CONTROVERSES ET ACTUALITÉS EN CHIRURGIE VASCULAIRE
CONTROVERSIES & UPDATES IN VASCULAR SURGERY
JANUARY 17-19 2013
MARRIOTT RIVE GAUCHE & CONFERENCE CENTER PARIS, FRANCE

CEPHALIC ARCH STENOSIS SURGICAL TREATMENT

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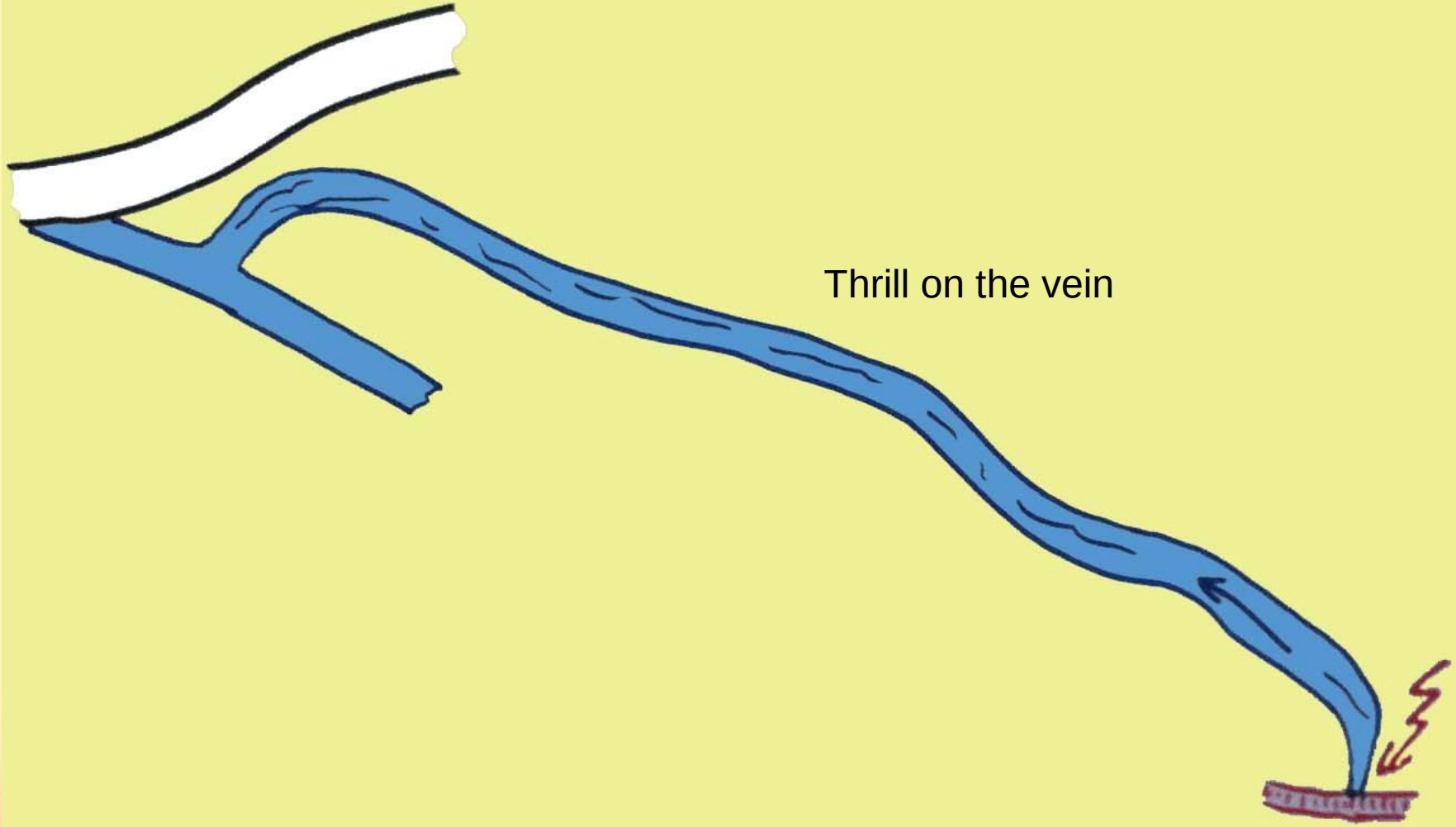
Faculty Disclosure

Thierry POURCHEZ

I have **no financial relationships** to disclose related to this subject.

Je n'ai **aucune relation financière** à déclarer pour ce sujet.

