CHIVA TERMINOLOGY

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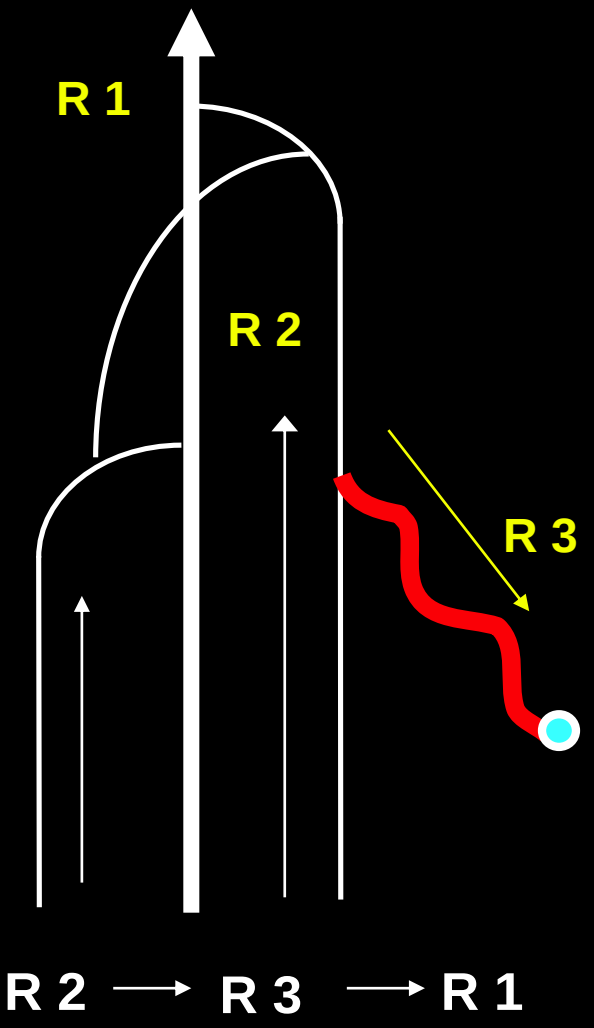
Cremona, 20-21 October 2016

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

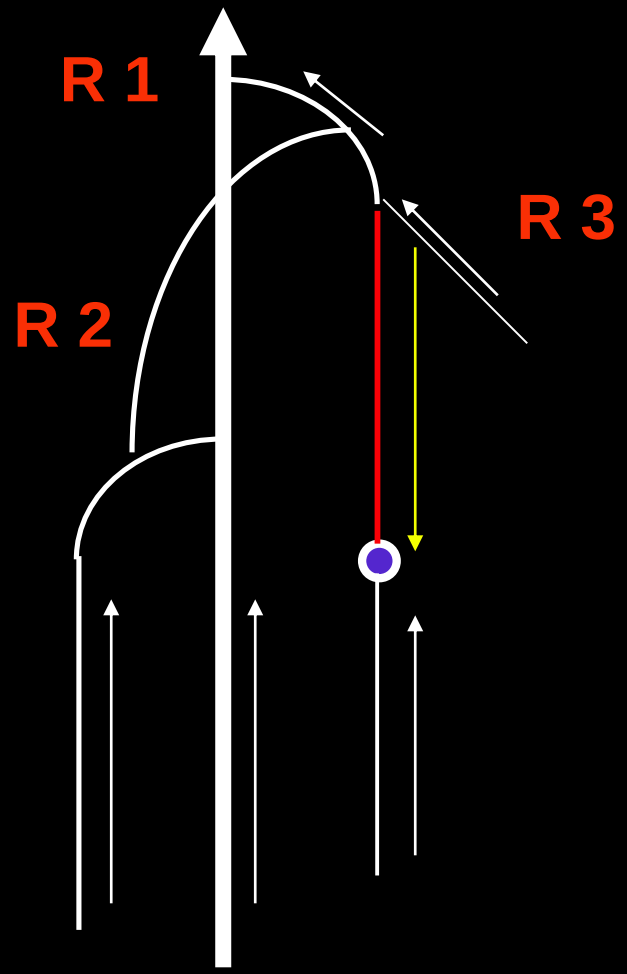
- **CONCEPT of SHUNT**
- **SHUNT TYPE 0**
- **SAFENOUS ARCH: I. ostial v.s. I. paraostial**
- **SHUNT TYPE 2: Safenous retrograde flow**
- **MIXTE SHUNTS**
- **SHUNT TYPE 4:** Catchall

Franceschi 1988

ISSUE: Shunt type 0

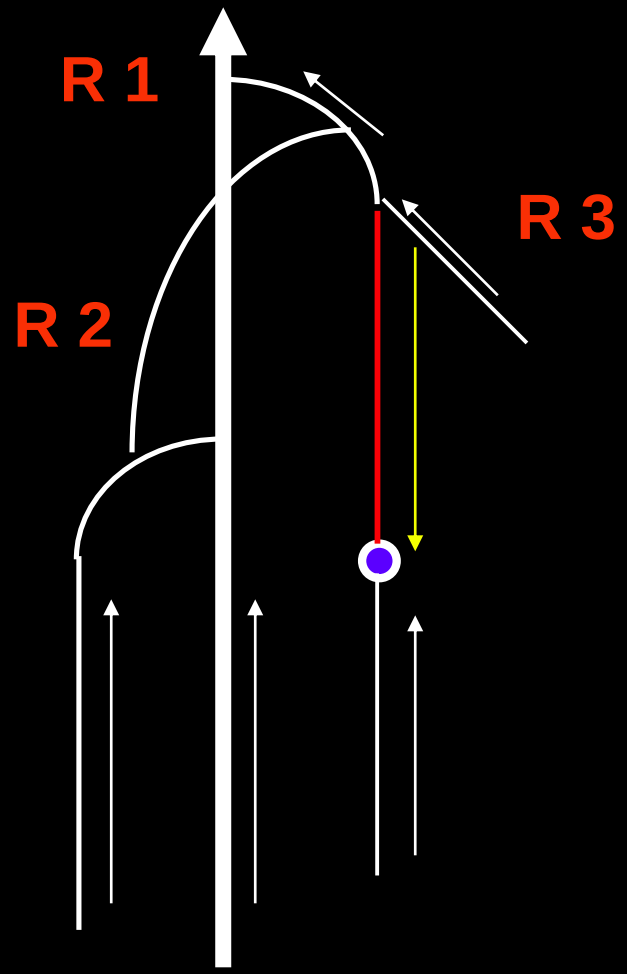
Sometimes, there is a segmental safenous diastolic reflux with re-etry deep veins through a re-entry perforator.

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

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

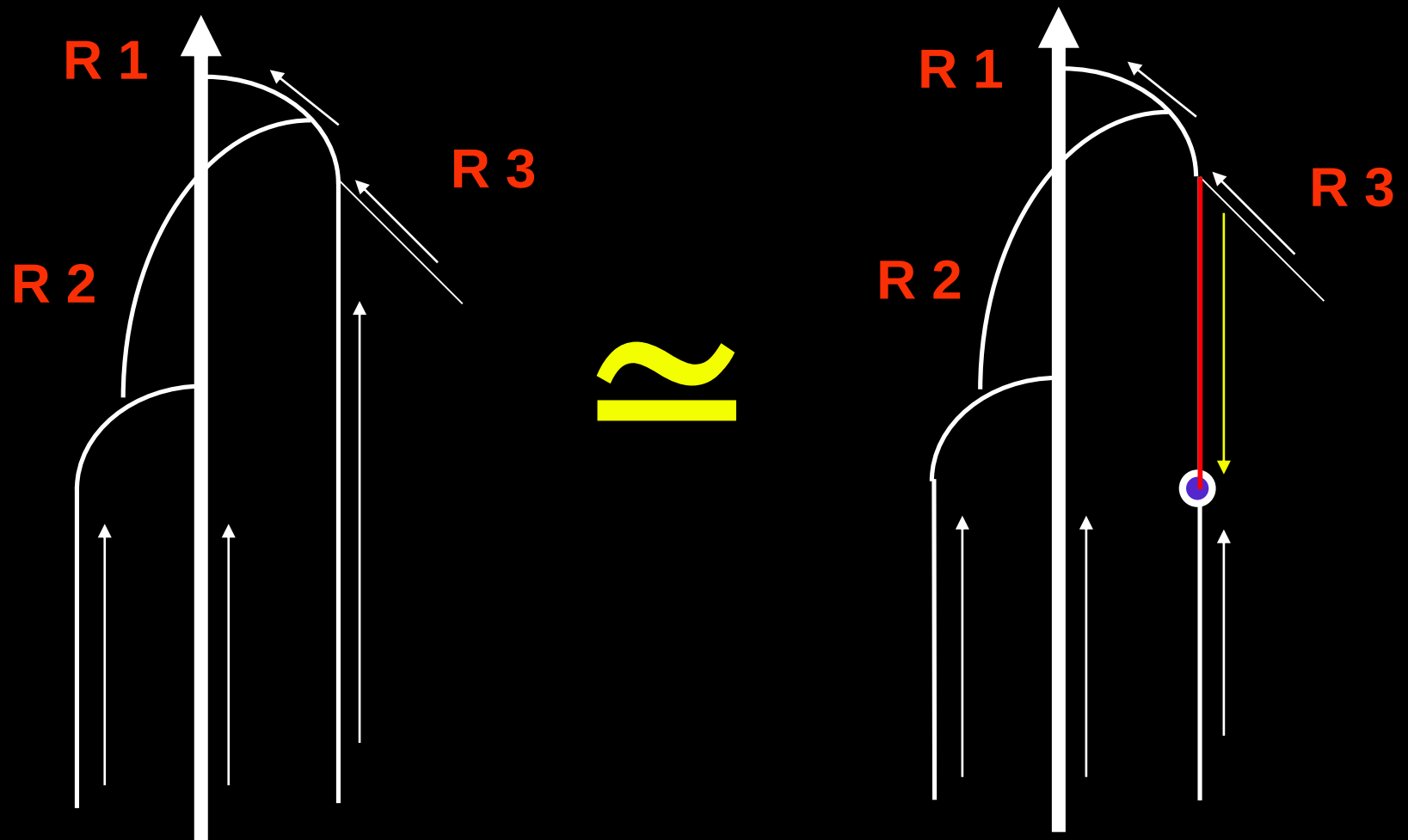
  DIASTOLIC
  - OPEN VICARIOUS SHUNT

    (SYSTOLIC and DIASTOLIC)

Teupitz 2002

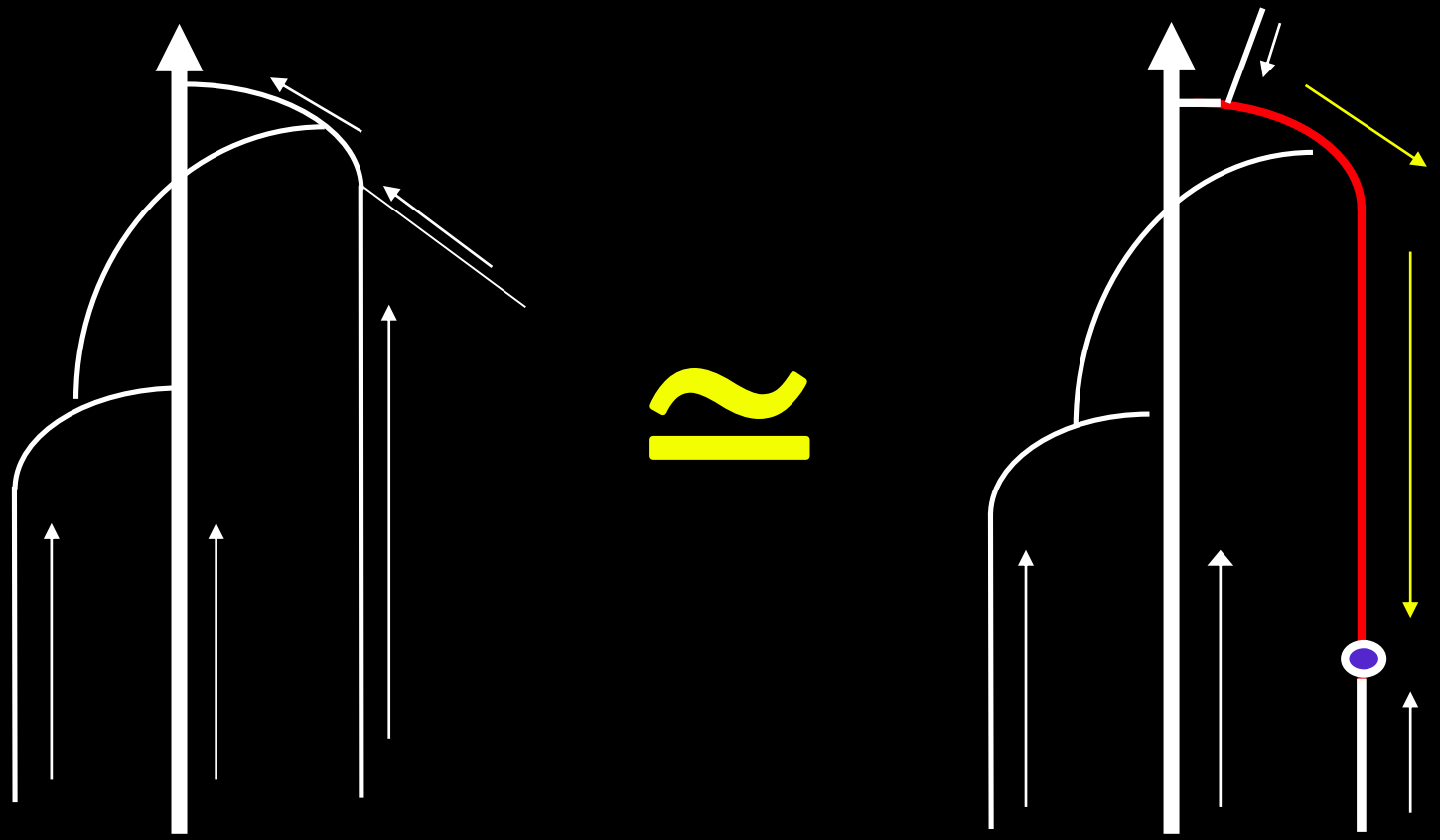
OPEN SHUNT WITHOUT ESCAPE POINT : SHUNT TYPE 0

As related to the draining volume flow, both conditions are similar.



