CHIVA TERMINOLOGY: History

• 1988: Franceschi: Description CHIVA

• 1995: Chateau Gontiers-París: terminological dilemma

• 1996: CHIVA Meeting Montanyà (Barcelona)

• 1998: CHIVA Meeting Rosario (Argentina)

• 2002: CHIVA Meeting Teupitz (Germany)

• 2010: Vasculab Meeting (Naples)

• 2016: CHIVA Meeting Cremona (Italia)
CONCEPT OF SHUNT

Veno-venous diversion characterized by an escape point and re-entry point

Franceschi 1988
CLASIFICATION OF THE VENO-VENOUS SHUNTS

- SHUNT TYPE 1
- SHUNT TYPE 2
- SHUNT TYPE 3
- SHUNT TYPE 4

Franceschi 1988
Issues

- CONCEPT of SHUNT
- SHUNT TYPE 0
- SAFENOUS ARCH: I. ostial v.s. I. paraostial
- SHUNT TYPE 2: Safenous retrograde flow
- MIXTE SHUNTS
- SHUNT TYPE 4: Catchall

Franceschi 1988
Sometimes, there is a segmental safenous diastolic reflux with re-entry deep veins through a re-entry perforator.

This condition may be reversible.
CONCEPT OF SHUNT

Veno-venous flow diversion with direction contrary to physiological

Teupitz 2002
CLASIFICATION OF THE VENO-VENOUS SHUNTS

WITHOUT ESCAPE POINT

- SHUNT I
- SHUNT II
- SHUNT III
- SHUNT I + II
- SHUNT IV
- SHUNT IV + II
- SHUNT V
- SHUNT VI
- OPEN VICARIOUS SHUNT
  (SYSTOLIC and DIASTOLIC)

WITH ESCAPE POINT

Physiological Comet Term Valve
Post-CHIVA

Teupitz 2002
OPEN SHUNT WITHOUT ESCAPE POINT : SHUNT TYPE 0

As related to the draining volume flow, both conditions are similar.
Los parámetros de función de bomba\(^1\) de ambos sistemas son similares.

Un sistema retrógrado sin punto de fuga con drenaje por perforante de safena es hemodinámicamente estable.\textsuperscript{2} ambos son sistemas drenantes.

• A Great Safenous Vein may reflux through a re-entry perforator

• If this reflux enters into the Deep Venous System through a perforator, it behave as a draining system.
• This is the reason why a segmental safenous reflux is not pathological.
Consequently CHIVA is usually based on the achievement of suns type 0.
OPEN SHUNT WITHOUT ESCAPE POINT:
SHUNT TYPE 0

R 3 → R 2 → R 1
SHUNT TYPE 1

- Main escape point R1 R2
- Re-entry into the Deep venous system without collateral interposition
- It is a Closed Shunt
- Activated by the diastole
SHUNT TYPE 2

- Main escape point at R1 R2
- Open or closed
- Activated by the diastole
SHUNT TYPE 2

CLOSED

R 1 → R 4L → R 2

OPEN

R 1 → R 2 → R 4T → R 2

R 1 → R 2 → R 3 → R 1
SHUNT TYPE 2 A (without saphenous incompetence)
SHUNT TYPE 2 B (with proximal saphenous incompetence and without saphenous re-entry)
SHUNT TYPE 2 C (with proximal saphenous incompetence and saphenous re-entry)
• It is a combination of shunt type 1 and shunt type 2.

• Closed shunt.

• Activated by the diastole
SHUNT TYPE 3

- Main escape point R1 R2
- Re-entry into deep venous system through an interposed tributary.
- It is a closed shunt
- It is activated by the diastole
- It is the most frequent
SHUNT TYPE 3

R 1 → R 2 → R 3 → R 1

R 1 → R 2 → R 4L → R 1
SHUNT TYPE 3

R 1 \rightarrow R 2 \rightarrow R 4T \rightarrow R 2 \rightarrow R 1

R 1 \rightarrow R 2 \rightarrow R 4L \rightarrow R 2 \rightarrow R 3 \rightarrow R 1
PELVIC SHUNT (ps)