THE NORMAL BRACHIOCEPHALIC FISTULA



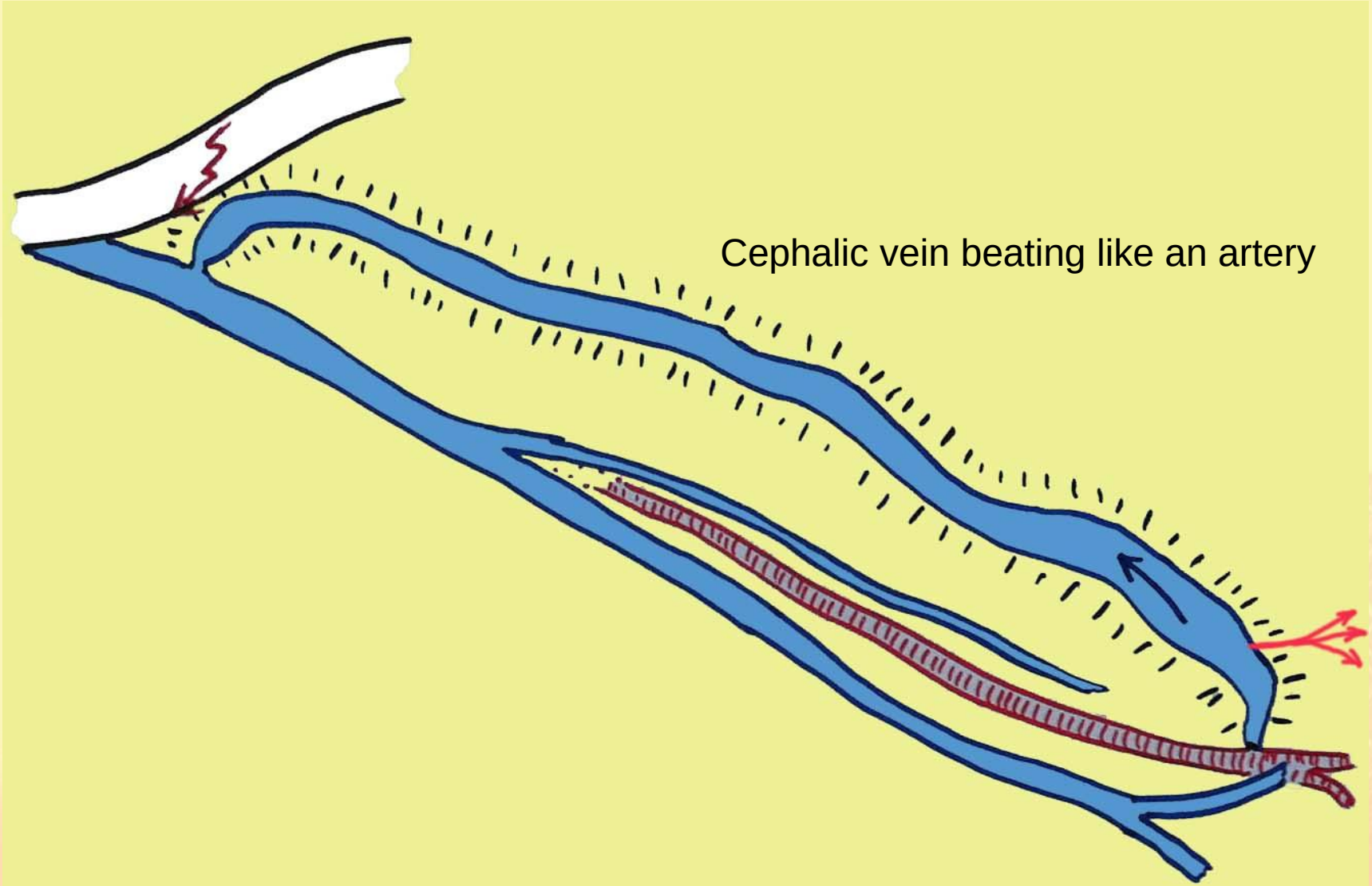
COMMON COMPLICATION OF THE BRACHIOCEPHALIC FISTULAS

Related to the anatomy of the cephalic arch with the rapid change of the vein going from superficial position to the axillary vein, perforating the fascia.

More frequent with high flow fistulas.

Giving a rising pressure in the vein, beating like an artery, with bleeding after retrieval of the needles.

THE BRACHIOCEPHALIC FISTULA WITH ARCH STENOSIS



PRINCIPLES OF THE TREATMENT

Improving the venous outflow towards the heart:

- endovascular treatment directly at the level of the arch,

- transposition of the cephalic vein on an healthy vessel with good outflow,

- graft between the cephalic vein and another outflow vein.

Reducing the inflow in case of high flow fistulas.

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The patient have a fistula, and there is no need to transform it in a "graftula".

Reducing the inflow in case of high flow fistulas.

ADVANTAGES OF THE ENDOVASCULAR TREATMENT

The endovascular treatment is our first line for many reasons:

- easy to perform,
- less pain for the patient,
- local anesthesia can be enough,
- few complication,
- it can be performed again in case of recurrence.

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- few complication,

- it can be performed again in case of recurrence,

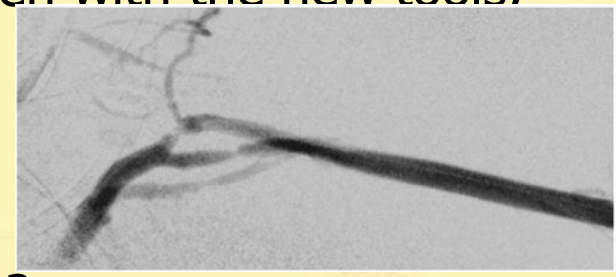
- better income related to the duration of the procedure, for the private surgeon in France in 2013.

DRAWBACKS OF THE ENDOVASCULAR TREATMENT

The endovascular treatment as however some disadvantages:

- can be very painful,

- very resistant stenosis is still a problem, even with the new tools.



- the rupture can be difficult to manage,

- what branch to treat in case of double arch?

- frequent recurrence can be very disappointing, because the hyperplasia is still in the circuit !

- this can lead to the placement of bare or covered stents, with a great risk for the axillary and subclavian veins.

