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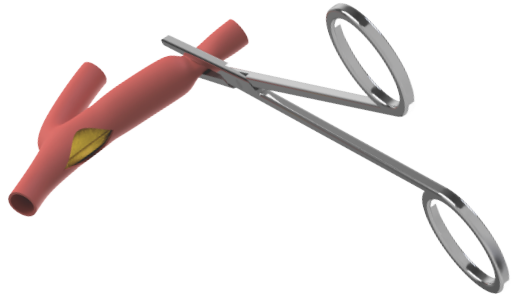

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NEW TECHNICAL TIPS TO MAKE MINIMAL INCISION CEA (MICE) EASIER AND BETTER: CAN SAME DAY DISCHARGE BE SAFE

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DISCLOSURE

Speaker name:

Robert Michał Proczka, MD PhD

I have the following potential conflicts of interest to report:

* Consulting
* Employment in industry
* Shareholder in a healthcare company
* Owner of a healthcare company
* Other(s)

X I do not have any potential conflict of interest

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WHAT YOU CHOOSE ?

MICE – Minimal Incision Carotid Endarterectomy –
What would You like to do ?

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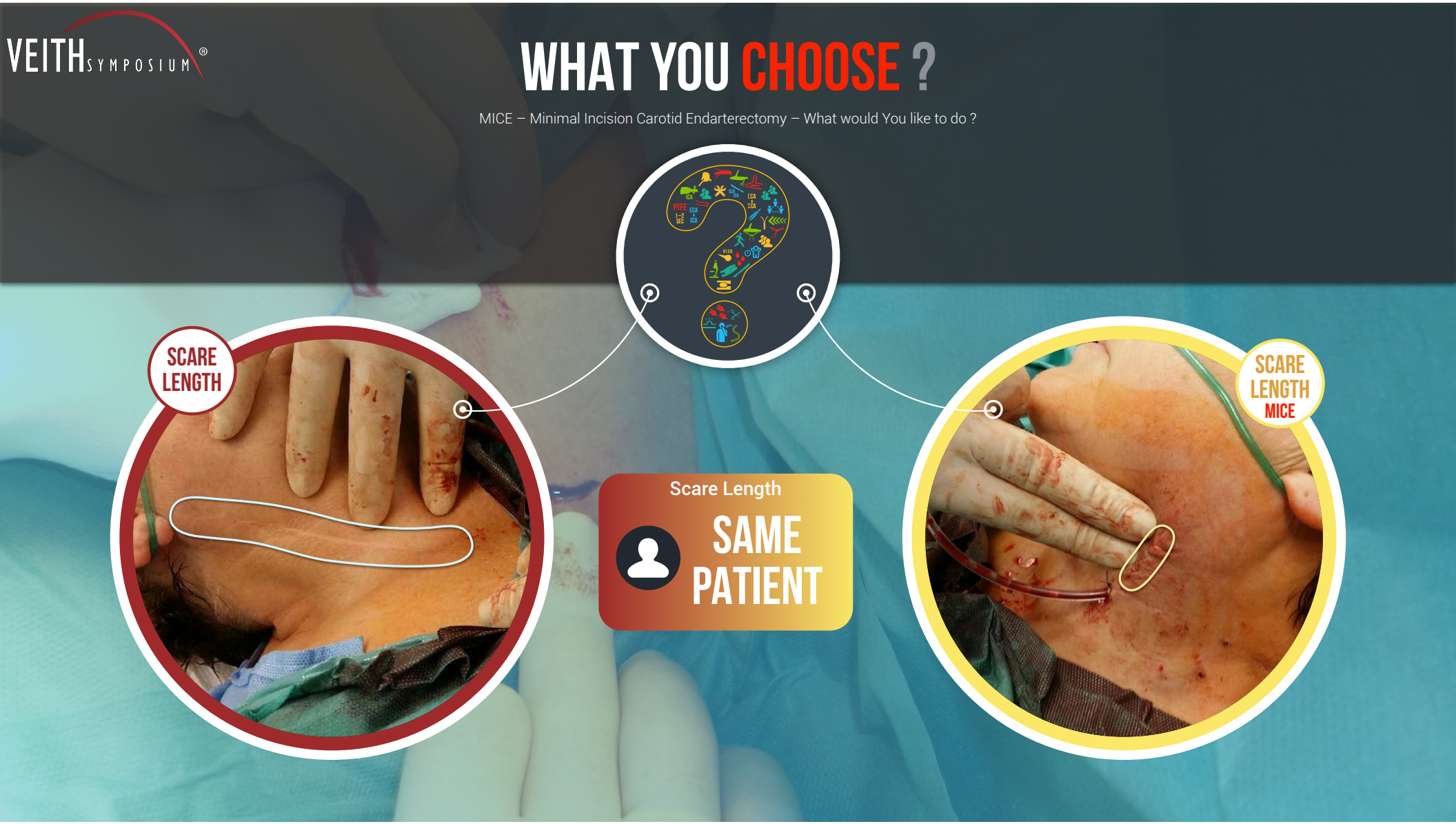
WHAT YOU CHOOSE ?

MICE – Minimal Incision Carotid Endarterectomy – What would You like to do ?



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WHAT YOU CHOOSE ?

MICE – Minimal Incision Carotid Endarterectomy – What would You like to do ?

IF ONE CAN SAFELY PERFORM CEA BY MINIMAL INCISION – LET'S DO IT ROUTINELY !!!