- Escape point R1 R3 R2
- Drainage through a safenous perforator without interposed tributary
- It is a closed shunt
- It is activated by the diastole
SHUNT TYPE 4

PELVIC SHUNT (ps)

PERFORATOR (p)
It is a combination of shunt type 4 and shunt type type 2
SHUNT TYPE 5

• Escape point R1 R3 R2
• Drainage through an interposed tributary
• It is a closed shunt
• It is activated by the diastole
SHUNT TYPE 5

PELVIC SHUNT (ps)

PERFORATOR(p)
It is an extrasafenous shunt.
May be open or closed
Activated by the diastole
VICARIOUS OPEN SHUNT

Deep venous block

Activated by systole and diastole

R 1

R 2

R 1
VENO-VENOUS SHUNTS:
Differential diagnosis

1. Shunt type 0 vs. Shunt type 1 and Shunt tipo 4
2. Shunt type 2B vs. Shunt type 3 and Shunt type 5
3. Shunt type 2C vs Shunt type 1+2 and Shunt type 4+2
VENO-VENOUS SHUNTS:
Differential diagnosis

- Shunt type 0 vs. Shunt type 1 and Shunt type 4
VENO-VENOUS SHUNTS:
Differential diagnosis

- Shunt type 2B vs. Shunt type 3 and Shunt type 5
VENO-VENOUS SHUNTS:
Differential diagnosis

- Shunt type 2C vs Shunt type1+2 y Shunt type4+2
VENO-VENOUS SHUNTS

Type of shunt knowledge:

• Allows the hemodynamic classification of the varices.
• Offers the possibilities of hemodynamic treatments.
• Give the prognosis of these treatments.
CLASSIFICATION OF THE VENO-VENOUS SHUNTS

SHUNT

WITHOUT ESCAPE POINT

- PHYSIOLOGICAL COMET TERM VALVE
  - POST-CHIVA

WITH ESCAPE POINT

- SHUNT I
- SHUNT II
- SHUNT III
- SHUNT I+II
- SHUNT IV
- SHUNT IV + II
- SHUNT V
- SHUNT VI

OPEN VICARIOUS SHUNT
- (SYSTOLIC and DIASTOLIC)

Teupitz 2002
1. Segmentation of the pressure column.

C. Franceschi 1988.
1. Segmentation of the pressure column.

2. Veno-venous shunts disconnection.
1. Segmentation of the pressure column.

2. Veno-venous shunts disconnection.

3. Preservation of the re-entry perforators

C. Franceschi 1988.
CHIVA STRATEGY
Basic Principles

1. Segmentation of the pressure column.

2. Veno-venous shunts disconnection.

3. Preservation of the re-entry perforators

4. Ablation of the no draining R3 or R4.

C. Franceschi 1988.
CHIVA: 1 CONCEPT

Implementation of the CHIVA strategy principles in only 1 step by providing a draining system.
CHIVA 1

SHUNT TYPE 2

R 1

R 2

R 3
CHIVA 1
SHUNT TYPE 1+2

R 1
R 2
R 3
CHIVA 1
SHUNT TYPE 3
CHIVA 1

OTHER TYPES OF SHUNTS

- Eligible when the escape point is accessible.
CHIVA 2: CONCEPT

Implementation of the CHIVA strategy principles in 2 steps by providing a draining system. (Mainly eligible in shunt type 3).
1 Step: Disconnection of the escape point R2-R3.
- Collapse of R3
- Drainage through a safenous perforator

2 Step: Disconnection of the escape point R1-R2.
CHIVA 1+2: CONCEPT

Implementation of the CHIVA strategy principles in 1 step by providing a NO draining system. (Shunt tipo 3).
CHIVA 1+2
SHUNT TYPE 3

Disconnection at the same time of both escape points R1-R2 and R2-R3
Devalvulation: Purpose

Achieves a 1 step surgical strategy in shunt type 3 that favors a drainage through a saphenous perforator.
DEVALVULATION: TYPES

TYPE A

TYPE B

TYPE C
“Teaching is classifying and repeating”

Prof. Piulachs (1908-1976)