SHUNT ABIERTO SIN PUNTO DE FUGA: SHUNT TIPO 0

Los parámetros de función de bomba[1] de ambos sistemas son similares.

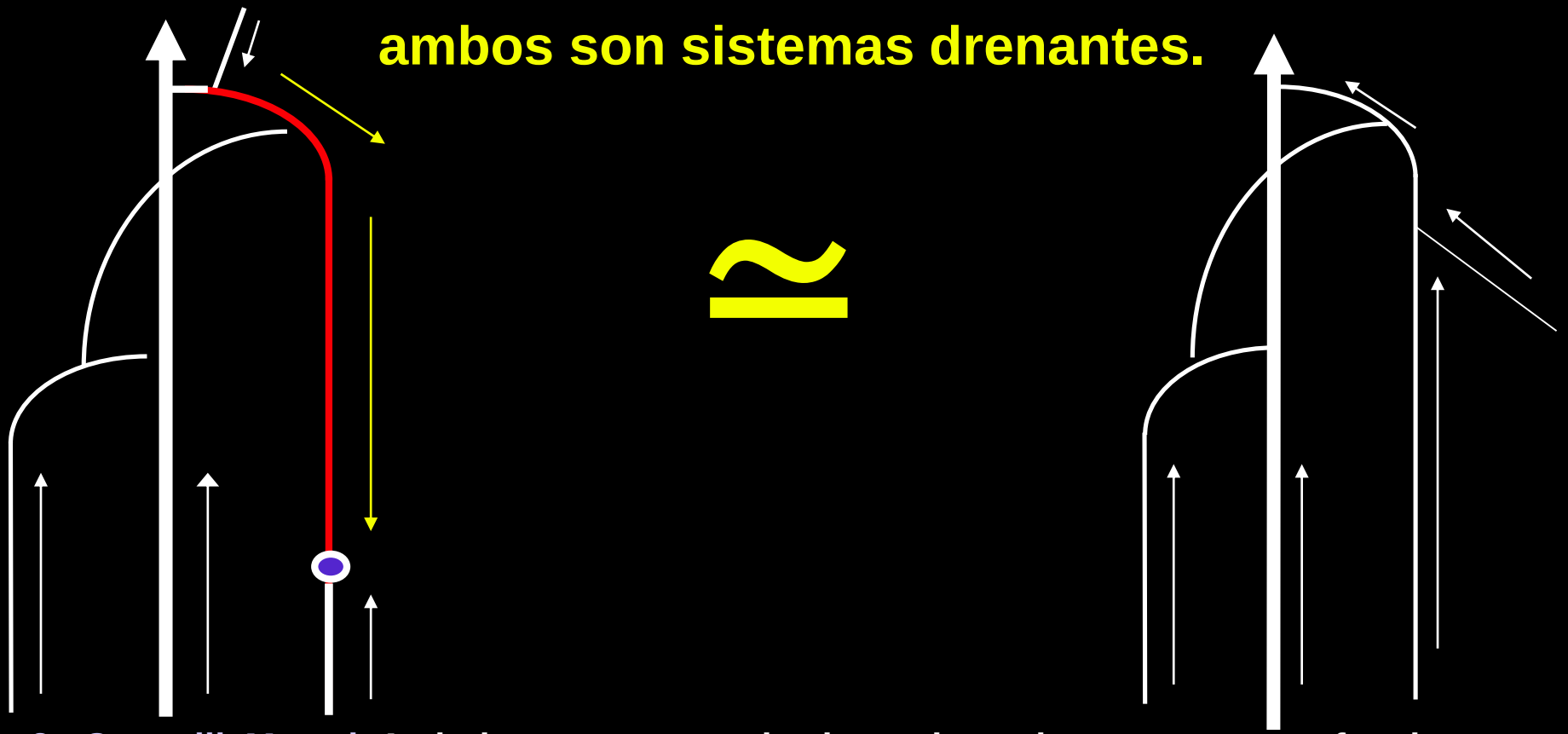


1.- Zamboni. P, et al. Reflux Elimination Without any Ablation or Disconnection of the Saphenous Vein. A Haemodynamic Model for Venous Surgery· Eur J Vasc Endovasc Surg *2001; 21:361-369*

SHUNT ABIERTO SIN PUNTO DE FUGA: SHUNT TIPO 0

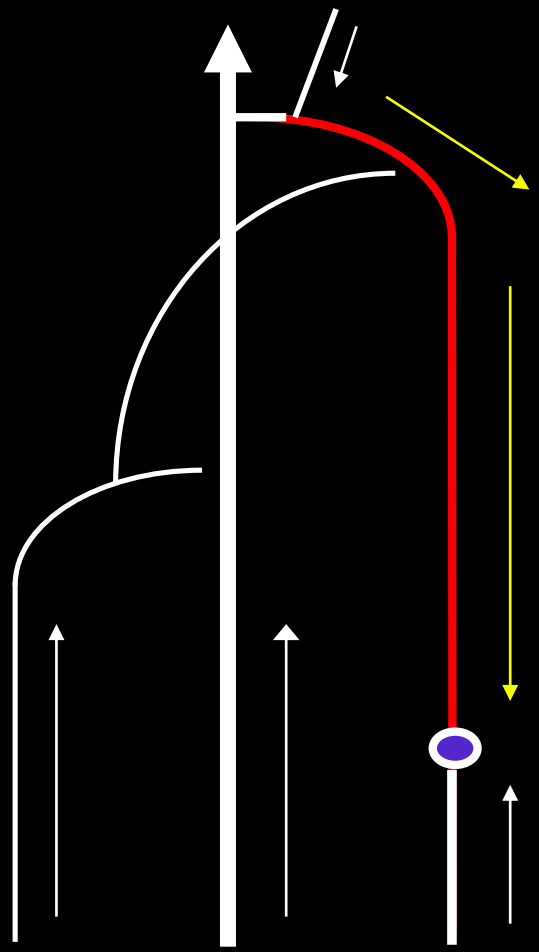
Un sistema retrógrado sin punto de fuga con drenaje por perforante de safena es hemodinámicamente estable.[2]

ambos son sistemas drenantes.



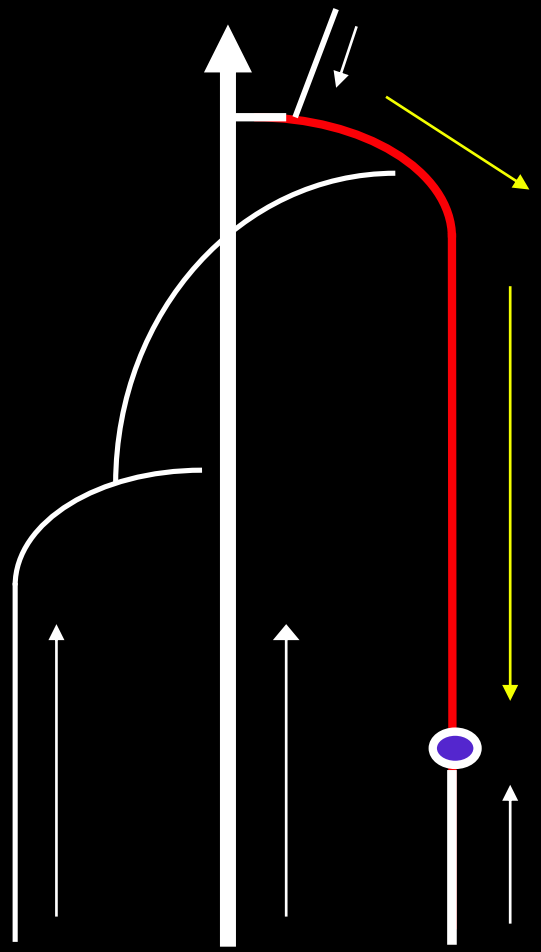
2.- Cappelli. M et al. Ambulatory conservative hemodynamic management of varicose veins: critical analysis of results at 3 years. Ann Vasc Surg. 2000 Jul;14(4):376-84.

RETROGRADE DRAINAGE OF THE GSV



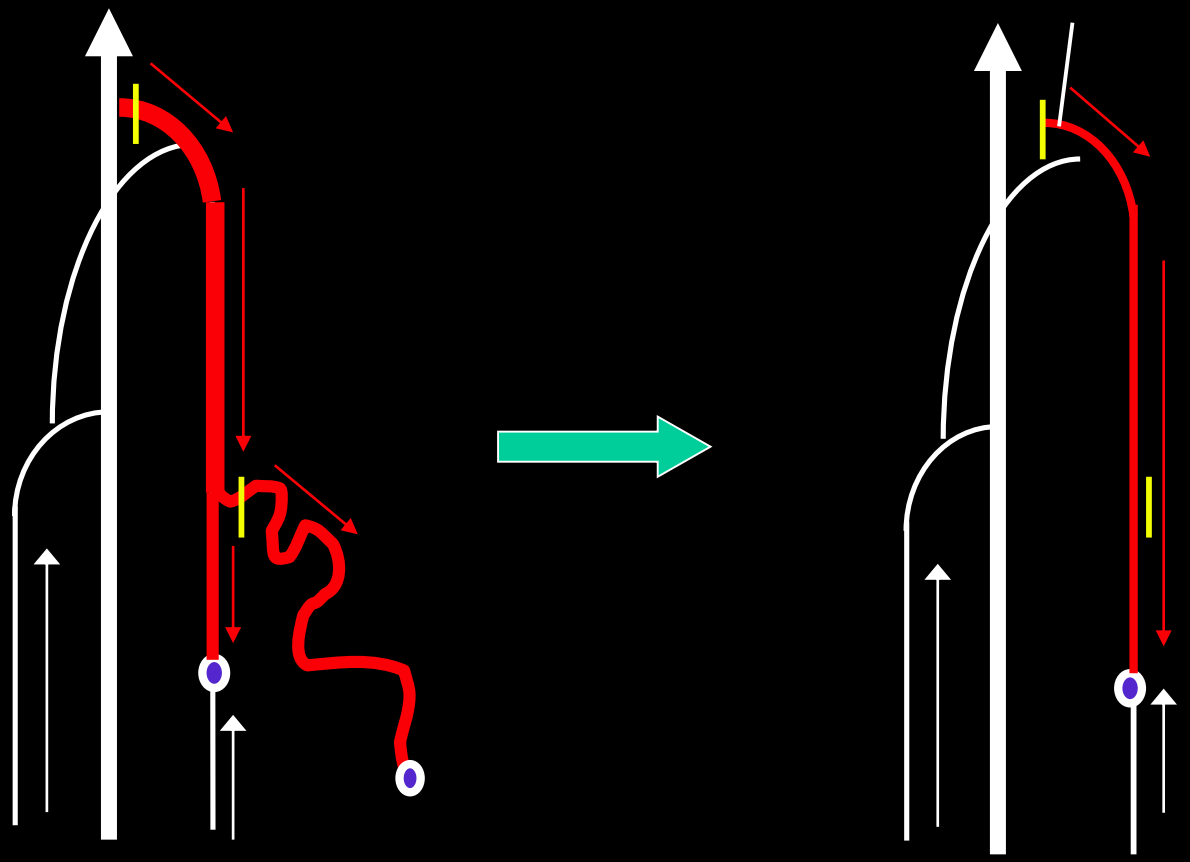
- A Great Safenous Vein may reflux through a re-entry perforator
- If this reflux enters into the Deep Venous System through a perforator, it behave as a draining system.

RETROGRADE DRAINAGE OF THE GSV



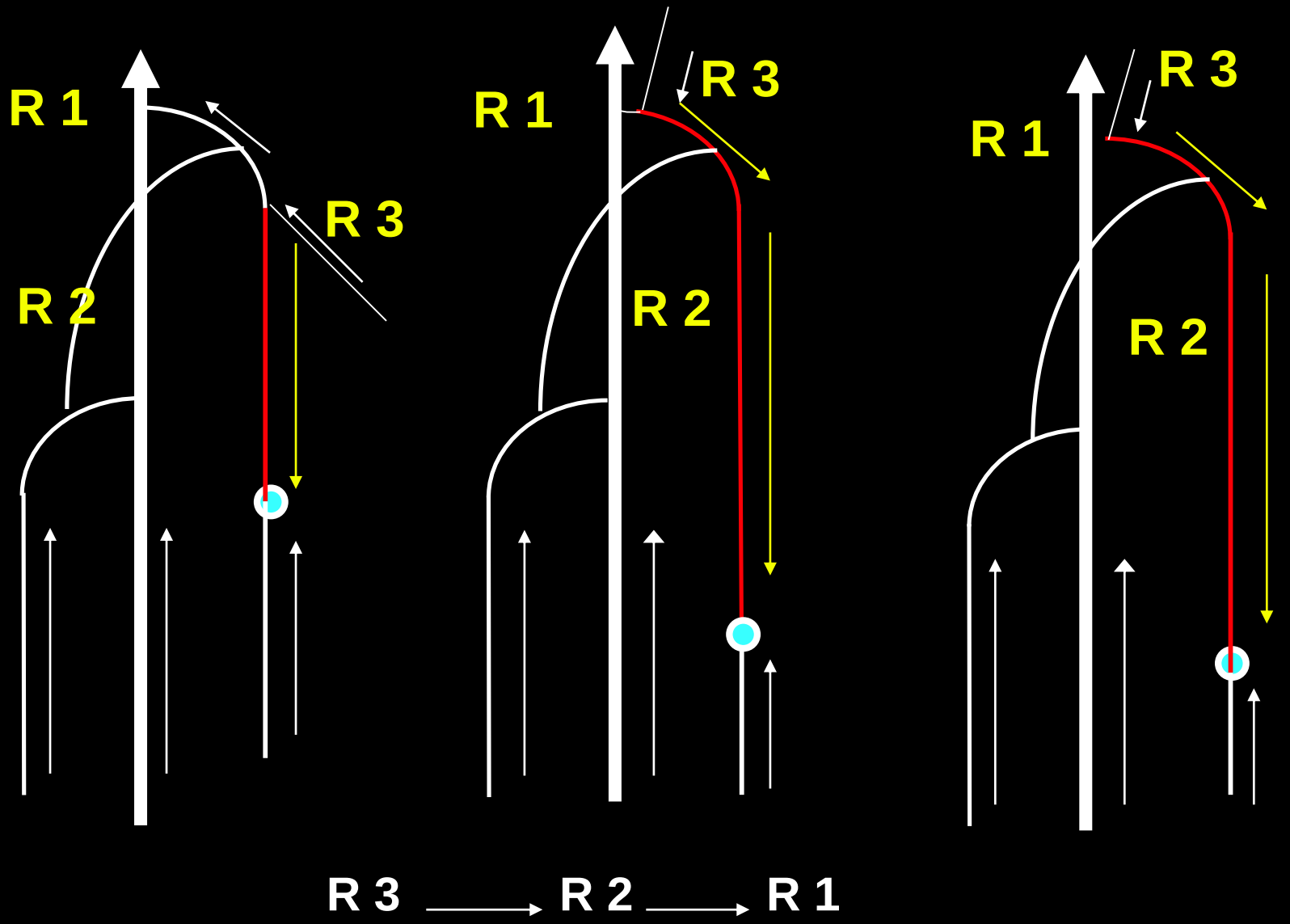
- This is the reason why a segmental safenous reflux is not pathological.