OPERATION

TECHNIQUE MICE

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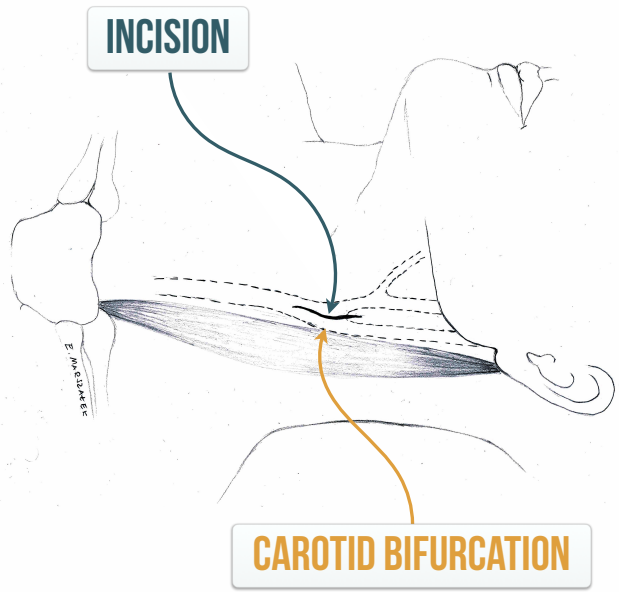
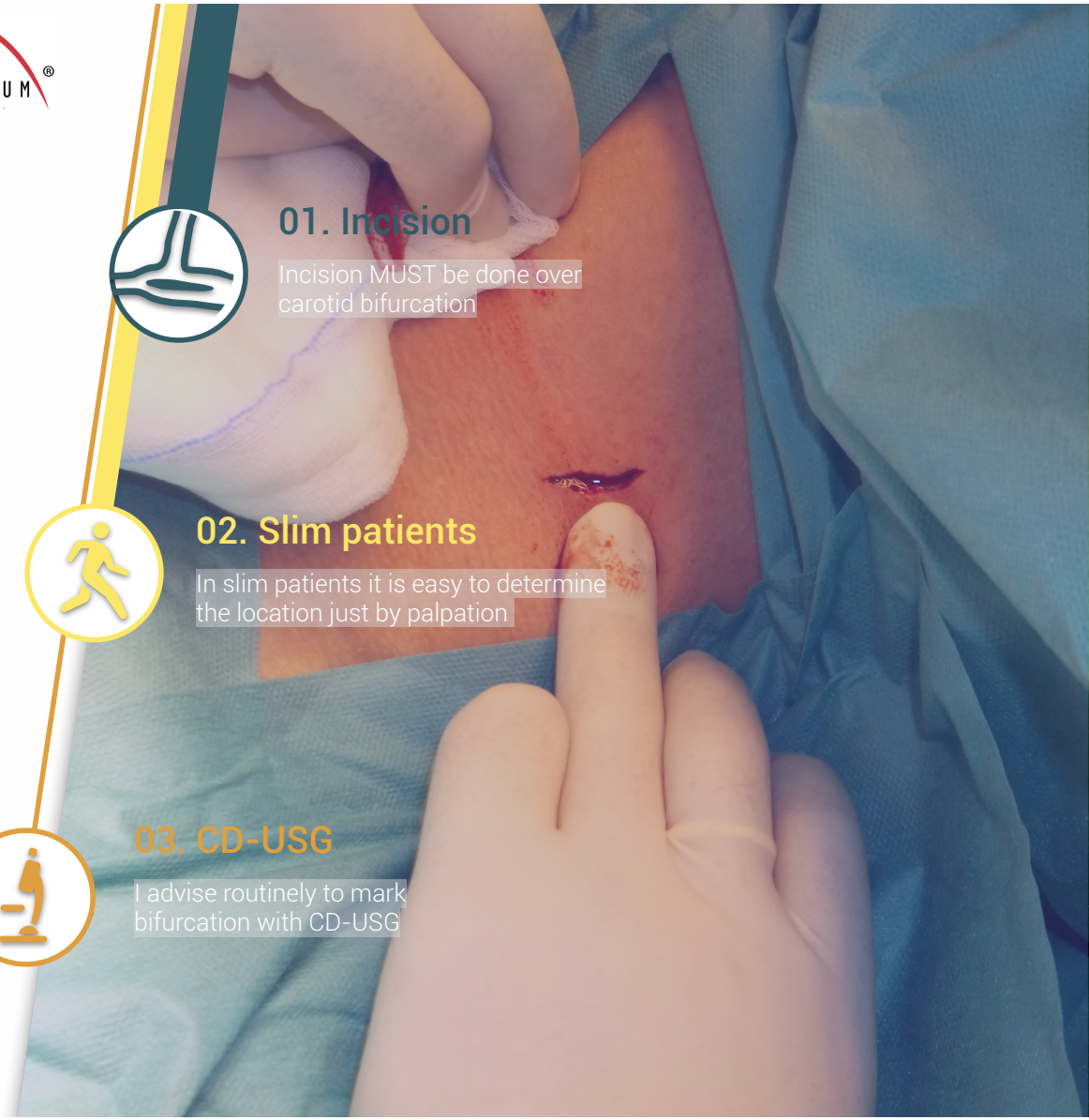
MICE – Minimal Incision Carotid Endarterectomy
Important aspects of the operation's technique





01. Incision

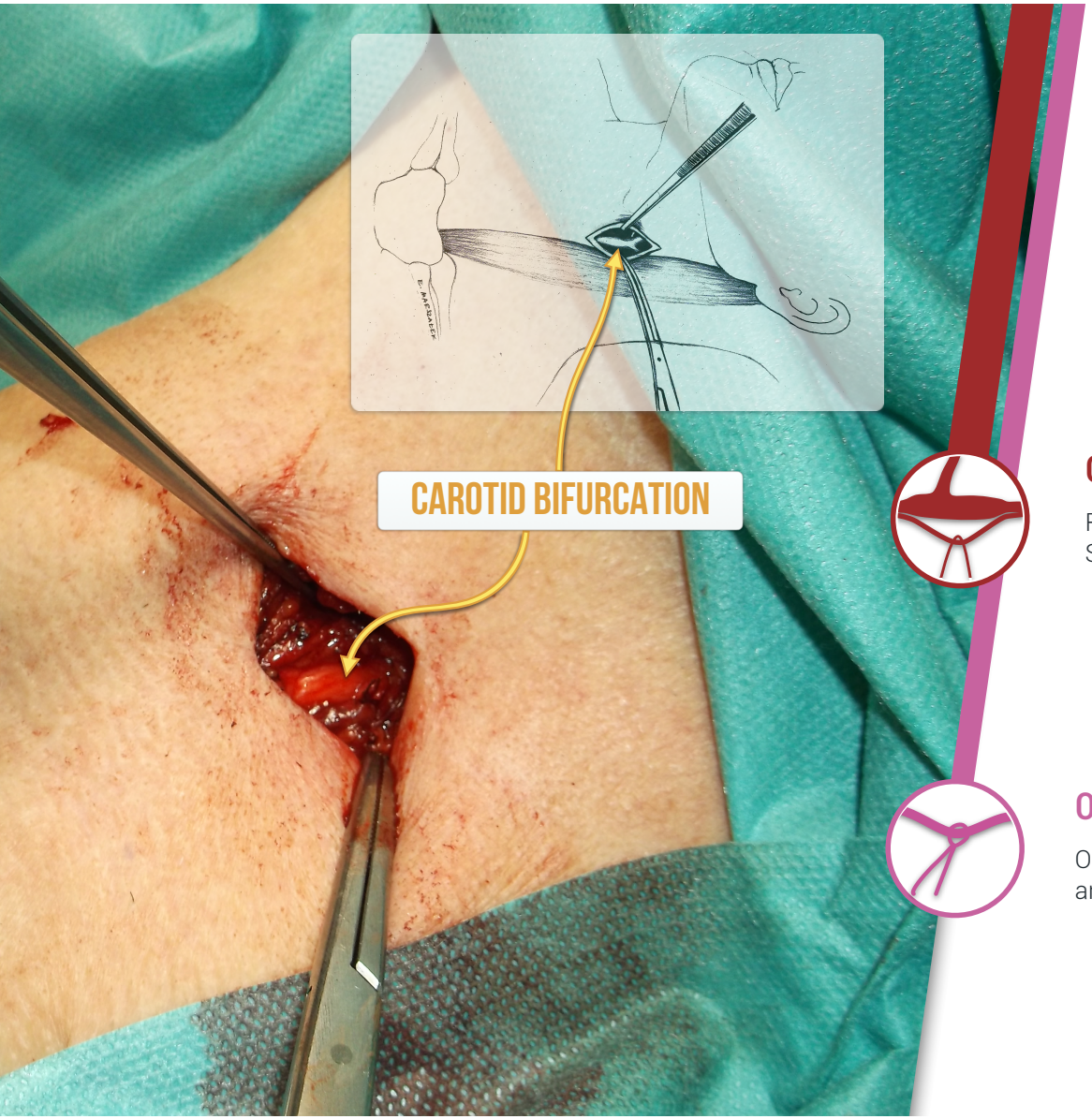
Incision MUST be done over carotid bifurcation

02. Slim patients

In slim patients it is easy to determine the location just by palpation

03. CD-USG

I advise routinely to mark bifurcation with CD-USG



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OPERATION TECHNIQUE

Important aspects of the operation's technique

04. Reaching the Artery

Reaching the artery by tissue separation along the border of SternoCleidoMastoid muscle

05. Vessel Loop

Once the artery is visualized apply the vessel loop on the ECA and Thyroid artery