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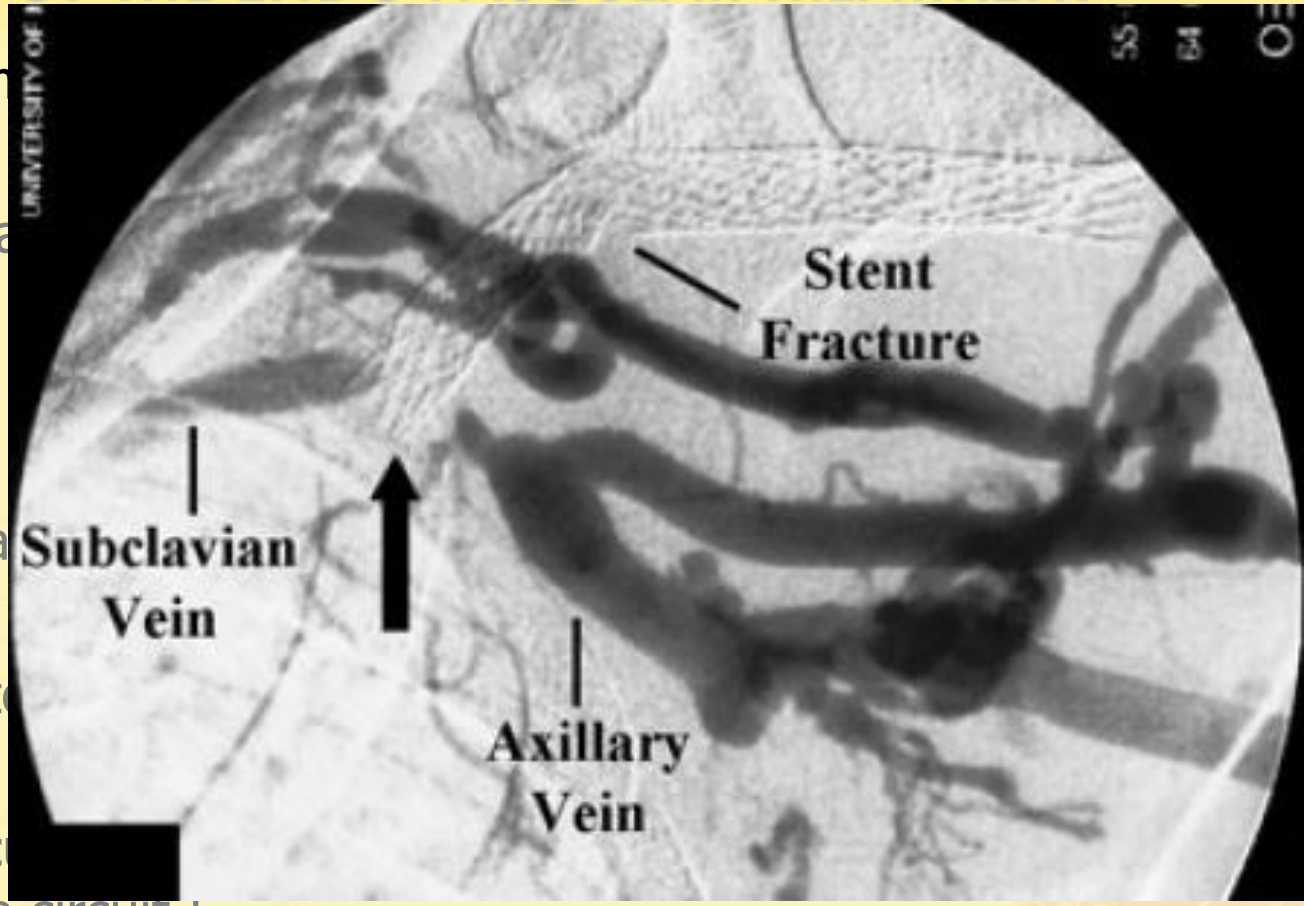