CHIVA AND SHUNT TYPE 0

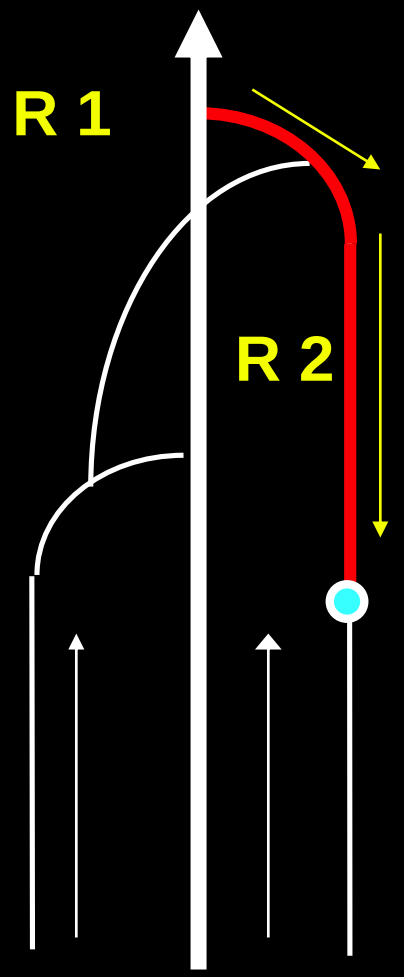


Consequently CHIVA is usually based on the achievement of sunts type 0.