OPERATION

TECHNIQUE

Important aspects of the operation's technique

06. ECA and CCA Vessel Loop

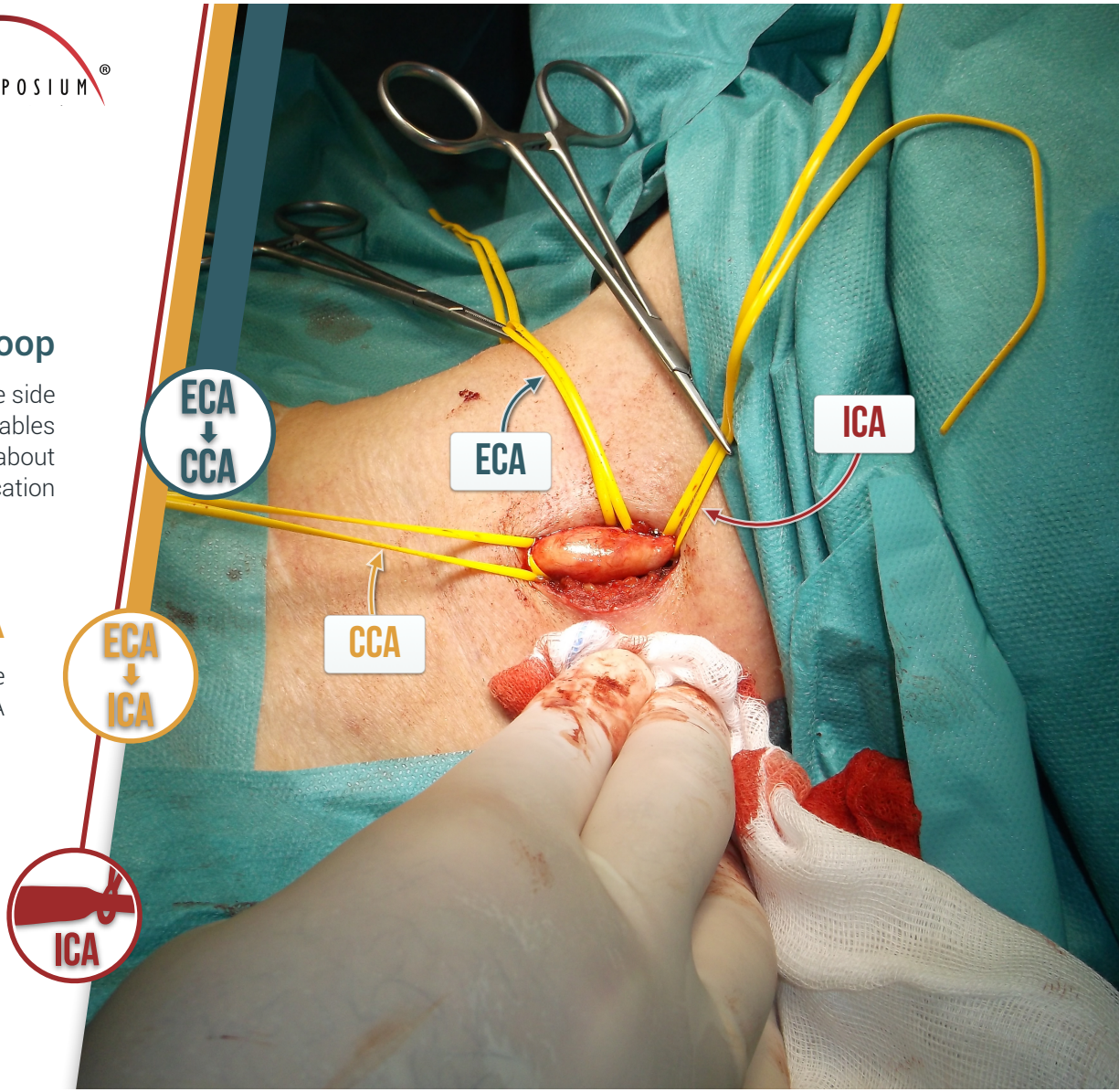
Pulling the ECA vessel loop up and to the opposite side (45° angle) and releasing posterior part of bifurcation enables visualization and applying a vessel loop on the CCA about 15mm down the bifurcation

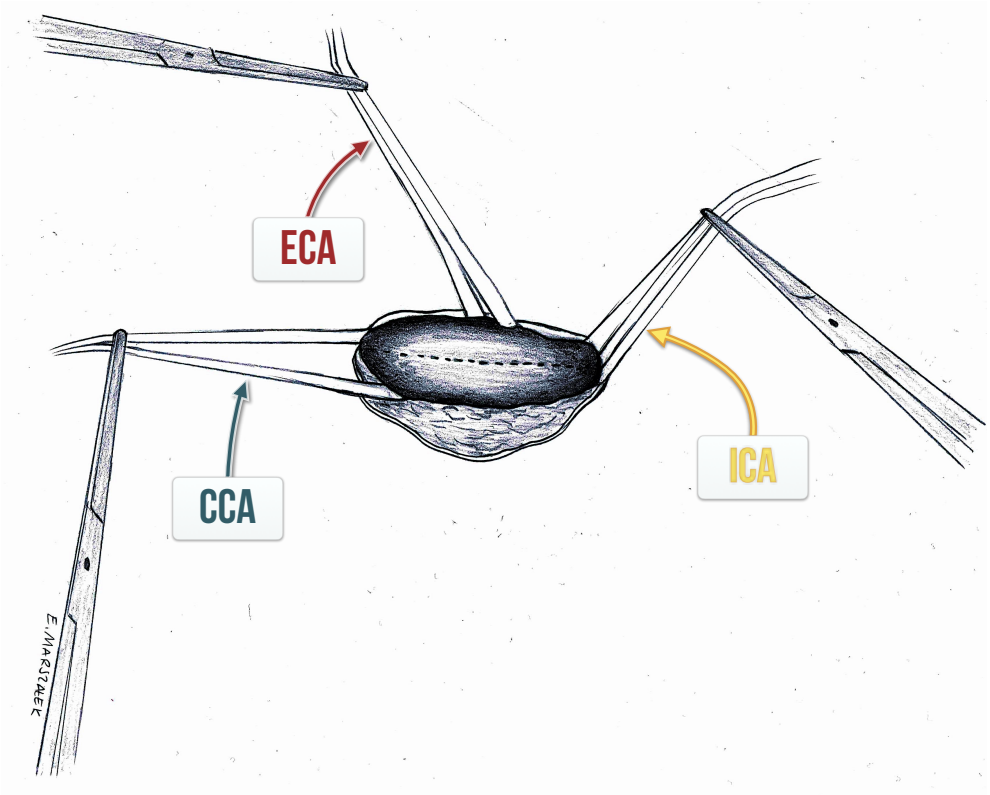
07. Anterior and Posterior Portion of ICA

Pulling the ECA vessel loop down and to the opposite side (30° angle) reveals anterior and posterior portion of ICA