Picture from K KIAN, Seminars in Dialysis, Vol 21, N°1, 2008, pp. 93-96

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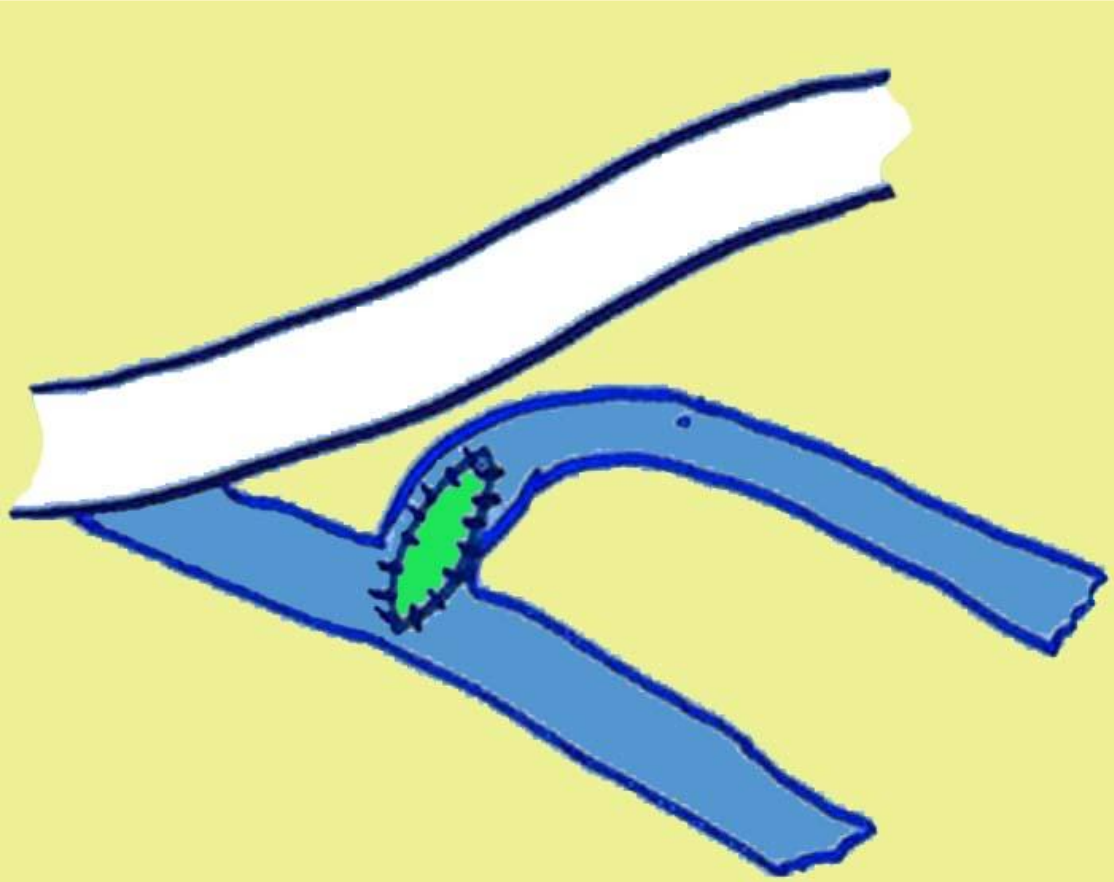
THE SURGICAL TREATMENT

The aim of surgery is to find out a good and durable outflow for the blood.

A patch can be placed on the stenosed area, after a direct approach and retrieval if possible of the hyperplasia.

A transposition of a segment healthy vein:

- axillary vein,
- basilic vein,
- brachial vein.



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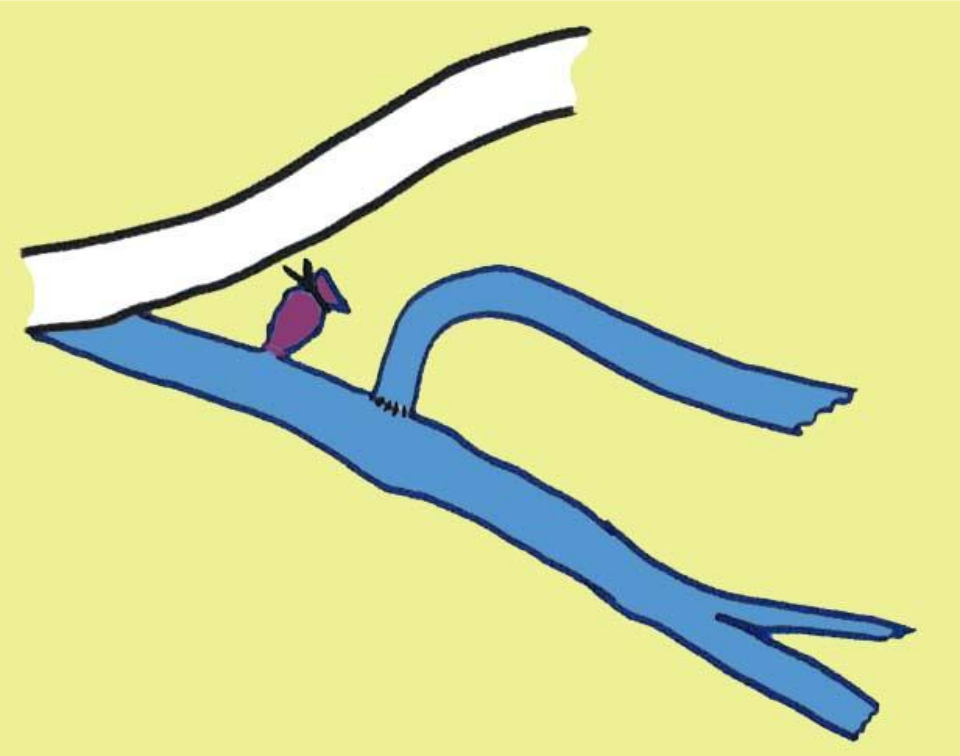