OPEN SHUNT WITHOUT ESCAPE POINT : SHUNT TYPE 0



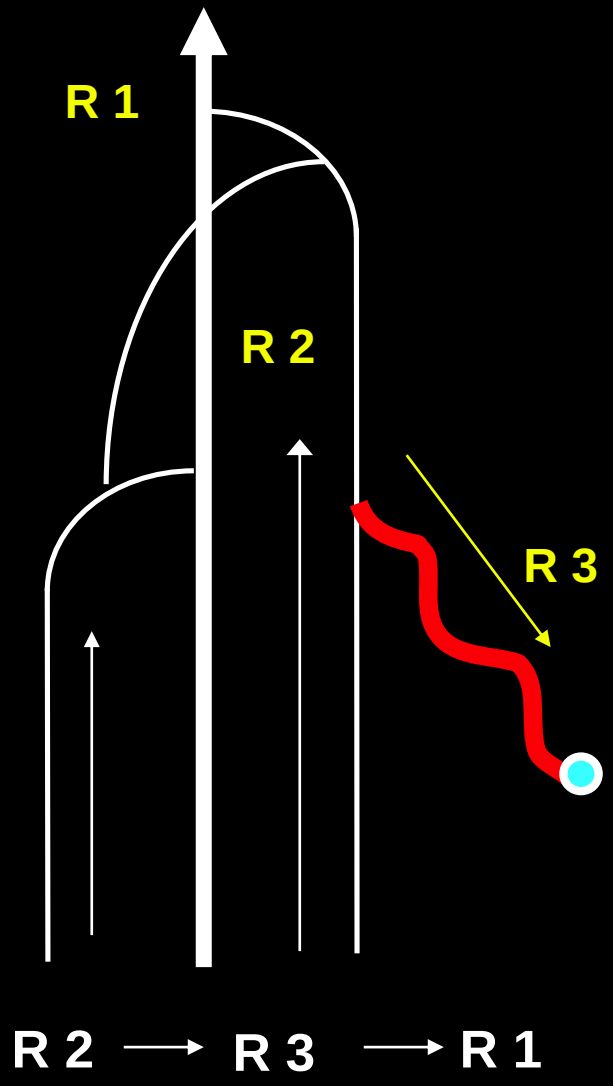
SHUNT TYPE 1



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

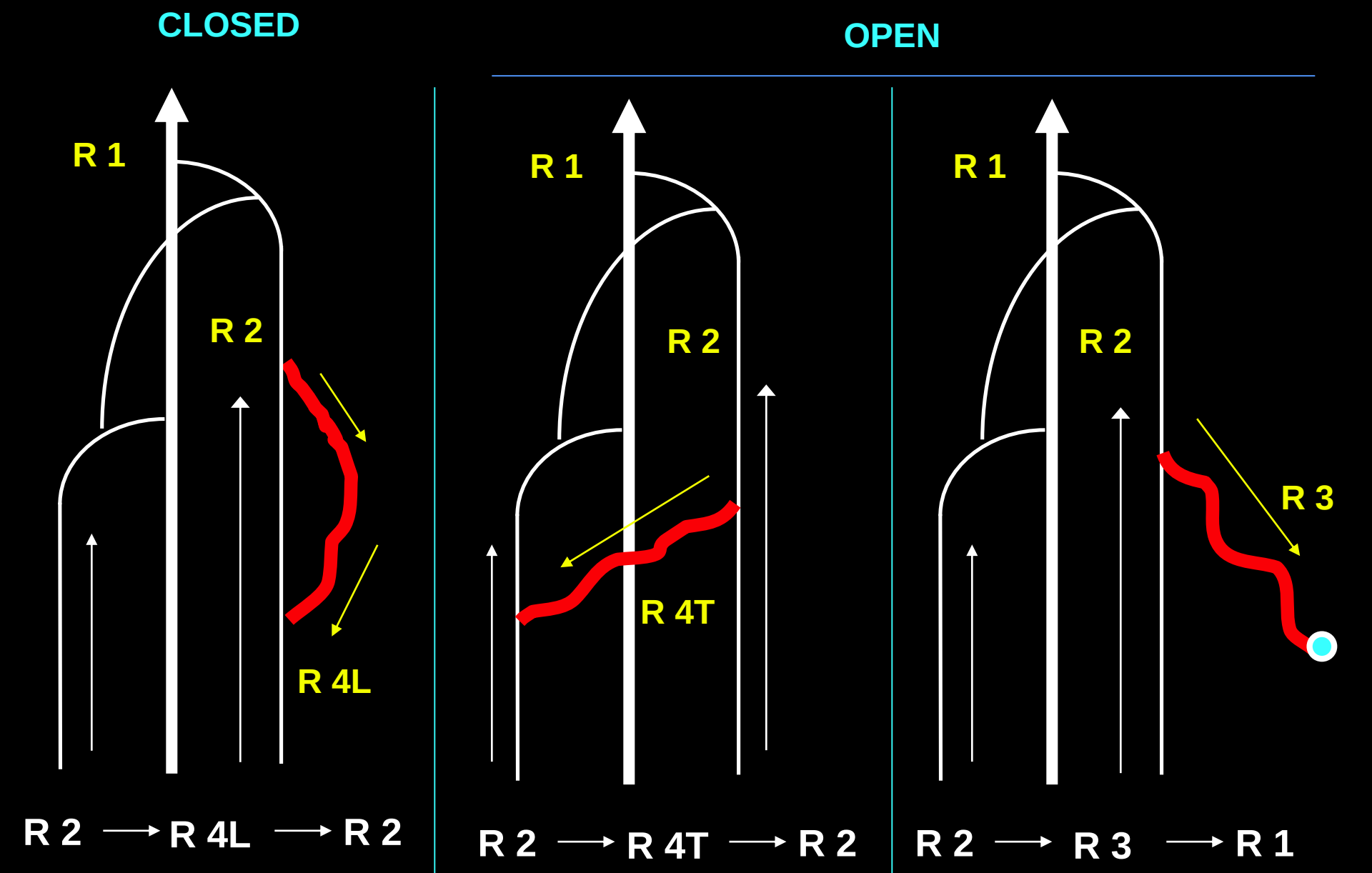
R 1 → R 2 → R 1

SHUNT TYPE 2

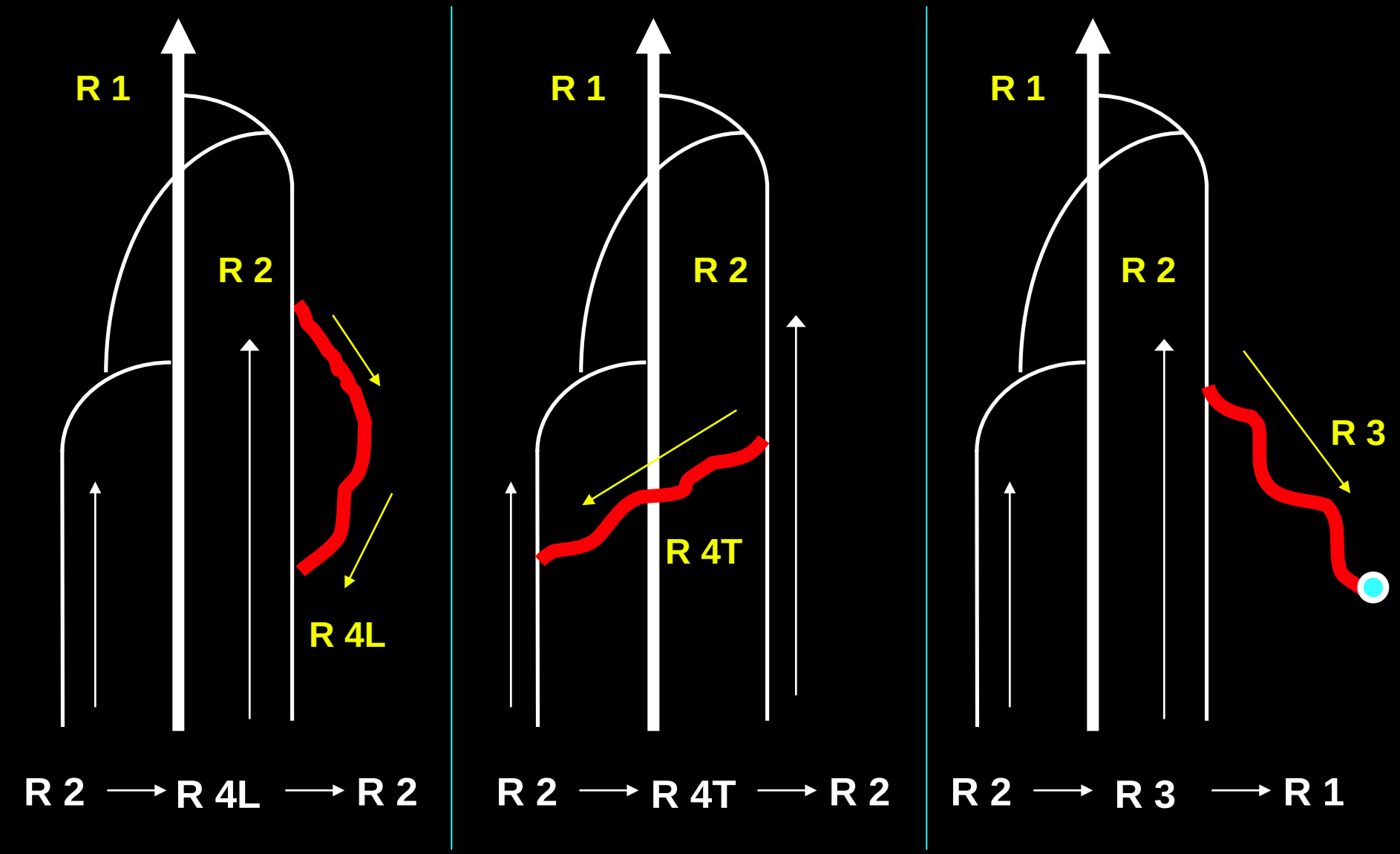


- Main escape point al R1 R2
- Open or closed
- Activated by the diastole

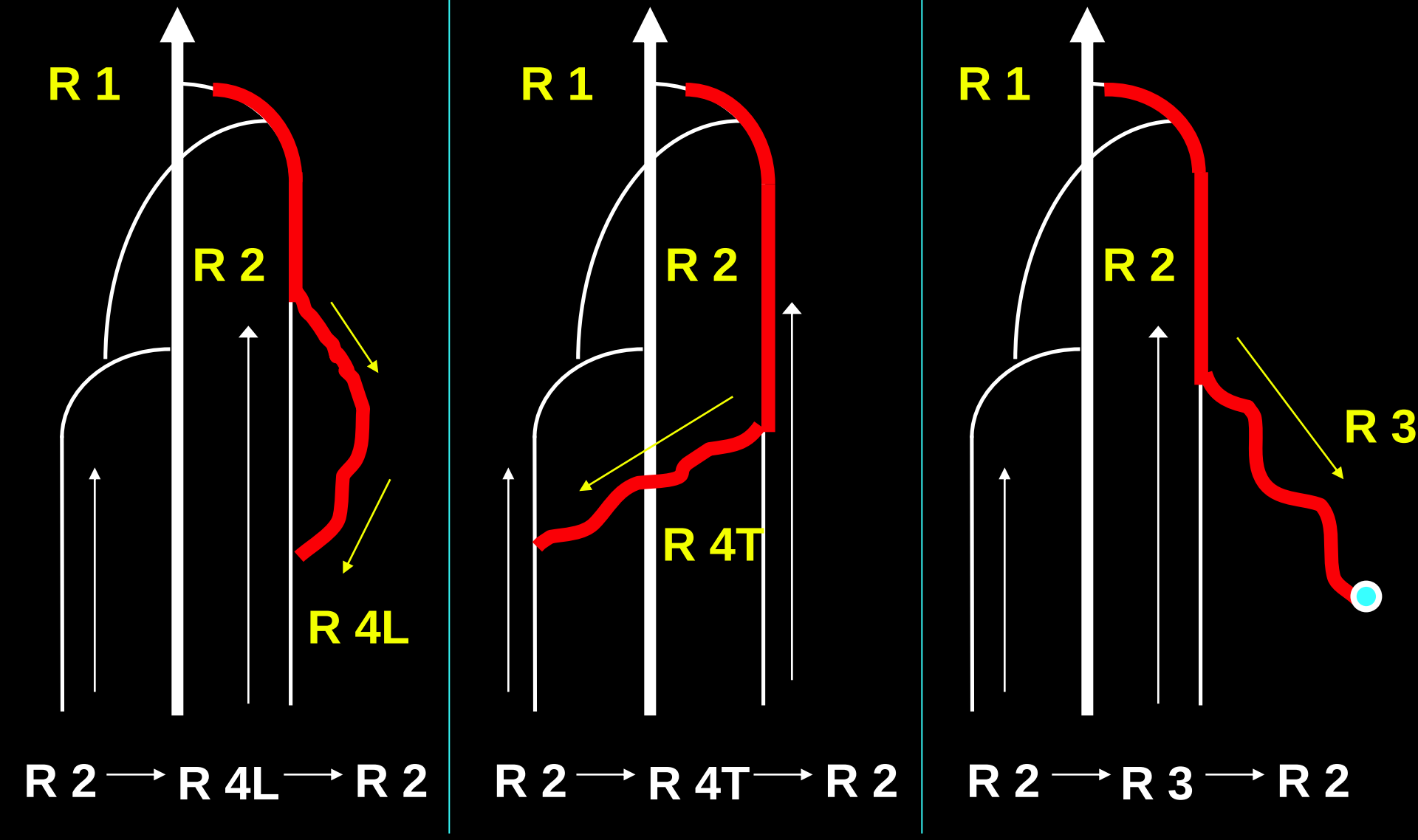
SHUNT TYPE 2


CLOSED
OPEN
R 1
R 2
R 4L
R 2 → R 4L → R 2
R 1
R 2
R 4T
R 2 → R 4T → R 2
R 1
R 2
R 3
R 2 → R 3 → R 1

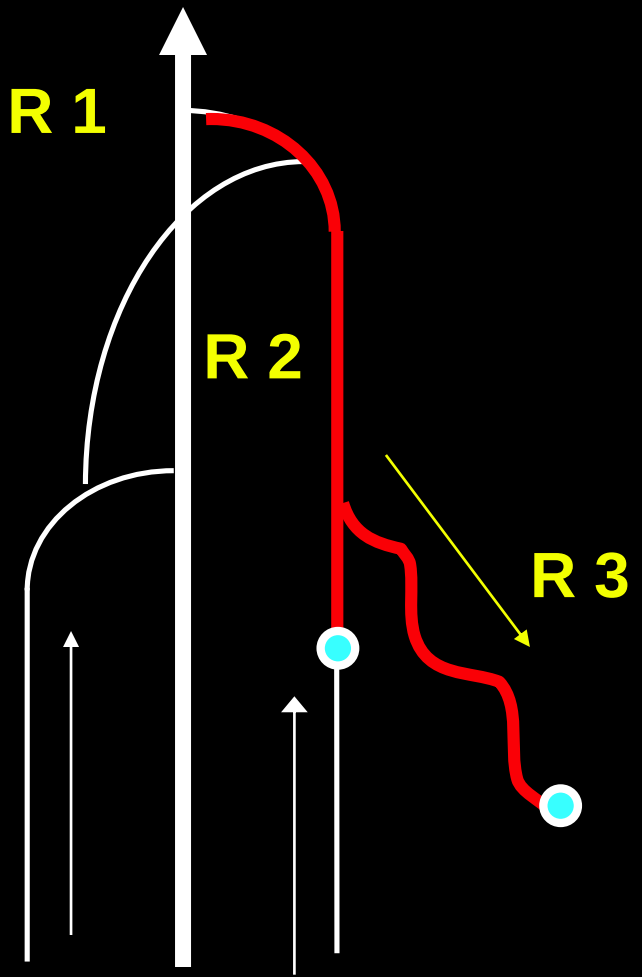
SHUNT TYPE 2 A (without saphenous incompetence)



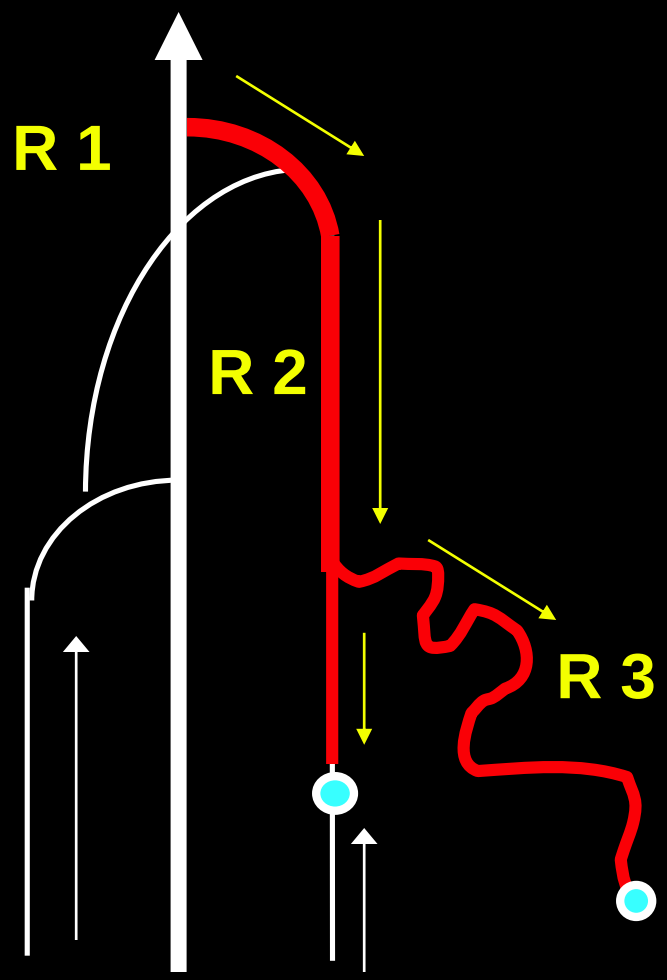
SHUNT TYPE 2 B (with proximal saphenous incompetence and without saphenous re-entry)



SHUNT TYPE 2 C (with proximal saphenous incompetence and saphenous re-entry)

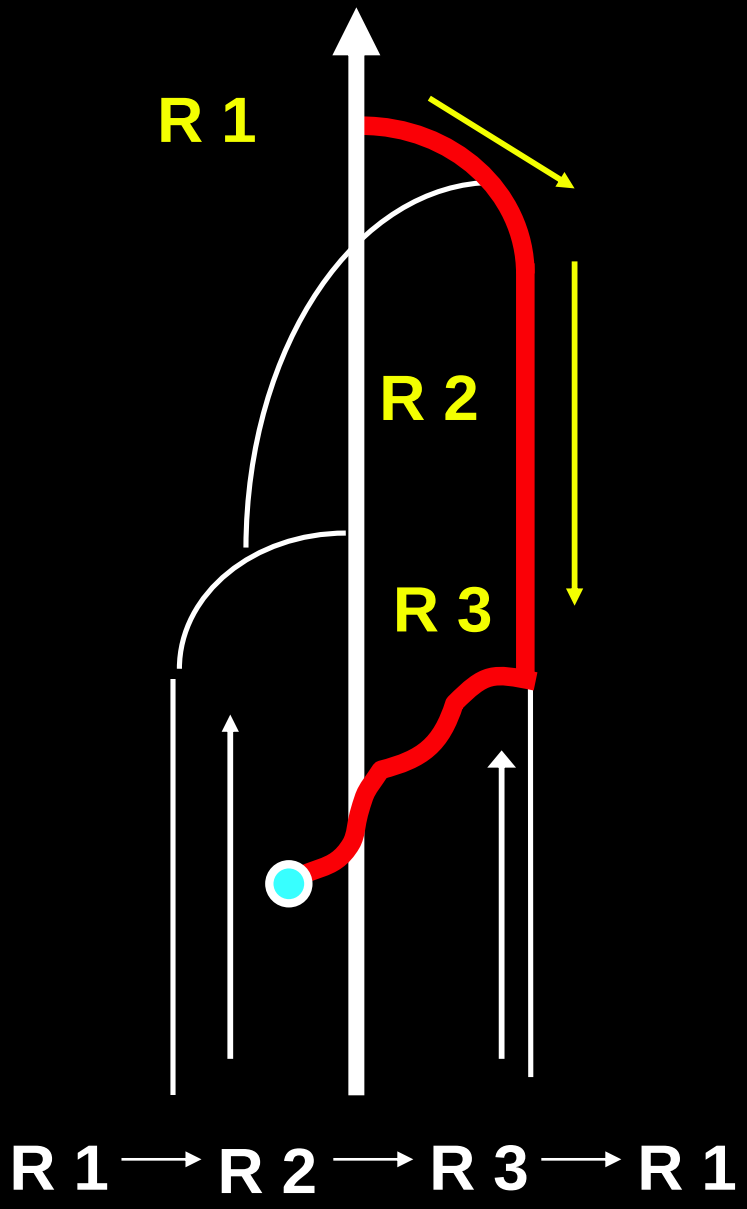


SHUNT TYPE 1+2



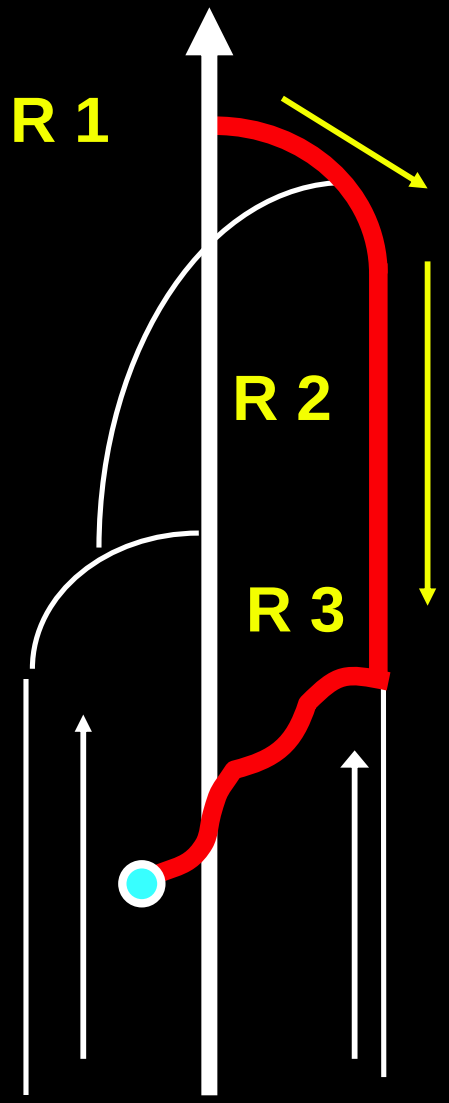
- It is a combination of shunt type 1 and shunt type 2.
- Closed shunt.
- Activated by the diastole

SHUNT TYPE 3

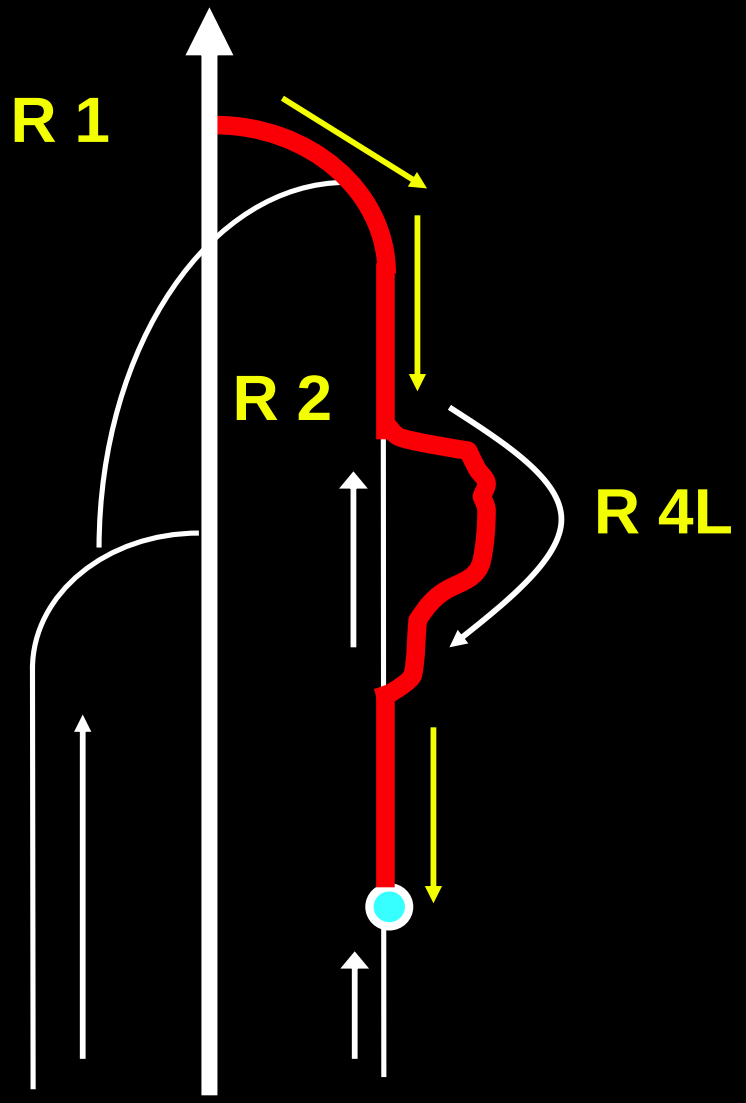


- Main escape point R1 R2
- Re-entry into deep venous system through an interposed tributary.
- It is a closed shunt
- It is activated by the diastole
- It is the most frequent