08. ICA Above Atherosclerotic Plaque

The vessel loop on ICA MUST be located above atherosclerotic plaque





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OPERATION TECHNIQUE

Important aspects of the operation's technique

09. Clamp ICA for 30 seconds

Temporary clamping of ICA for 30 seconds should show if the shunt is needed

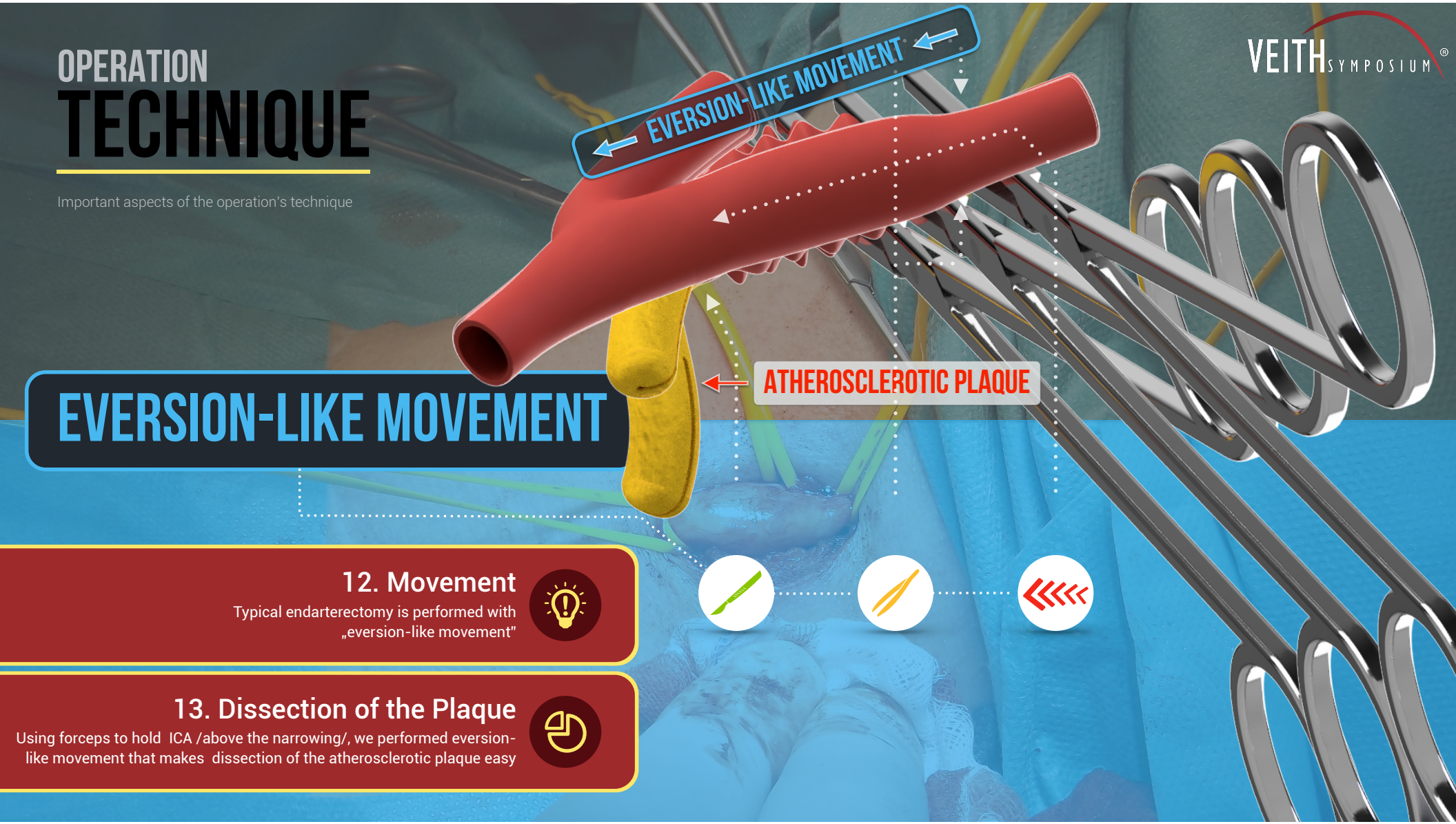
10. Continue Pulling if OK

If there is no neurological signs we continue pulling all vessel loops to elevate the artery to the level of the skin

11. Direction of Incision

CCA--ICA

Typically, longitudinal incision from CCA to the ICA is performed


OPERATION
TECHNIQUE
Important aspects of the operation's technique
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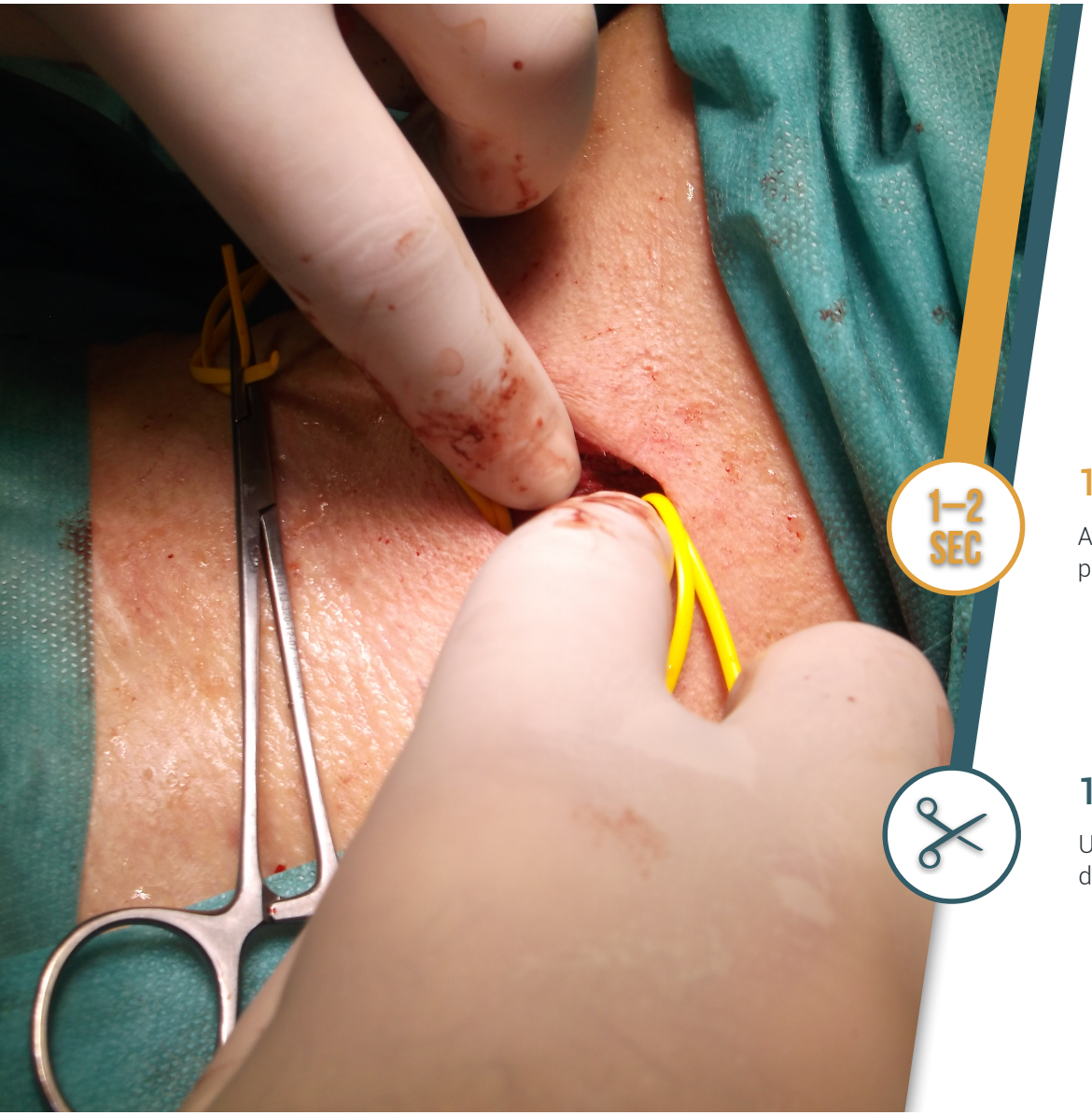
EVERSION-LIKE MOVEMENT
ATHEROSCLEROTIC PLAQUE
EVERSION-LIKE MOVEMENT
12. Movement
Typical endarterectomy is performed with „eversion-like movement"
13. Dissection of the Plaque
Using forceps to hold ICA /above the narrowing/, we performed eversion-like movement that makes dissection of the atherosclerotic plaque easy