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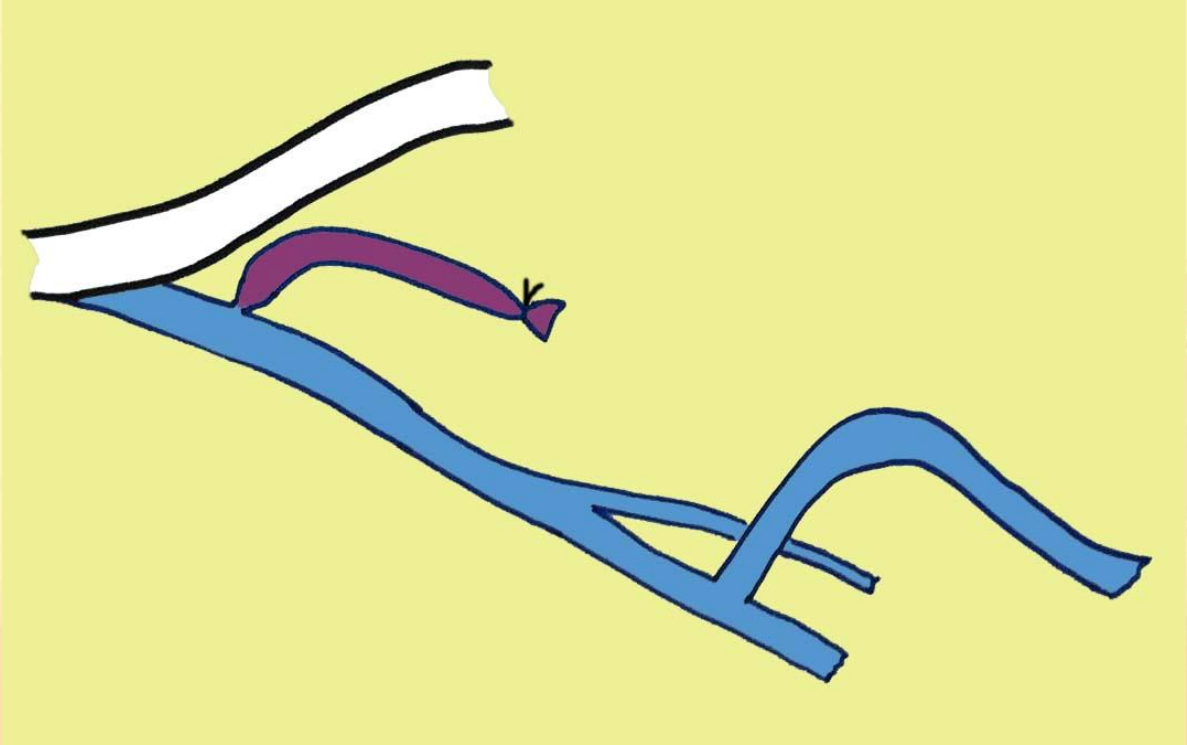

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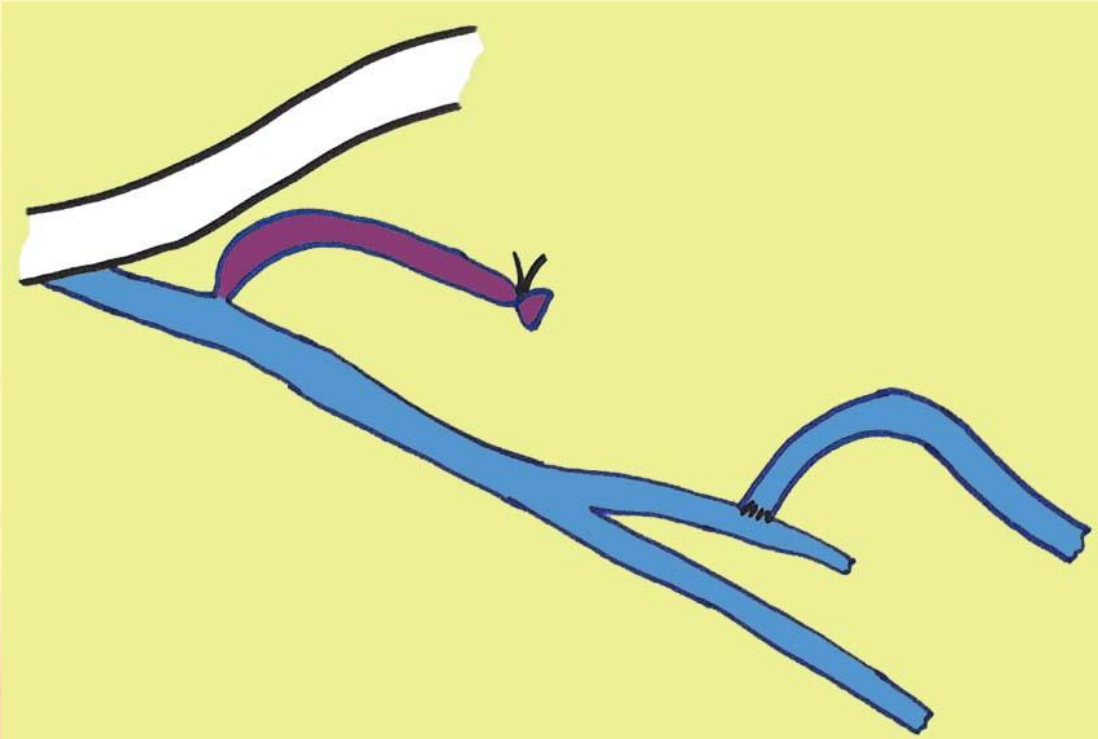

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A transposition of a segment of the upper vein allows an anastomosis on a healthy vein:

- axillary vein,

- basilic vein,

- brachial vein.

Another fistula is sometimes a better way!