SHUNT TYPE 3

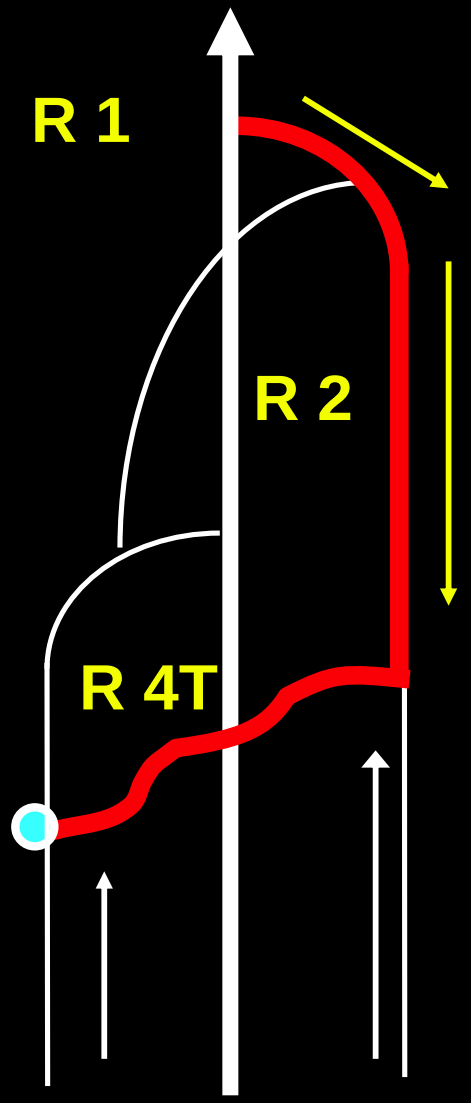


R 1 → R 2 → R 3 → R 1

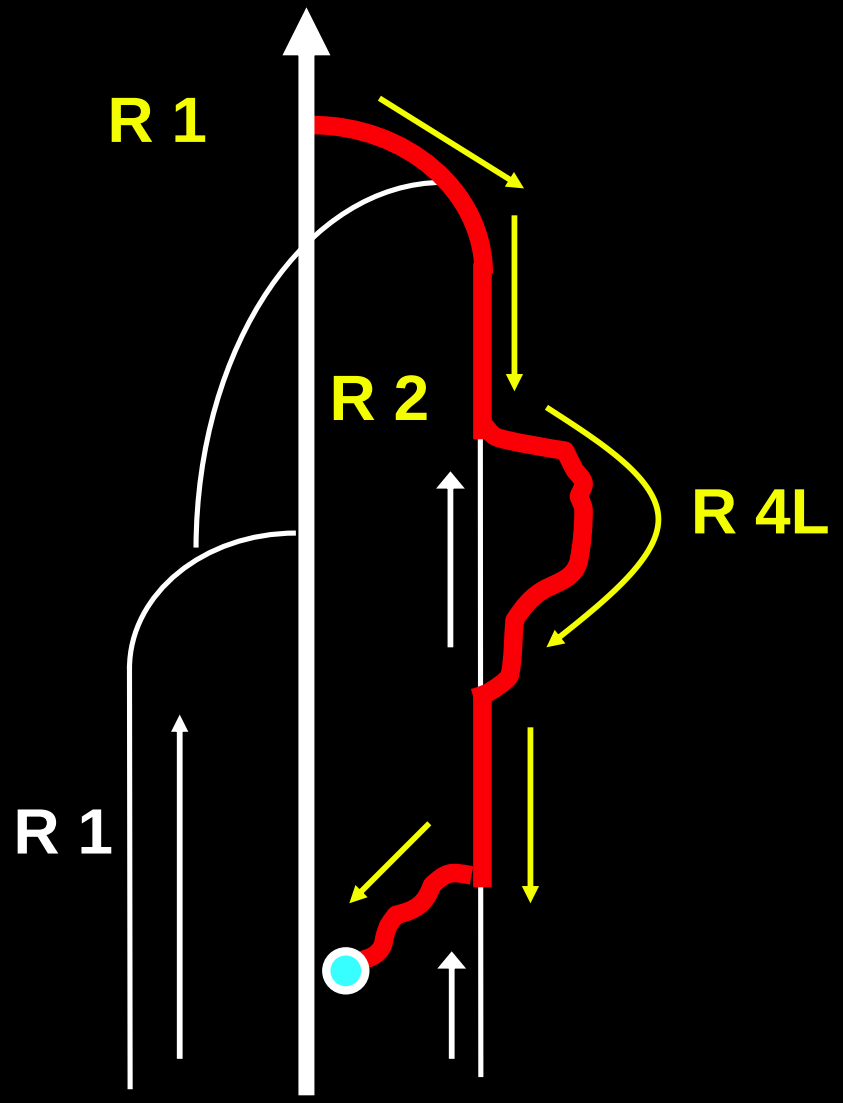


R 1 → R 2 → R 4L → R 1

SHUNT TYPE 3

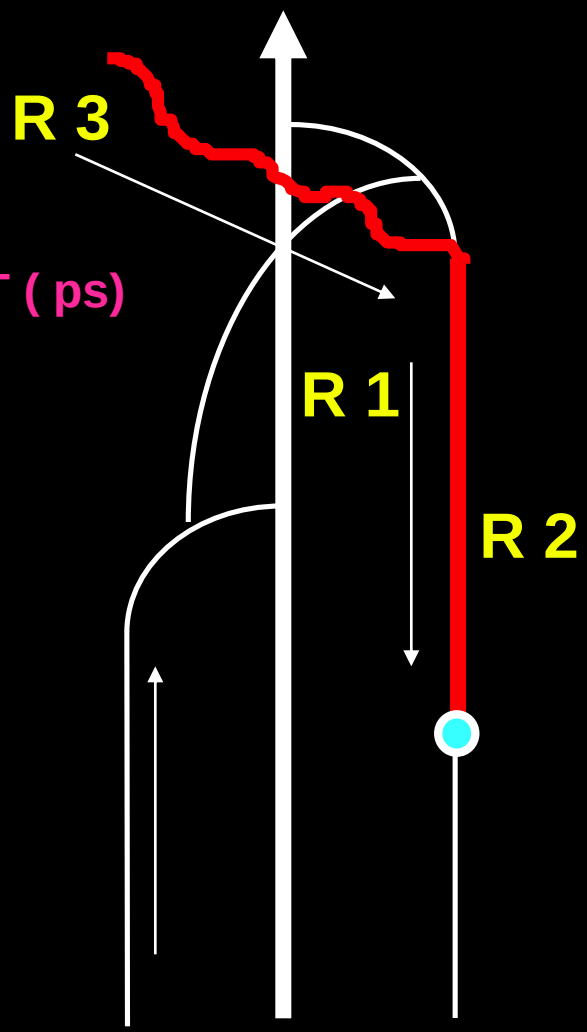


R 1 → R 2 → R 4T → R 2 → R 1



R 1 → R 2 → R 4L → R 2 → R 3 → R 1

SHUNT TYPE 4

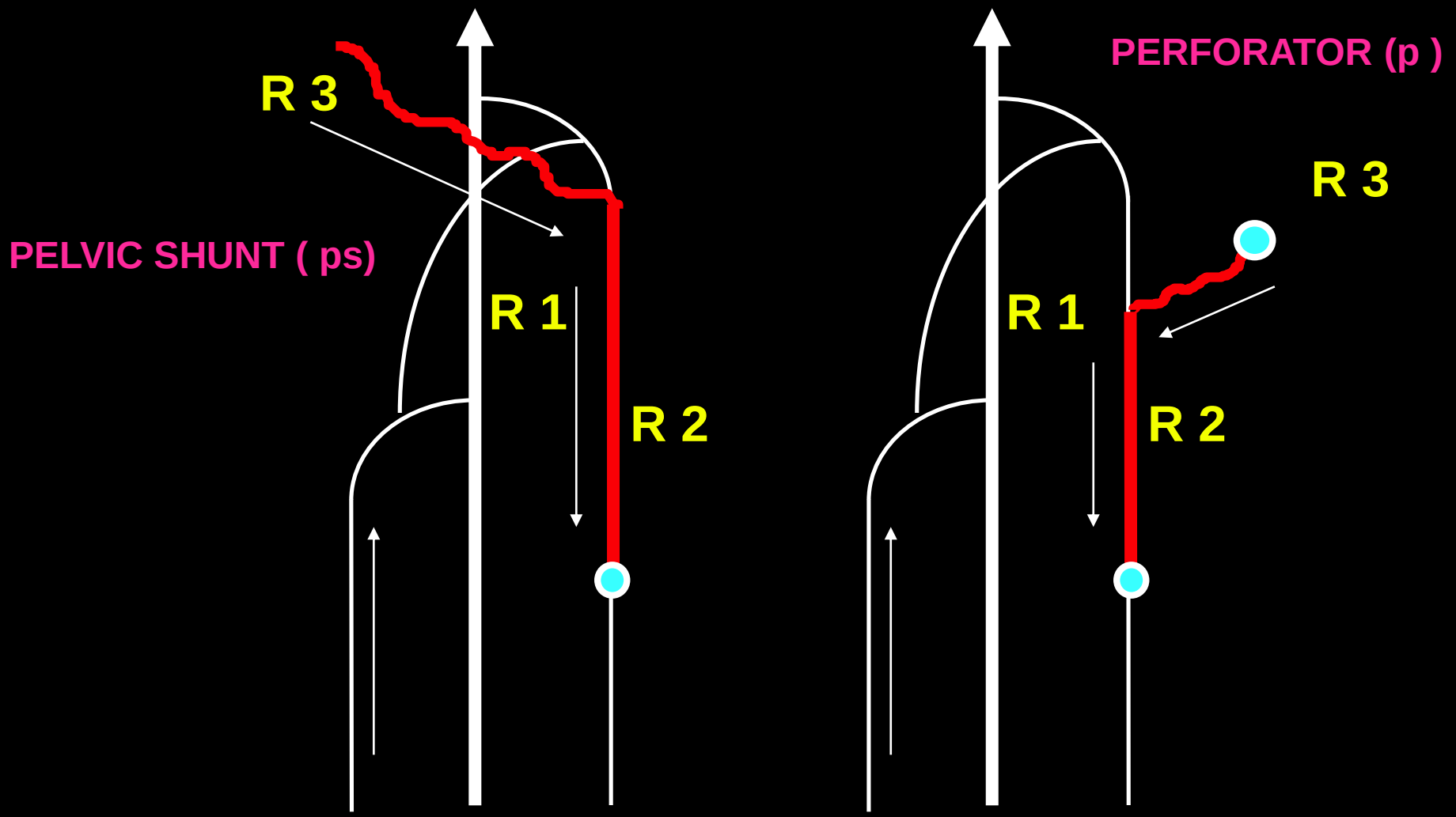


PELVIC SHUNT (ps)