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OPERATION TECHNIQUE

Important aspects of the operation's technique

14. Back Flow 1-2 Seconds

ALWAYS allow 1-2 seconds back flow from ICA to remove potential debris by the blood flow

15. Unclamp CCA short

Unclamp CCA for a short period of time to remove potential debris from the proximal part

OPERATION

TECHNIQUE

Important aspects of the operation's technique

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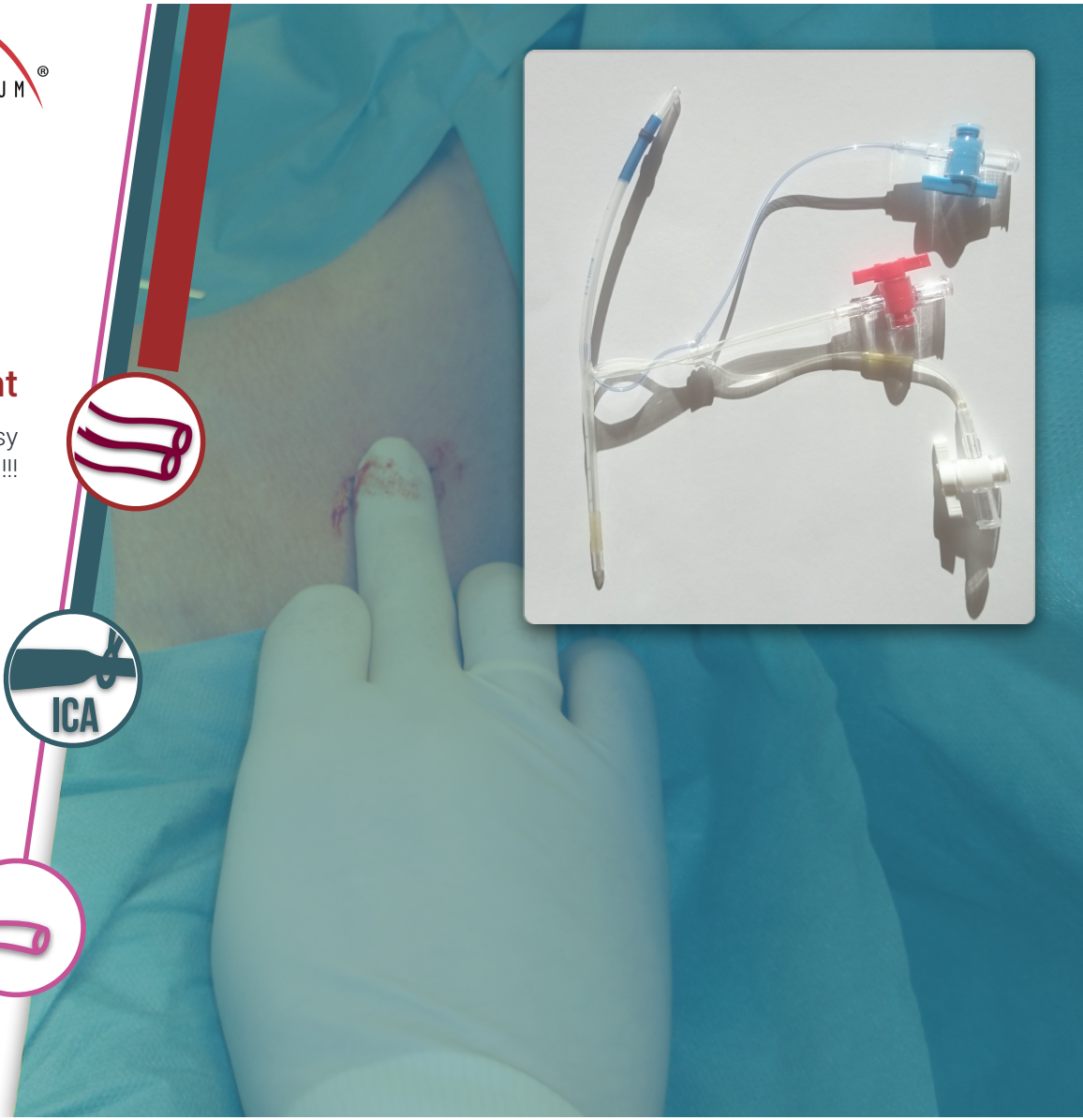


16. Shunt

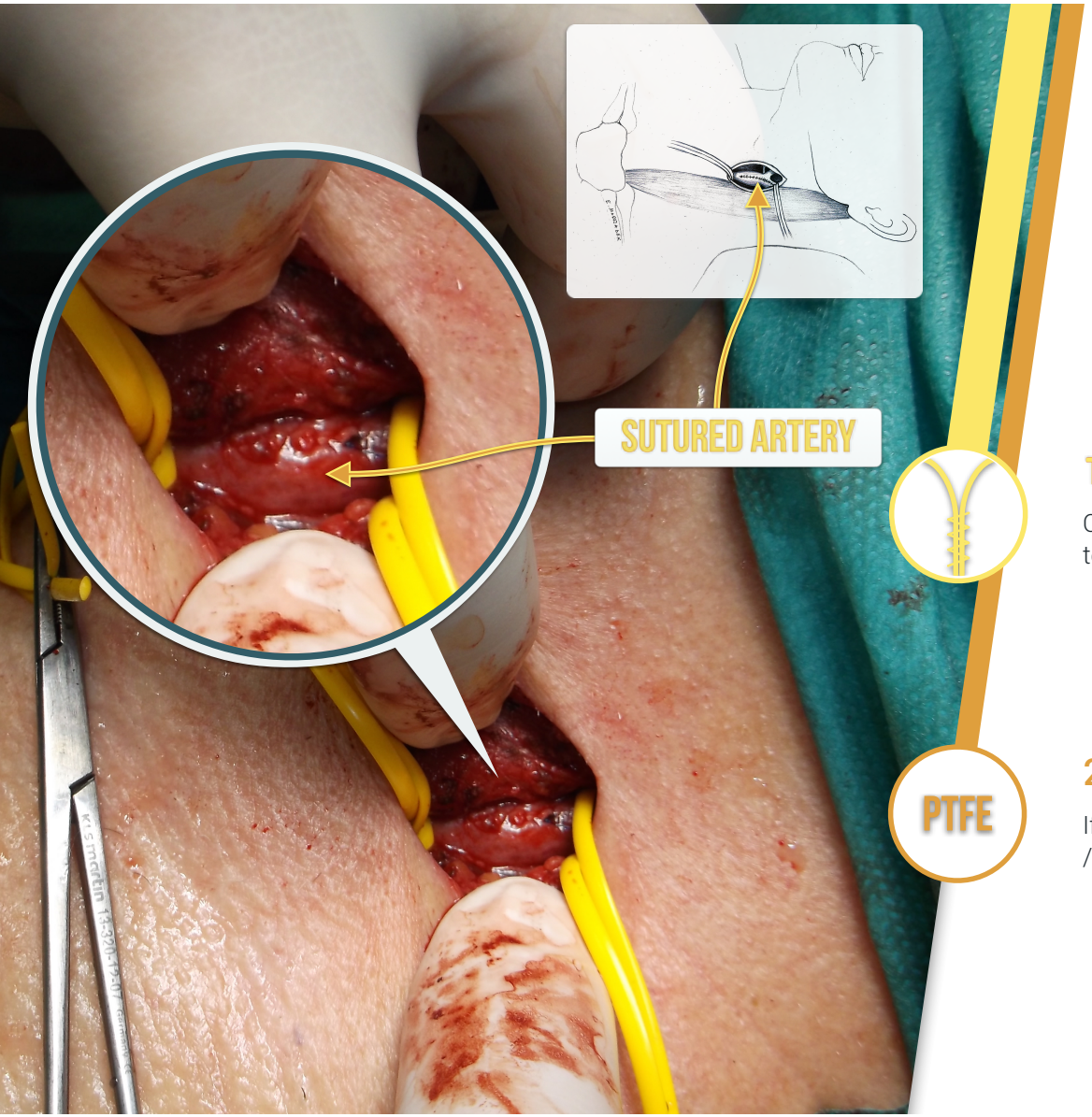
Should a shunt be indicated, it is easy and quick to insert !!!