THE TRANSPOSITION ON THE BRACHIAL VEIN

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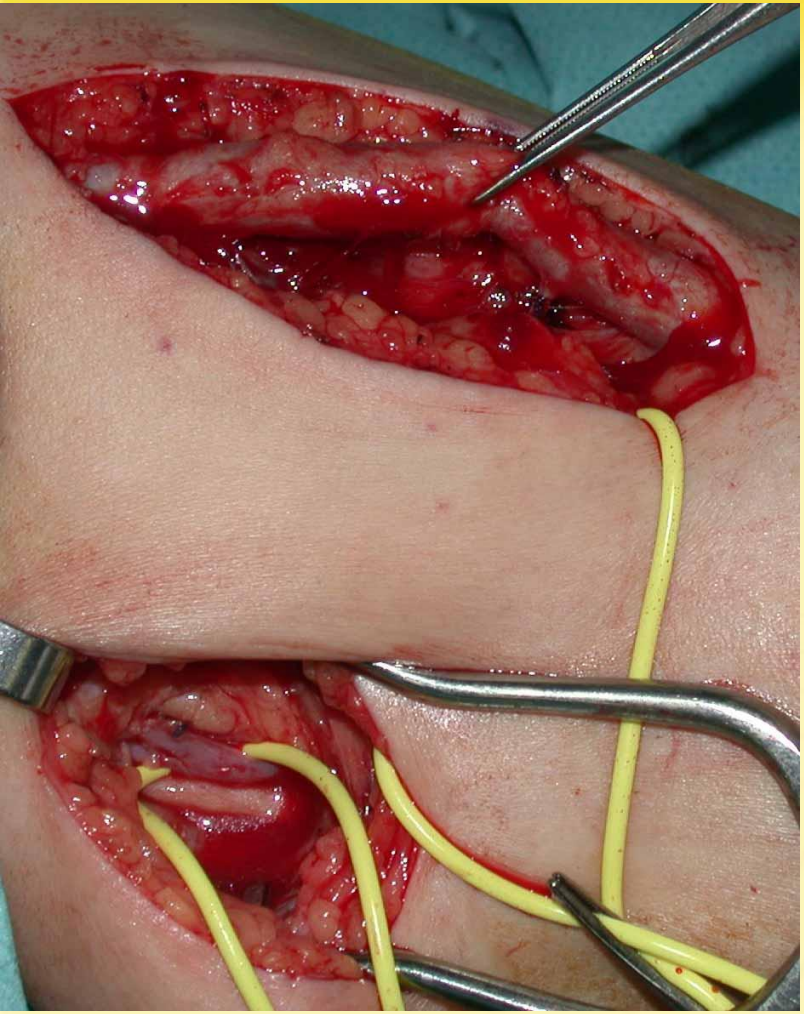
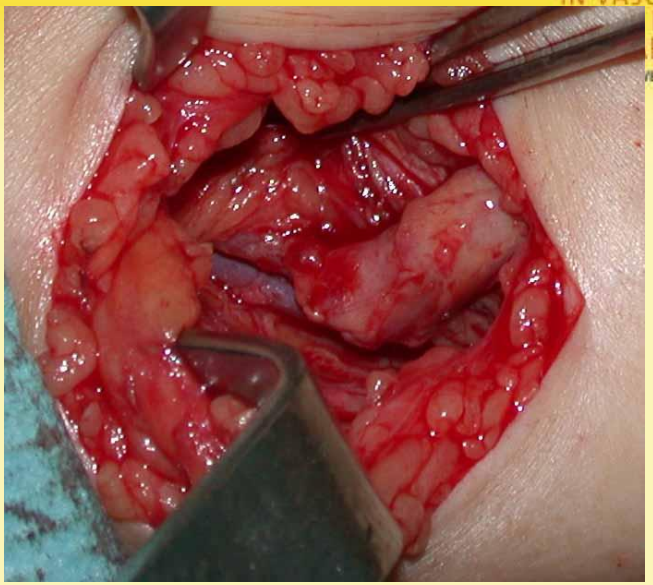




ANOTHER EXEMPLE OF TRANSPOSITION ON THE BRACHIAL VEIN

W, 70 y. HD since dec 2005.

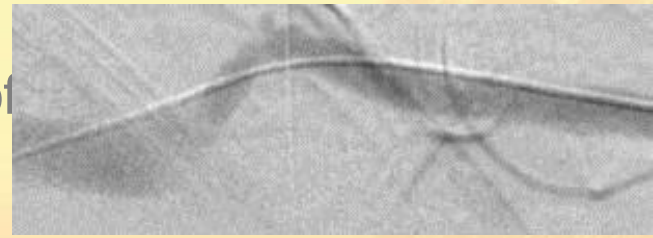
Jan 2006: Radiocephalic fistula close to the elbow.

May 2008: more proximal anastomosis.

Aug 2009: dilatation of the cephalic arch: 7 mm and 8 atm.

Oct 2010: dilatation of the cephalic arch: 7 mm and 28 atm, with a wire beside the balloon.



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Apr 2011: thrombosis: clot removal and dilatation of the cephalic arch: 7 mm and 30 atm.

ANOTHER EXEMPLE OF TRANSPOSITION ON THE BRACHIAL VEIN

W, 70 y. HD since dec 2005.

Aug 2011: dilatation of the cephalic arch: 7 mm and 36 atm.

Feb 2012: dilatation of the cephalic arch: 7 mm and 16 atm.

May 2012: thrombosis: removal of the clots an dilatation of the cephalic arch: 7, then 9 mm and 26 atm.

Aug 2012: thrombosis: removal of the clots an transposition of the cephalic vein on the brachial vein.

Jan 2013: no stenosis on the new anastomosis. Low pressure in the cephalic vein.