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

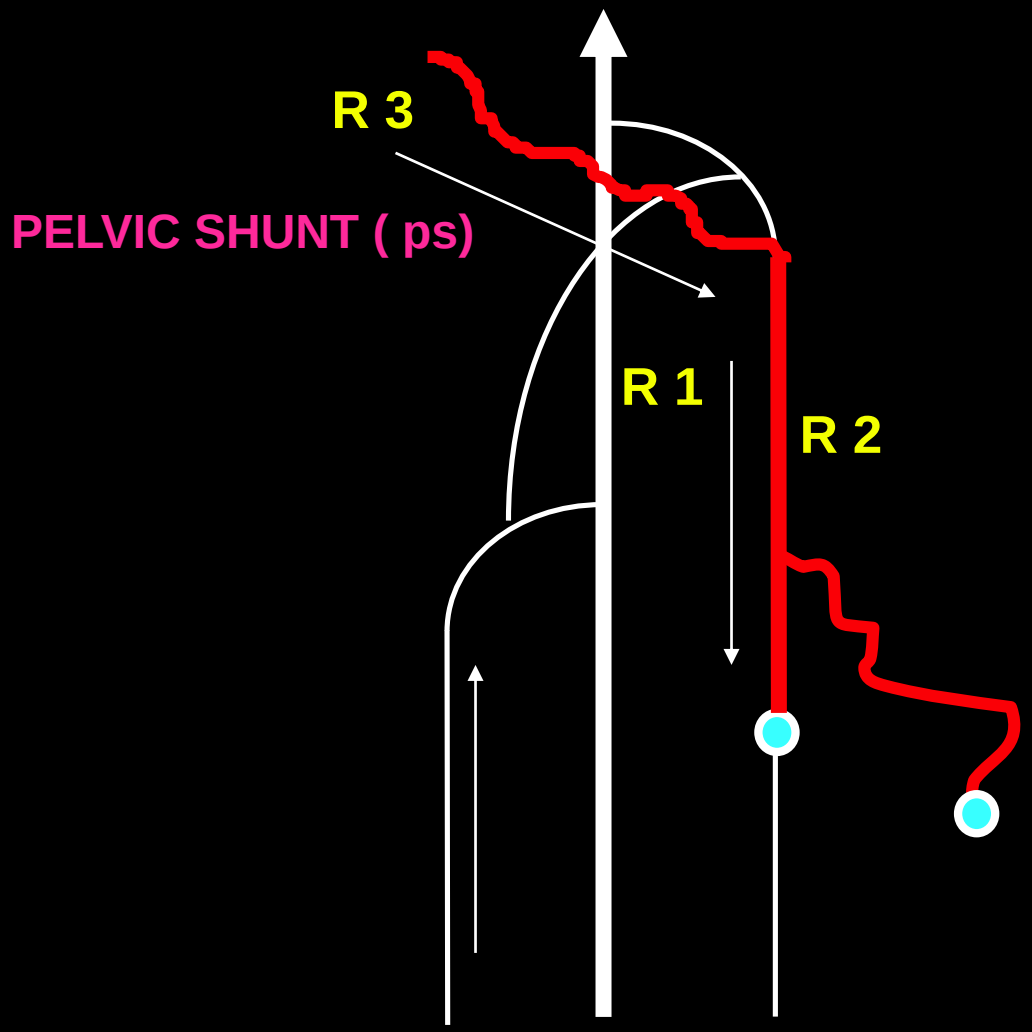
R 1 → R 3 → R 2 → R 1

SHUNT TYPE 4



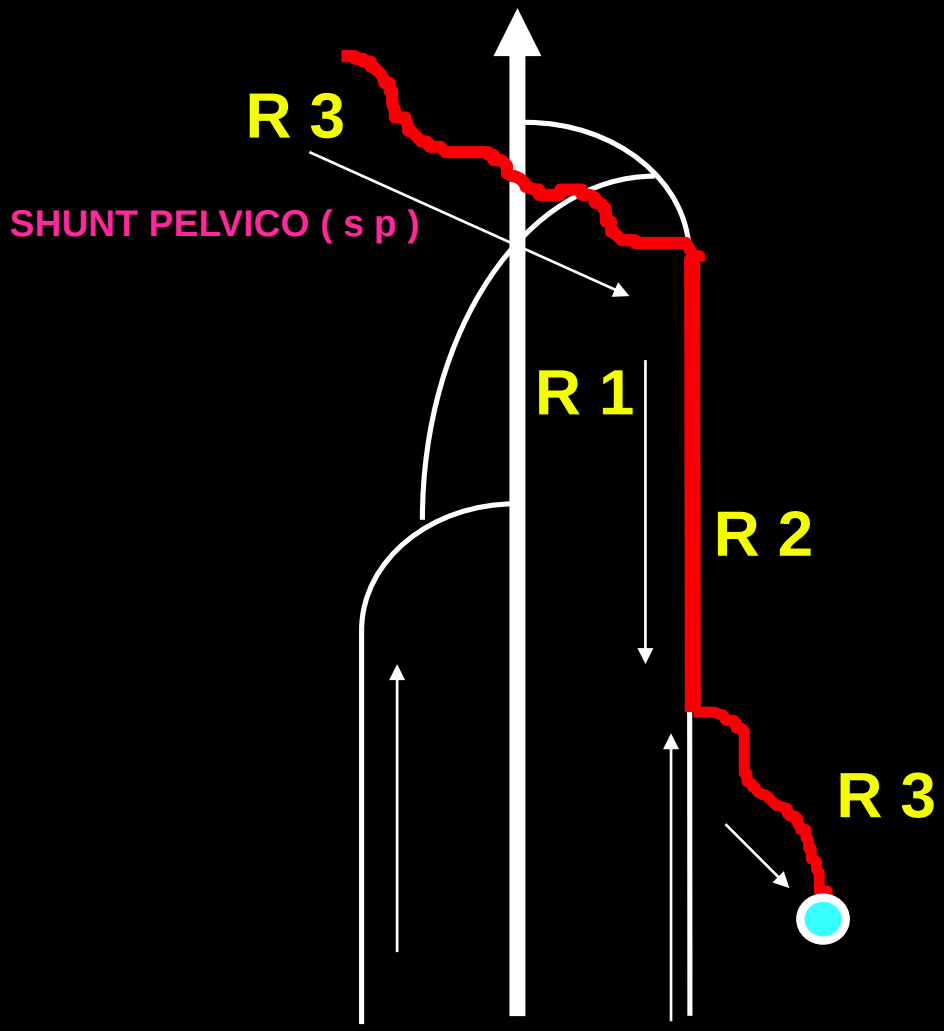
R 1 → R 3 → R 2 → R 1

SHUNT TYPE 4+2



It is a combination of shunt type 4 and shunt type type 2

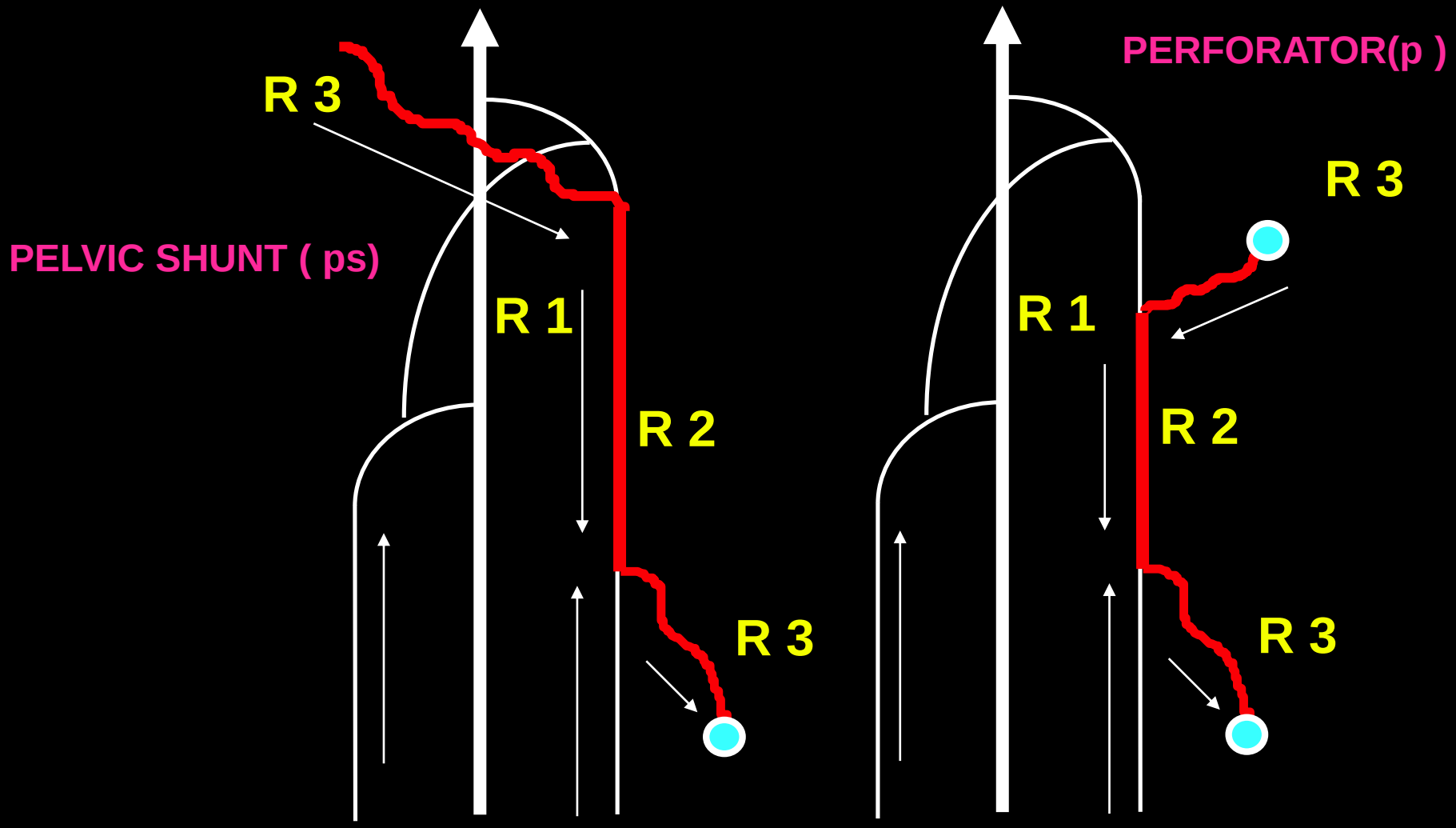
SHUNT TYPE 5



- Escape point R1 R3 R2
- Drainage through an interposed tributary
- It is a closed shunt
- It is activated by the diastole

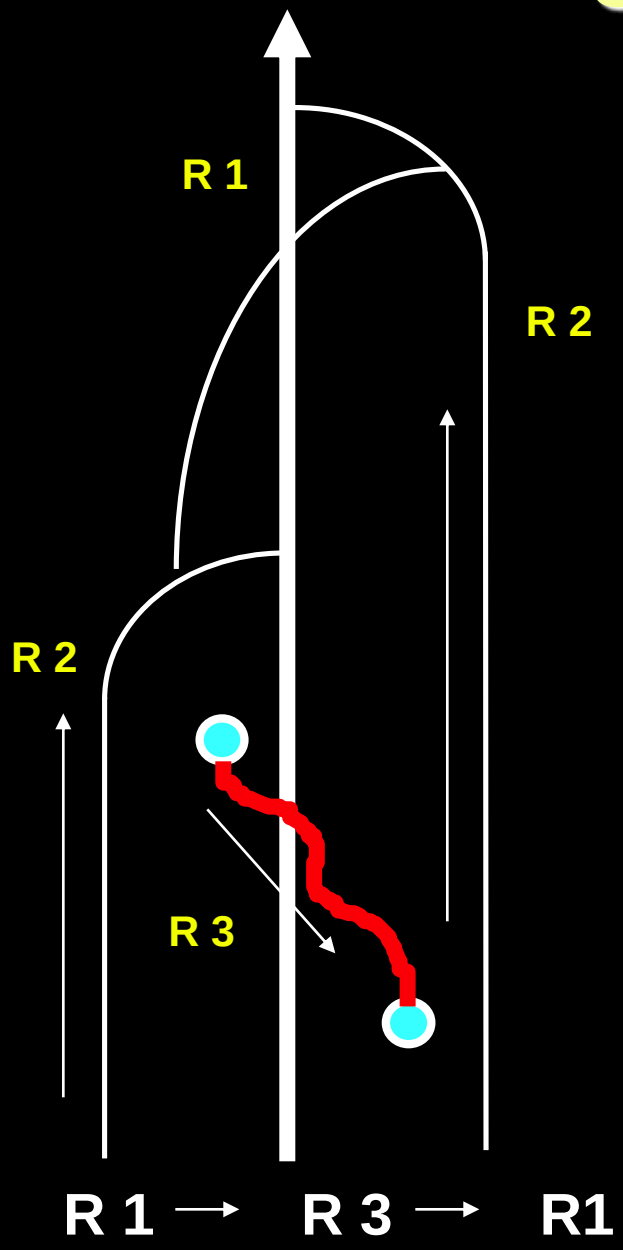
R 1 → R 3 → R 2 → R 3 → R 1

SHUNT TYPE 5



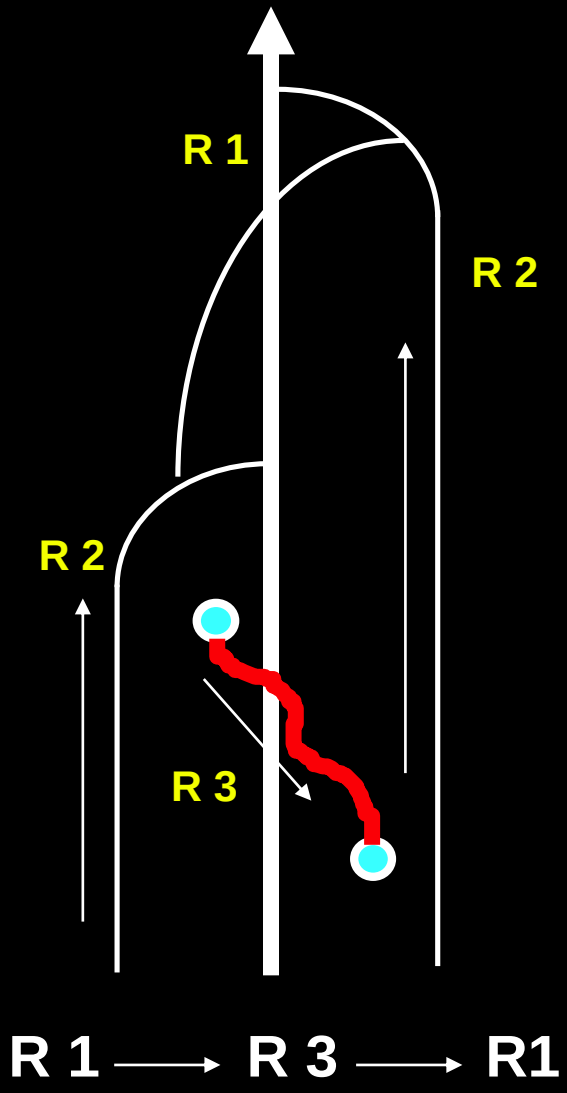
R 1 → R 3 → R 2 → R 3 → R 1

SHUNT TYPE 6

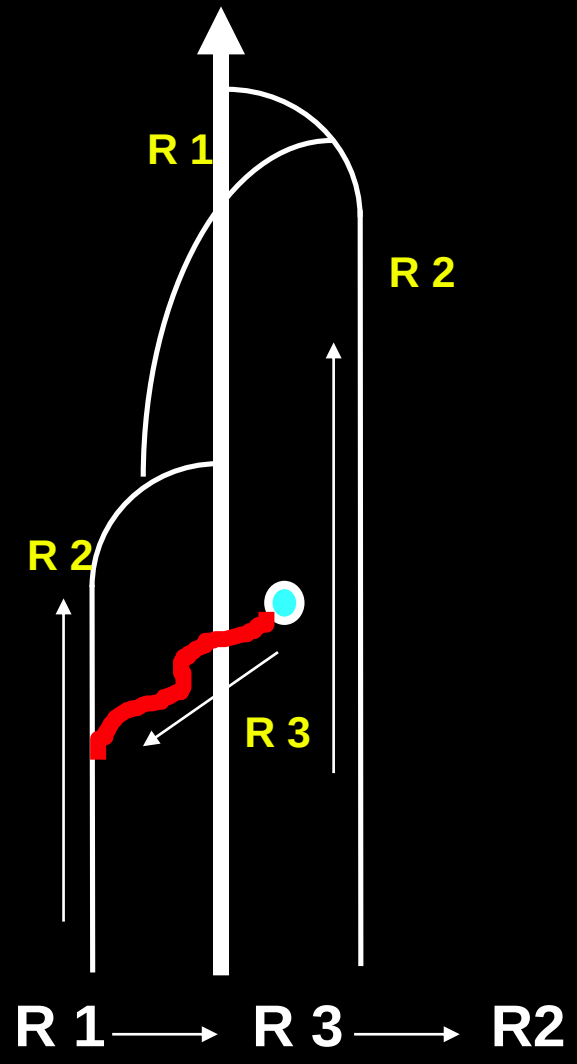


- It is an extrasafenous shunt.
- May be open or closed
- Activated by the diastole