17. Loosen ICA Loop

As a first step the shunt is inserted into ICA - it is necessary to slightly loosen ICA vessel loop

18. Same way

The shunt into CCA is than inserted in the same way



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OPERATION TECHNIQUE

Important aspects of the operation's technique

19. Suture

Continues suture /5.0 or 6.0/ is used to close the arteriotomy

20. Artificial Patch Possible

If the ICA diameter is below 2 mm, artificial /PTFE/ patch can easily be used

OPERATION

TECHNIQUE

Important aspects of the operation's technique

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21. Redon Drainage

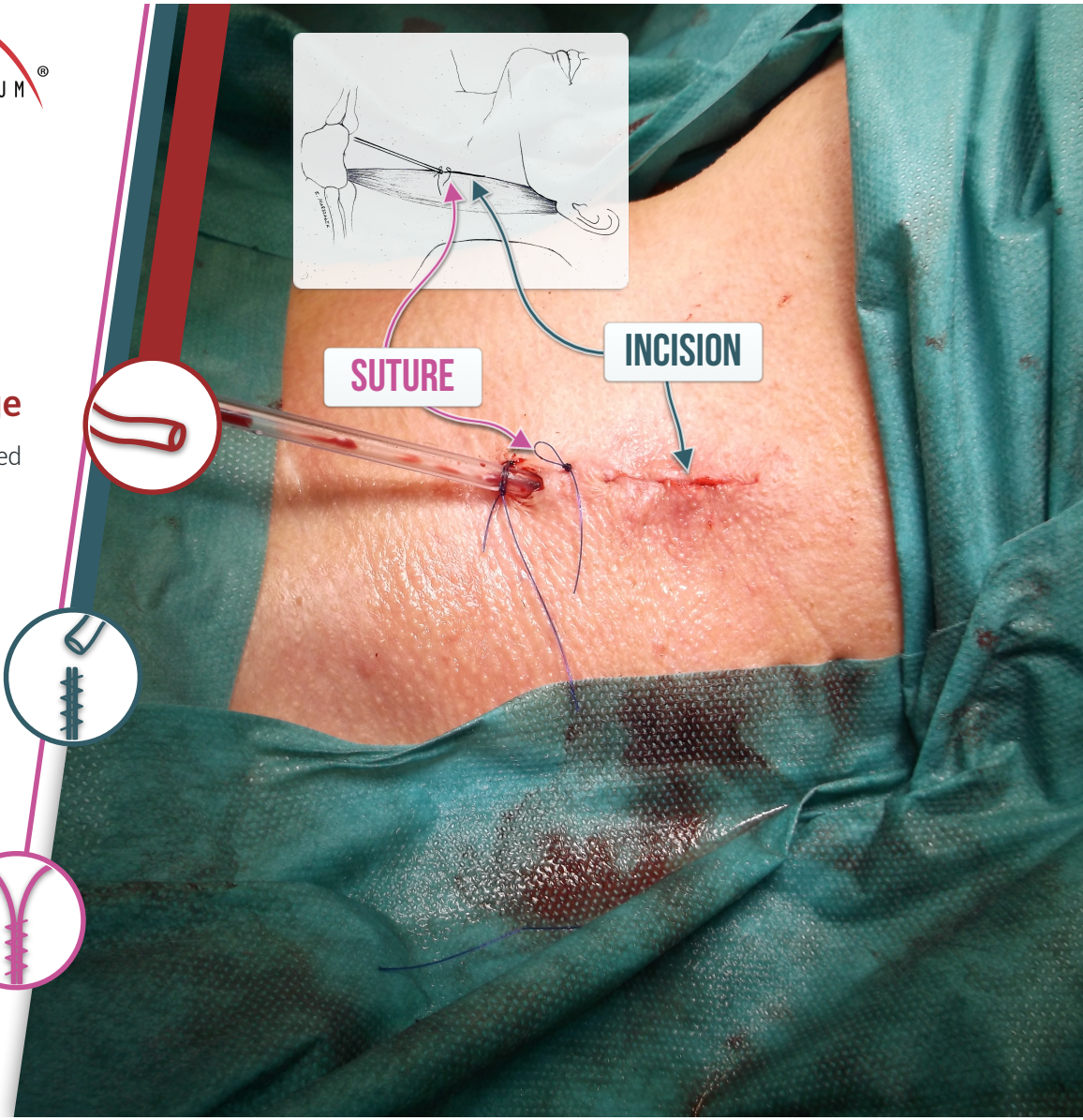
Redon drenage always used

22. Incision for Redon drainage

Another incision for Redon drainage due to small incision for endarterectomy

23. Intradermal Suture

Intradermal suture usually closes the wound (good cosmetic effect)