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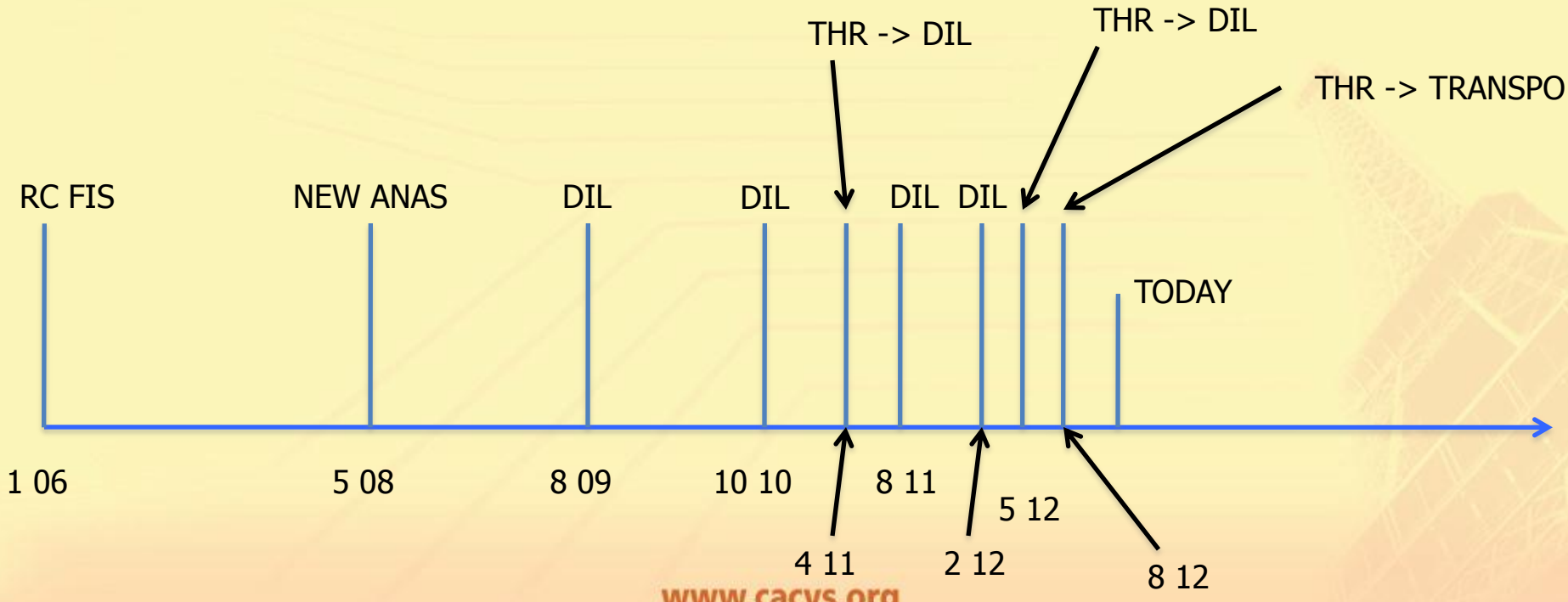

CLINICAL RESULT AT 1 MONTH

ADVANTAGES OF THE SURGICAL TREATMENT

The surgical treatment is:

- fairly easy surgery,
- can be performed with local anesthesia in selected cases,
- the fistula can be punctured immediately,
- the thrombosis is easy to clear in the same time,
- patency seems better than endovascular treatment.

DRAWBACKS OF THE SURGICAL TREATMENT

The surgical treatment as some disadvantages:

- the targeted drainage vein must be well known,

- the anastomosis is difficult to perform between a dilated vein with a thick wall, and a small vein with thin wall,

- the anastomosis between the two veins can lead to a stenosis, that can be dilated,

- this stenosis is a major trouble if the receiving vein is the basilic or the axillary.

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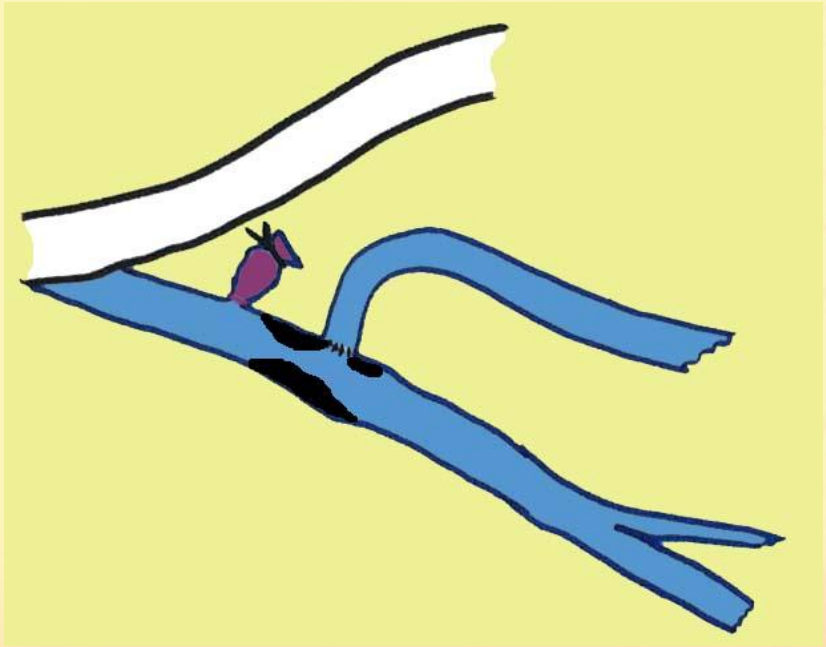