SHUNT TYPE 6

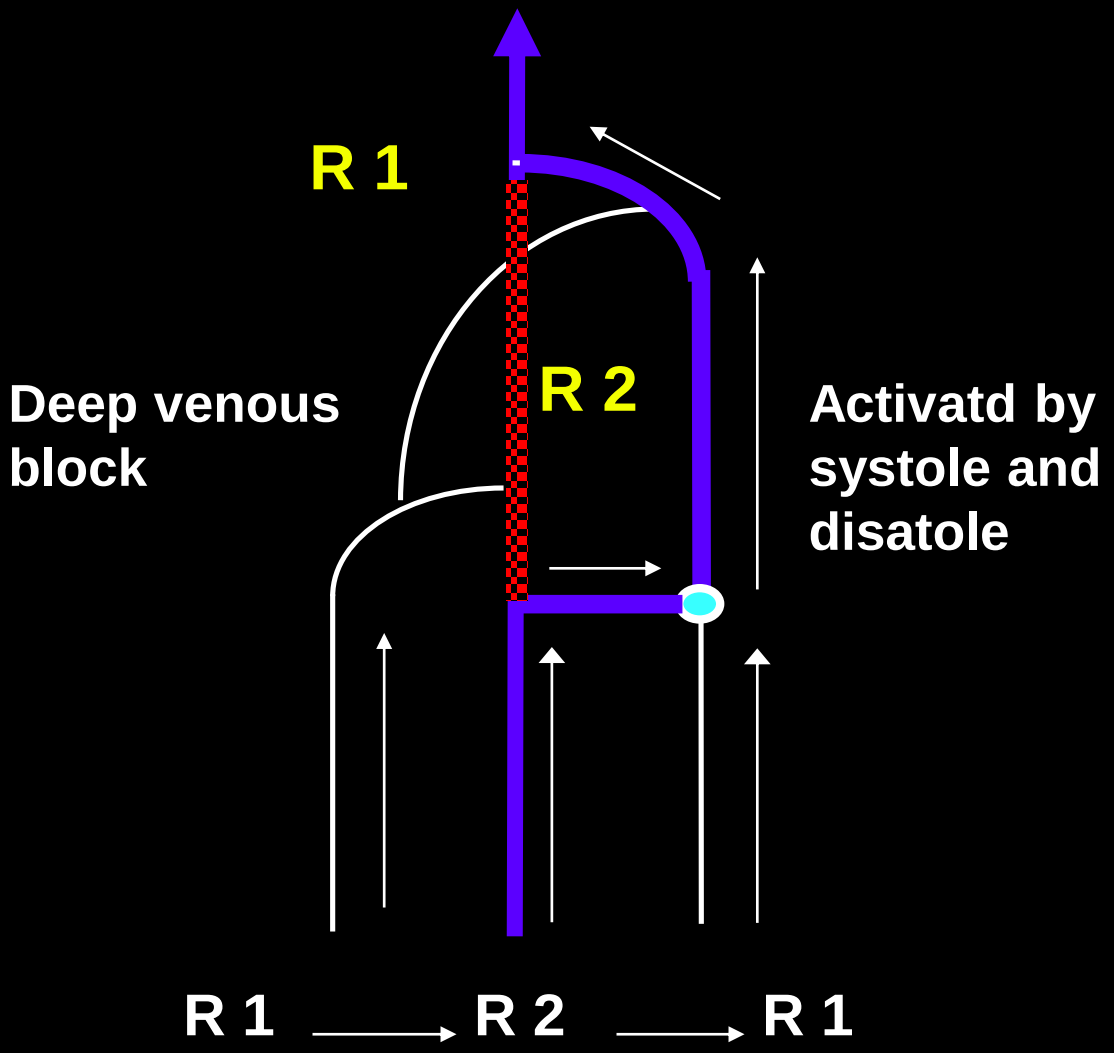


Celosed



Open

ViCARIOUS OPEN SHUNT



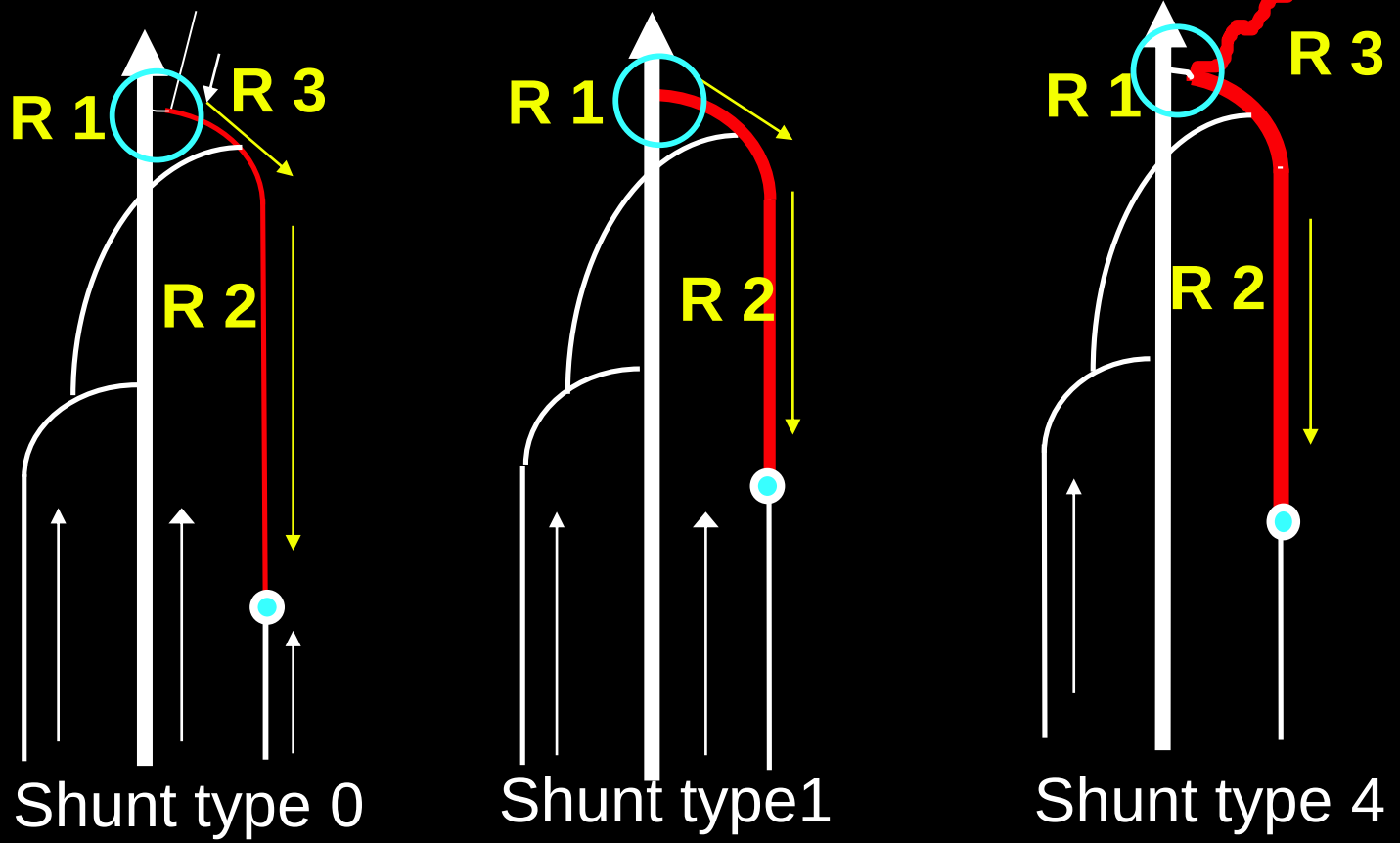
VENO-VENOUS SHUNTS:
Differential diagnosis

1. Shunt type 0 vs. Shunt type 1and Shunt tipo 4
2. Shunt type 2B vs. Shunt type 3 and Shunt type 5
3. Shunt type 2C vs Shunt type1+2 and Shunt type 4+2

VENO-VENOUS SHUNTS:

Differential diagnosis

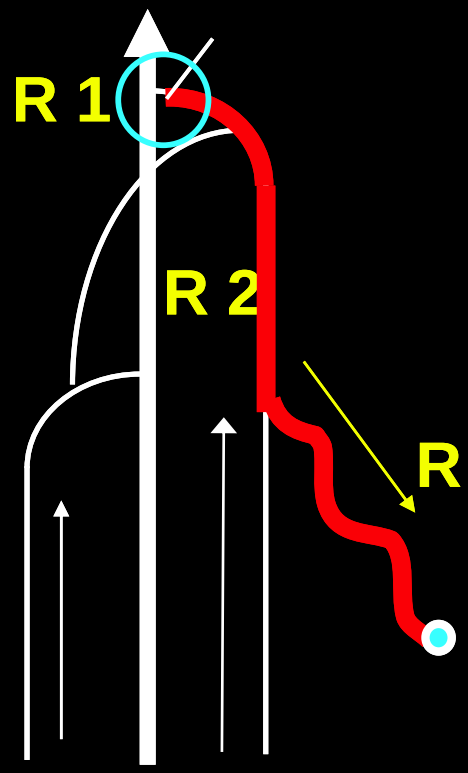
- **Shunt type 0 vs. Shunt type 1 and Shunt type 4**



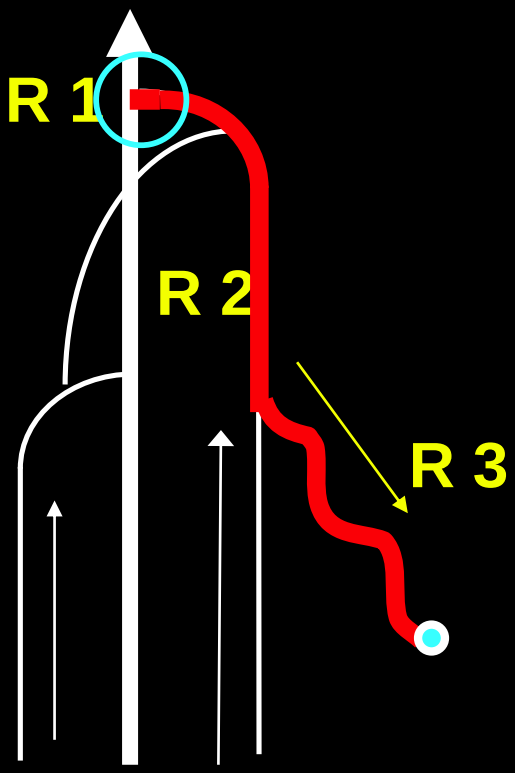
VENO-VENOUS SHUNTS:

Differential diagnosis

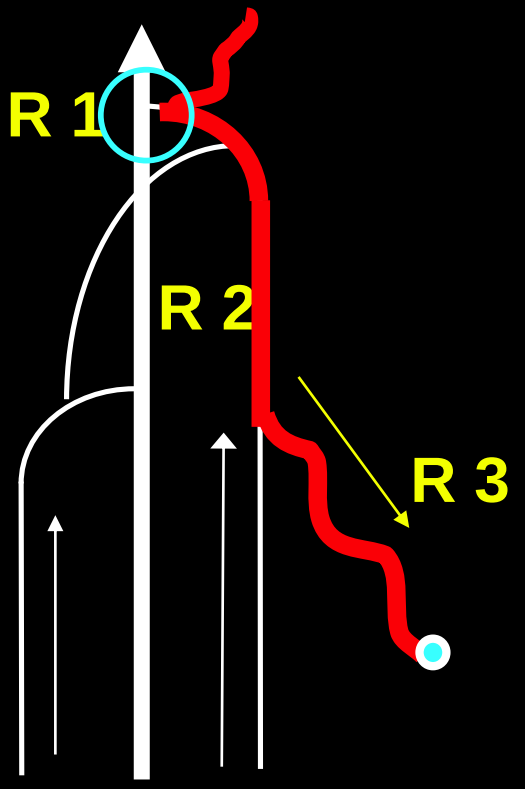
- **Shunt type 2B vs. Shunt type 3 and Shunt type 5**



Shunt type 2B



Shunt type 3

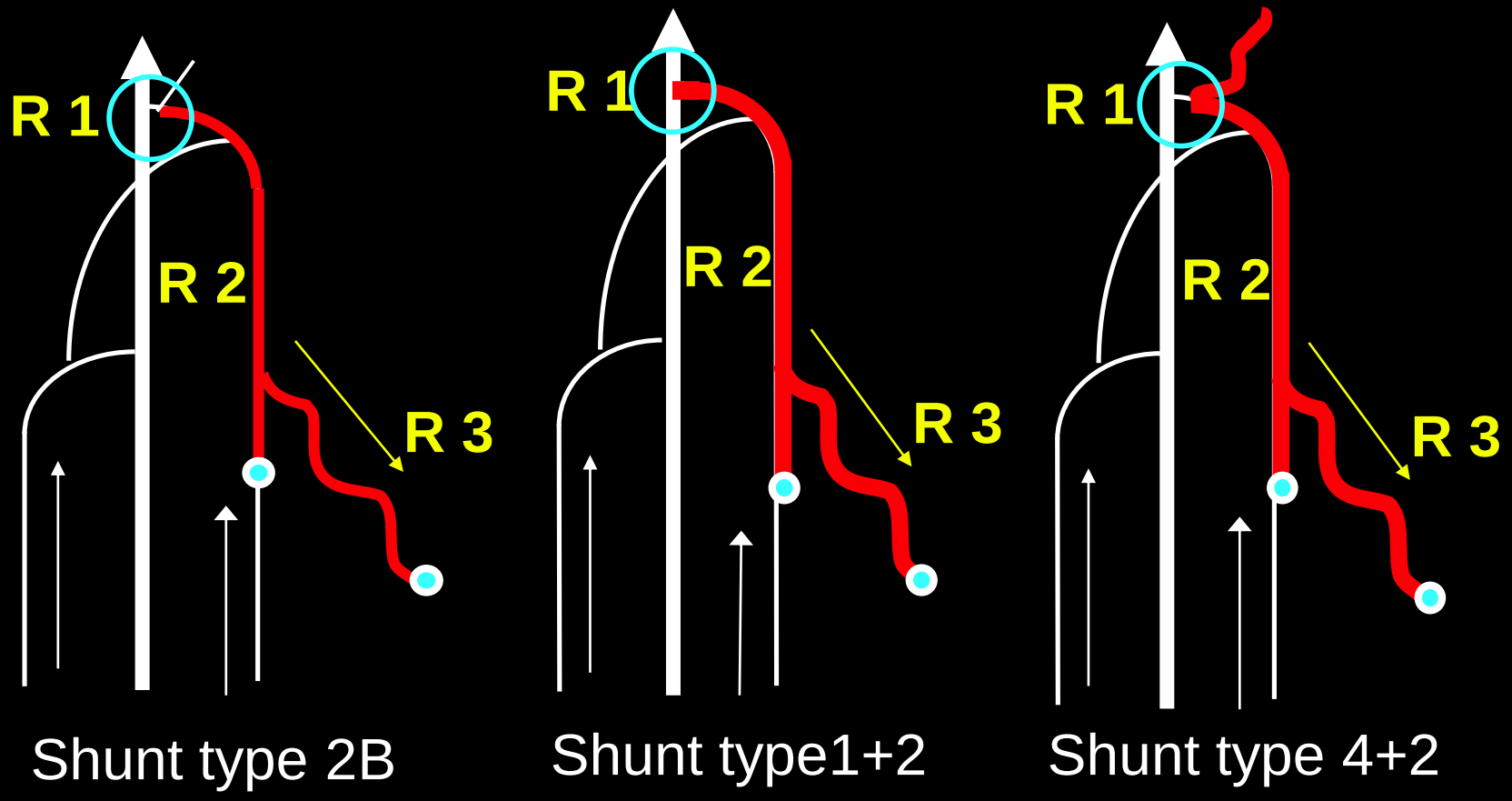


Shunt type 5

VENO-VENOUS SHUNTS:

Differential diagnosis

- **Shunt type 2C vs Shunt type1+2 y Shunt type4+2**



Shunt type 2B

Shunt type1+2

Shunt type 4+2

VENO-VENOUS SHUNTS

Type of shunt knowledge :

- Allows the hemodynamic classification of the varices.
- Offers the posiibilities of hemodynamic treatments.
- Give the prognosis of these treatments.