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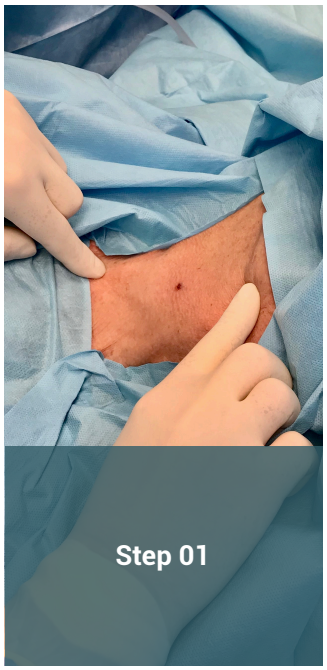
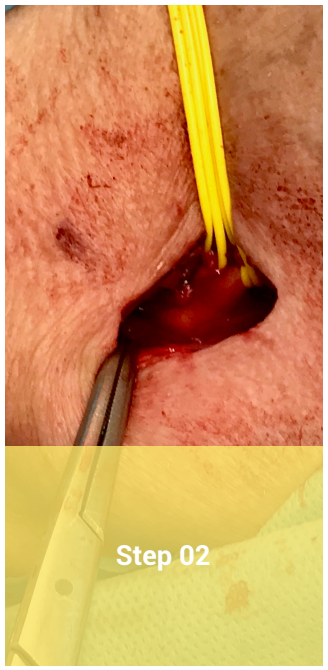
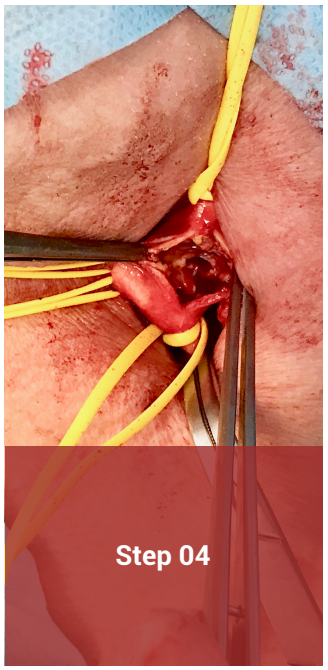
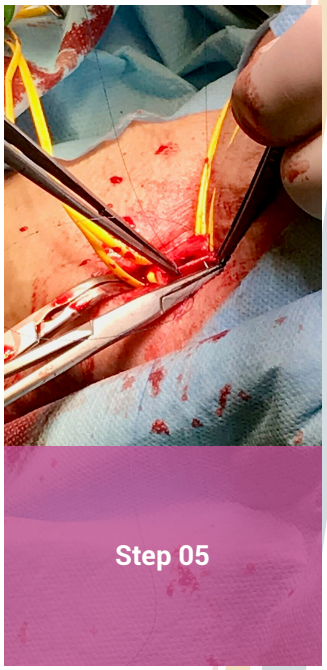
STEP BY STEP

MICE – Minimal Incision Carotid Endarterectomy









TEAM EXPERIENCE

MICE – Minimal Incision Carotid Endarterectomy , 165 consecutive patients

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Total 165 Patients:
165 patients allocated in two groups

122 Patients
Minimal Incision Carotid Endarterectomy /MICE/

43 Patients
Classic Endarterectomy /CE/

Patients randomly allocated
Patients were randomly allocated to each group. Surgical method depended of the operator - 3 surgeons in group MICE, 2 surgeons in group CE

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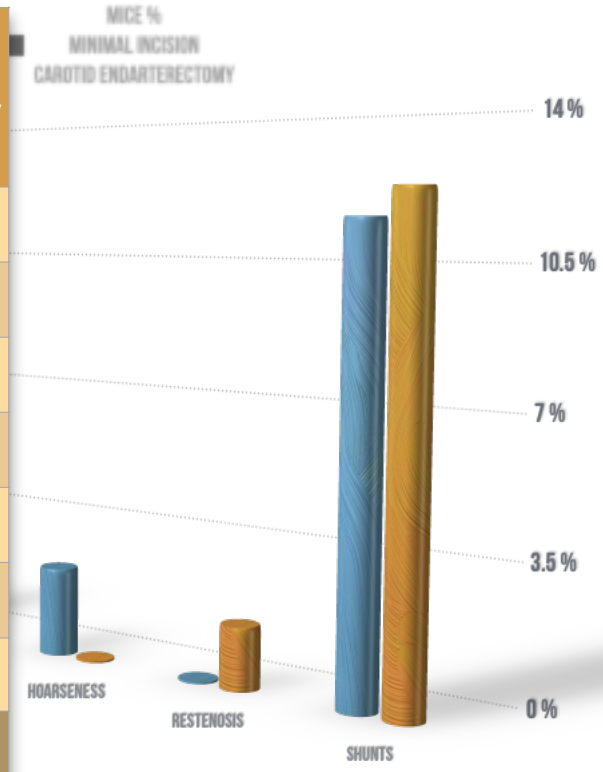
RESULTS

MICE – Minimal Incision Carotid Endarterectomy – data collected during 20 month of experience

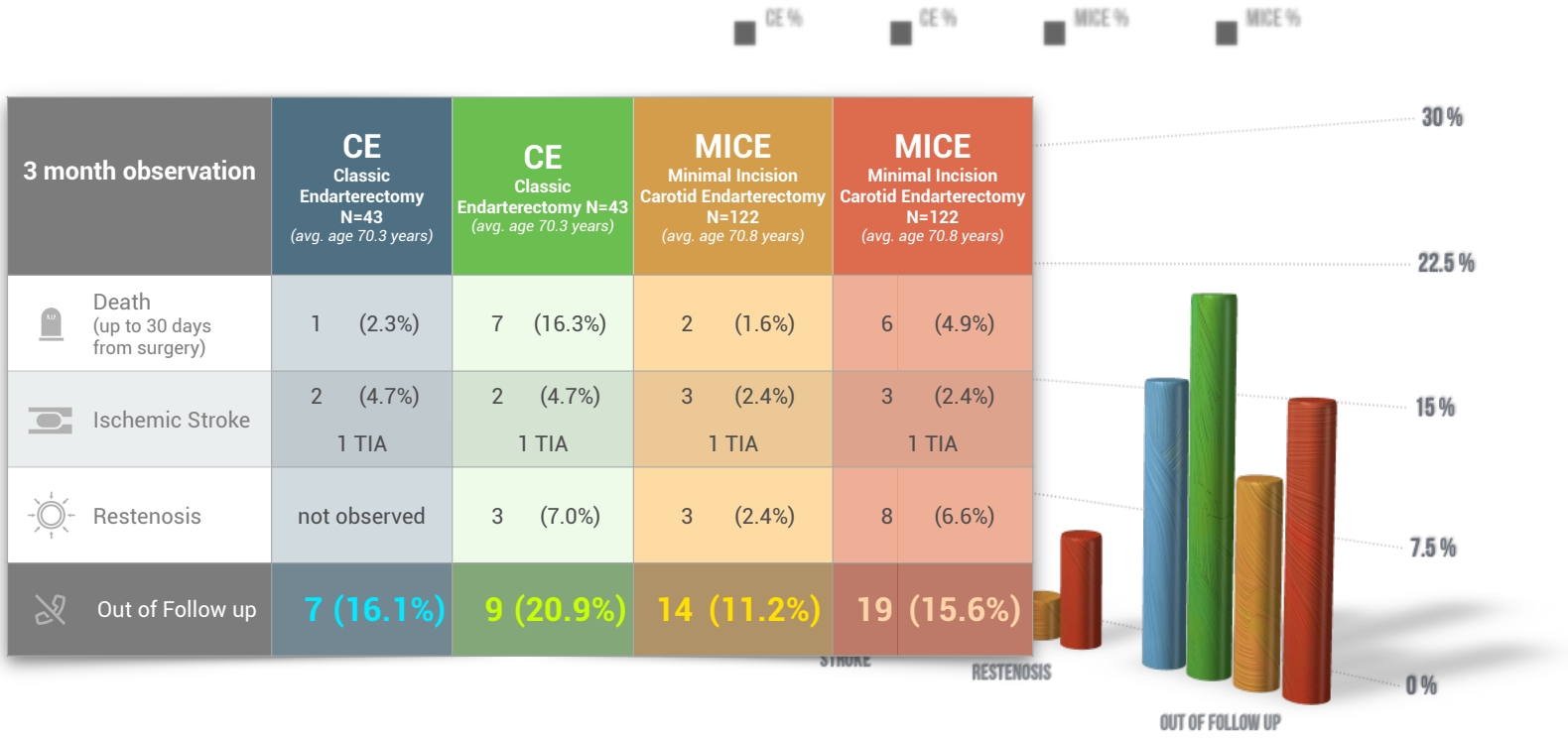
3 month observation	CE Classic Endarterectomy N=43 *(avg. age 70.3 years)*	MICE Minimal Incision Carotid Endarterectomy N=122 *(avg. age 70.8 years)*
Death (up to 30 days from surgery)	1 (2.3%)	2 (1.6%)
Ischemic Stroke	2 (4.7%) 1 TIA	2 (1.6%) 1 TIA
Haemorrhagic Stroke	1 (2.3%)	0 (0%)
Bleeding	1 (2.3%)	1 (0.8%)
Nerve injury	2 (4.7%)	0 (0%)
Hoarseness	1 (2.3%) transient	0 (0%)
Restenosis	not observed	2 (1.6%)
Shunts	5 (11.6%)	15 (12.3%)



