K.L.H. (m) Feb-13.1924
controlled Aug-09.2001
• Right ICA: 11 years after CAS!
• Left ICA occluded
In the nineties numerous vascular surgeons attended my carotid live courses to become familiar with the technique.

Vision without activity is a daydream, but activity without vision is a nightmare.