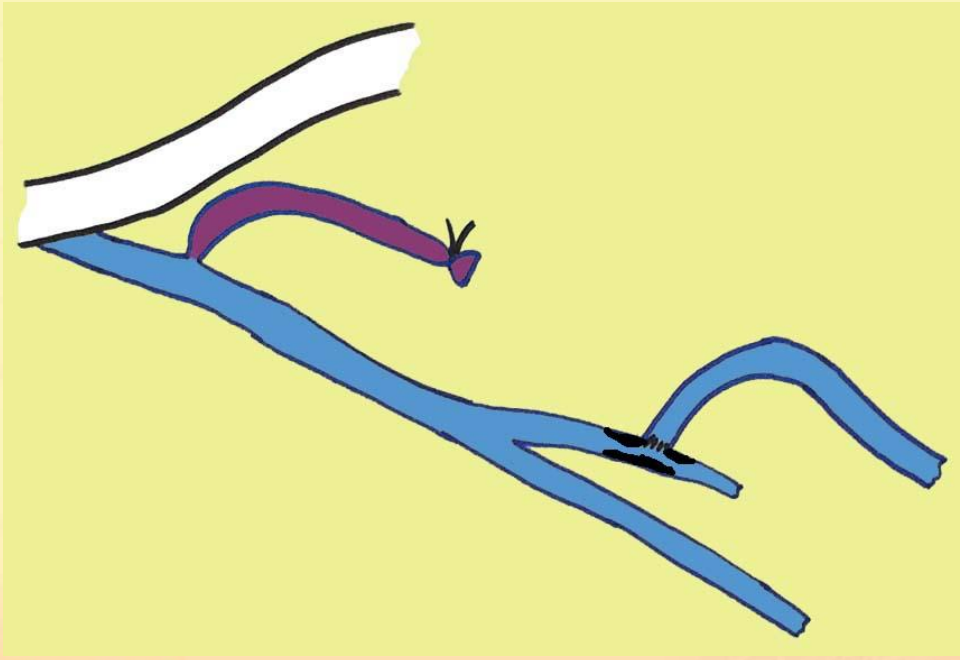

RESULTS OF THE SURGICAL TREATMENT

Role of Surgical Intervention for Cephalic Arch Stenosis in the "Fistula First" Era

Kaveh Kian,* Stephen W. Unger,† Rick Mishler,‡ Donald Schon,‡ Oliver Lenz,§ and Arif Asif§

*Denver Nephrology, Denver, Colorado, †Department of Surgery, Mount Sinai Medical Center, Miami, Florida, ‡Arizona Kidney Disease and Hypertension Surgery Center, Phoenix, Arizona, and §Section of Interventional Nephrology, University of Miami School of Medicine, Miami, Florida

Seminars in Dialysis, Vol 21, N°1, 2008, pp. 93-96

13 patients

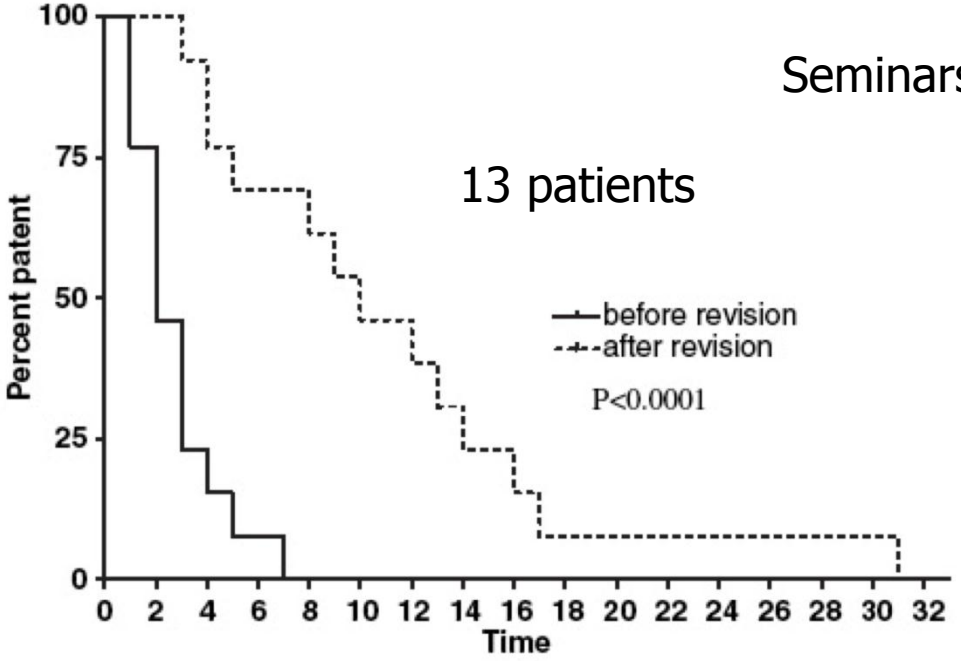

FIG. 2. Kaplan–Meier analysis showing primary patency before and after the surgical revision.

TREATMENT ALGORITHM

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Stenosis on the arch with high blood pressure in the cephalic vein

Blood flow measurement

Blood flow < 1,5-2 l/min

Blood flow > 1,5-2 l/min

Blood flow reduction

Low blood pressure in the vein

Surveillance

High blood pressure in the vein

Dilatation

Dilatation again

Dilatation again

Short term recurrence of stenosis, or complication

Vein transposition

No place for bare or covered stents

CONCLUSION

The endovascular treatment is the first treatment of cephalic arch stenosis.

In case of complication, or short term recurrence, surgery is then the best choice