RESULTS

MICE – Minimal Incision Carotid Endarterectomy – data collected during 20 month of experience

3 month observation	CE Classic Endarterectomy N=43 (avg. age 70.3 years)	CE Classic Endarterectomy N=43 (avg. age 70.3 years)	MICE Minimal Incision Carotid Endarterectomy N=122 (avg. age 70.8 years)	MICE Minimal Incision Carotid Endarterectomy N=122 (avg. age 70.8 years)
Death (up to 30 days from surgery)	1 (2.3%)	7 (16.3%)	2 (1.6%)	6 (4.9%)
Ischemic Stroke	2 (4.7%) 1 TIA	2 (4.7%) 1 TIA	3 (2.4%) 1 TIA	3 (2.4%) 1 TIA
Restenosis	not observed	3 (7.0%)	3 (2.4%)	8 (6.6%)
Out of Follow up	7 (16.1%)	9 (20.9%)	14 (11.2%)	19 (15.6%)



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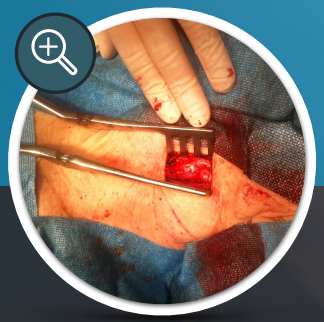
SOME EXAMPLES 1

MICE – Minimal Incision Carotid Endarterectomy – automatic retractor not routinely used



01 **Small Wound**
Low possibility to damage neck anatomical structures

02 **Safe Operation**
The aim is safe operation, small incision – additional advantage

03 **Quick Recovery of the Patient**
On the next day post surgery patient can be safely discharged from the hospital

04 **Easy to Reoperate**
Small scare gives the benefit if reoperation is needed

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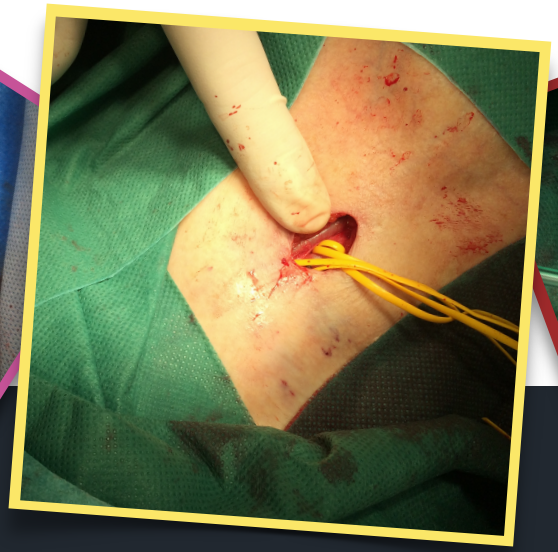
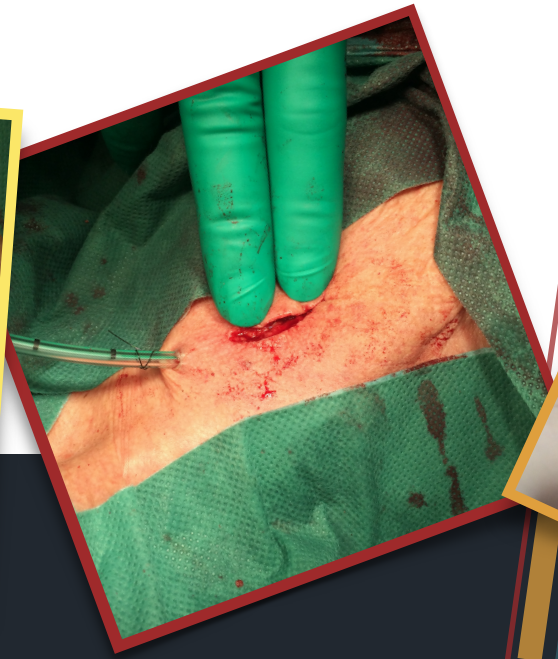
SOME EXAMPLES 2

MICE – Minimal Incision Carotid Endarterectomy – pictures of the neck

Small incision



Incision MUST be done over carotid bifurcation



Reaching the artery by tissue separation along the border of SternoCleidoMastoid muscle

ECA
↓
CCA

Pulling the ECA vessel loop up enables visualization and applying a vessel loop on the CCA

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SOME EXAMPLES 3

Post MICE – Minimal Incision Carotid Endarterectomy

Scare Length – MICE Method

Example 1

Soon after Operation

Nearly no limitation in neck movement

Scare Length – MICE Method

Example 2

Long Term Effect

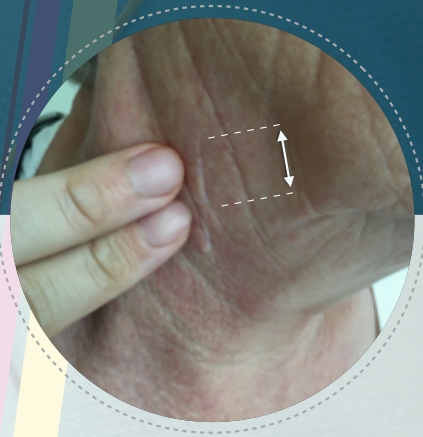
Quick wound healing

Scare Length – MICE Method

Example 3

Soon after Operation

Short hospital stay



Scare Length – MICE Method

Example 4

Long Term Effect

Perfect cosmetic effect

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CONCLUSION

Conclusions after treating first series of patients with MICE – Minimal Incision Carotid Endarterectomy

MICE – less Ischemic stroke, less haemorrhagic stroke, less bleeding, less nerve injury, less hoarseness, lower risk, greater patient's comfort, better, more innovative approach.

LOW RISK OF MICE

Minimal Incision Carotid Endarterectomy is a safe procedure, with a small risk of complications .

QUICK RECOVERY AFTER SURGERY

Minimal incision reduces level of patients' discomfort and aids quick recovery after surgery

PRECAUTIONS AND CONTRAINDICATIONS

Patients discharged safely same day (asymptomatic, normotension) (no complication in this group)

FURTHER STUDY REQUIRED

Further study are needed to assess safety of discharge on the day of the operation

OTHER MINIMAL INCISIONS

MICE – Minimal Incision can be used also in aoto–bifemoral grafting and femoro–popliteal grafting

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Transverse Incision – 2 cm above umbilicus

Rectus abdominis not cut

End to Side Anastomosis

Remote movement of the leg of prosthesis

3 cm Incision on the Medial Side of the Leg

Automatic retractor to broaden the access to the artery

Hook–Like Manover to Elevate Popliteal Artery

Easy to do end-to-side anastomosis

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THANK YOU FOR YOUR TIME

Presented technique and data soon to be published

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Many thanks to my colleagues especially:
S. Mazur, Ewa Marszałek, Ilona Kabelis