CLASIFICATION 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

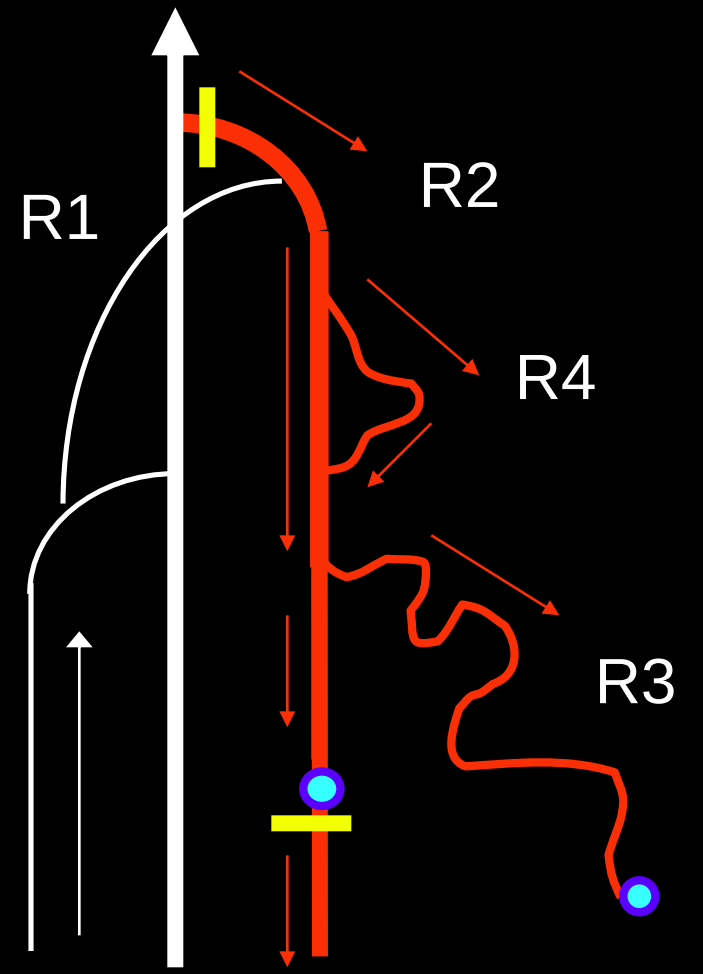
  DIASTOLIC
  - OPEN VICARIOUS SHUNT

    (SYSTOLIC and DIASTOLIC)

Teupitz 2002

CHIVA STRATEGY
Basic Principles

1. **Segmentation of the pressure column.**

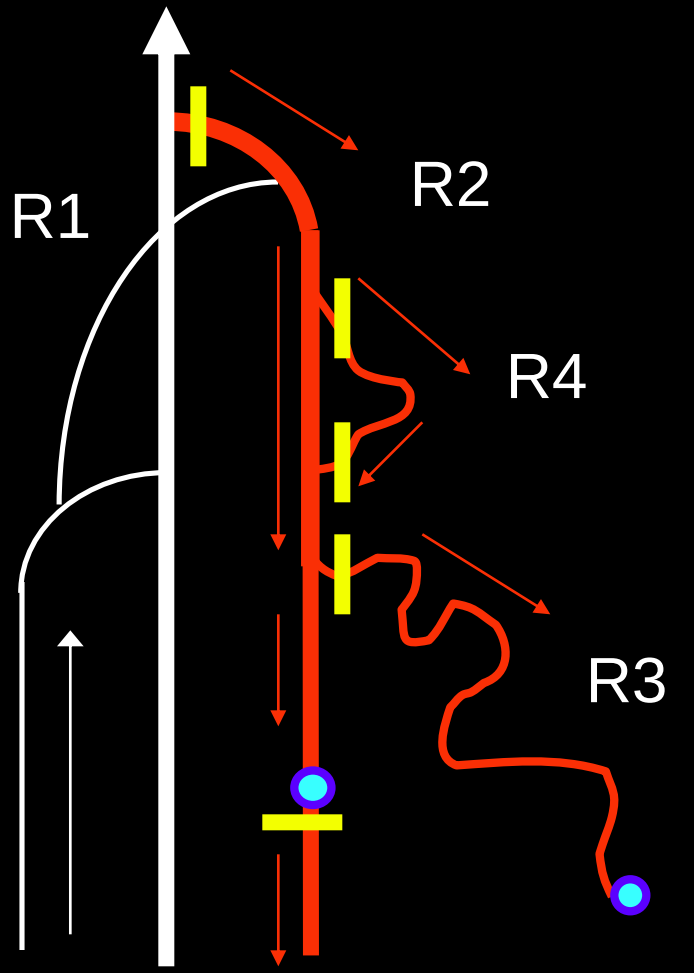


C. Franceschi 1988.

CHIVA STRATEGY
Basic Principles

1. **Segmentation of the pressure column.**

2. **Veno-venous shunts disconnection.**



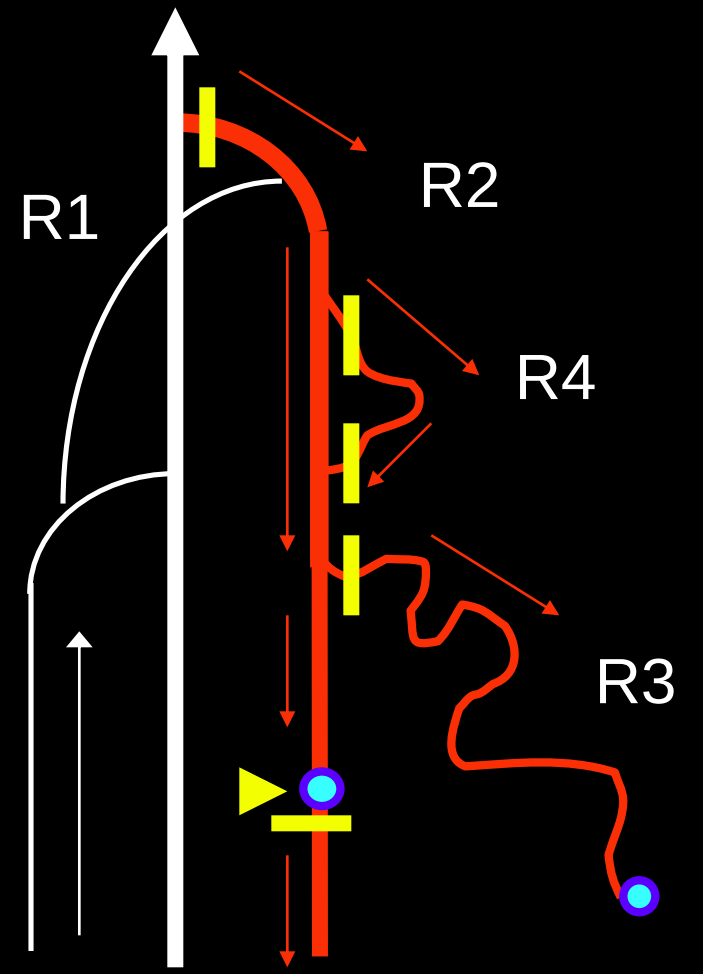
C. Franceschi 1988.

CHIVA STRATEGY
Basic Principles

1. **Segmentation of the pressure column.**

2. **Veno-venous shunts disconnection.**

3. **Preservation of the re-entry perforators**



C. Franceschi 1988.

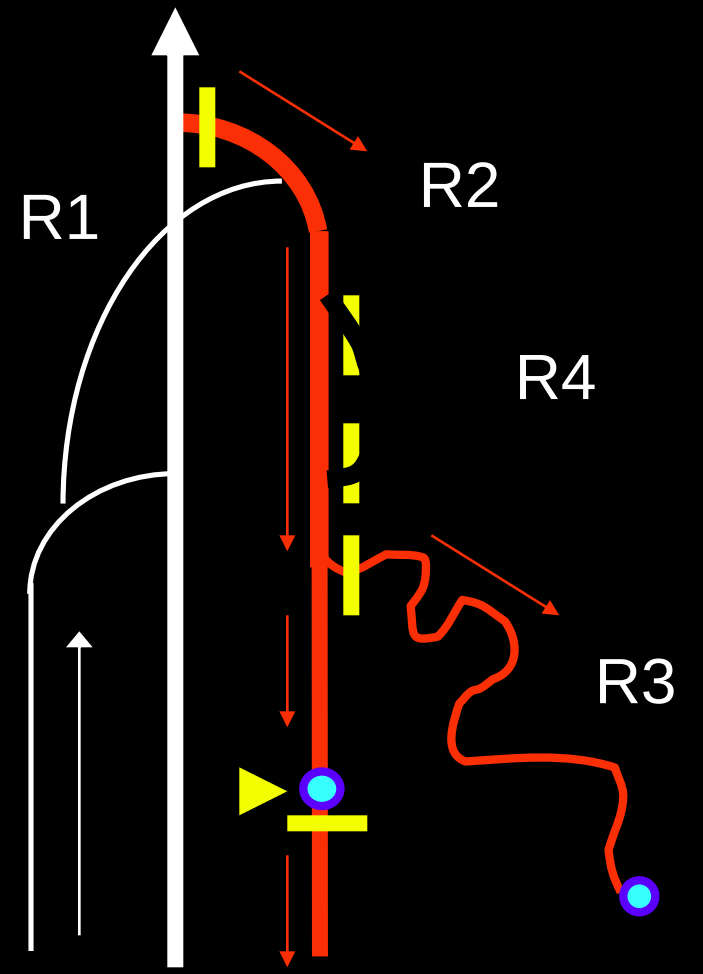
CHIVA STRATEGY
Basic Principles

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.**



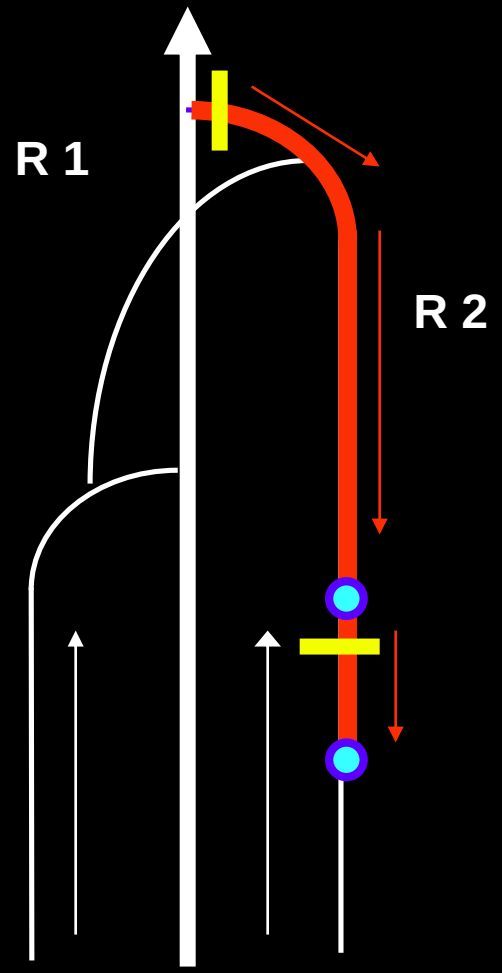
C. Franceschi 1988.

CHIVA: 1 CONCEPT

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

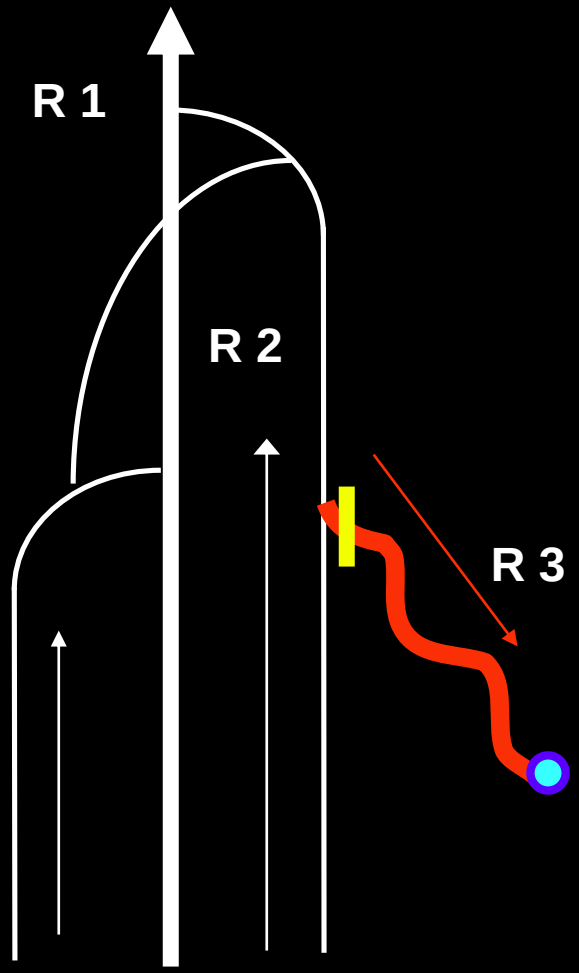
CHIVA 1:

SHUNT TYPE 1



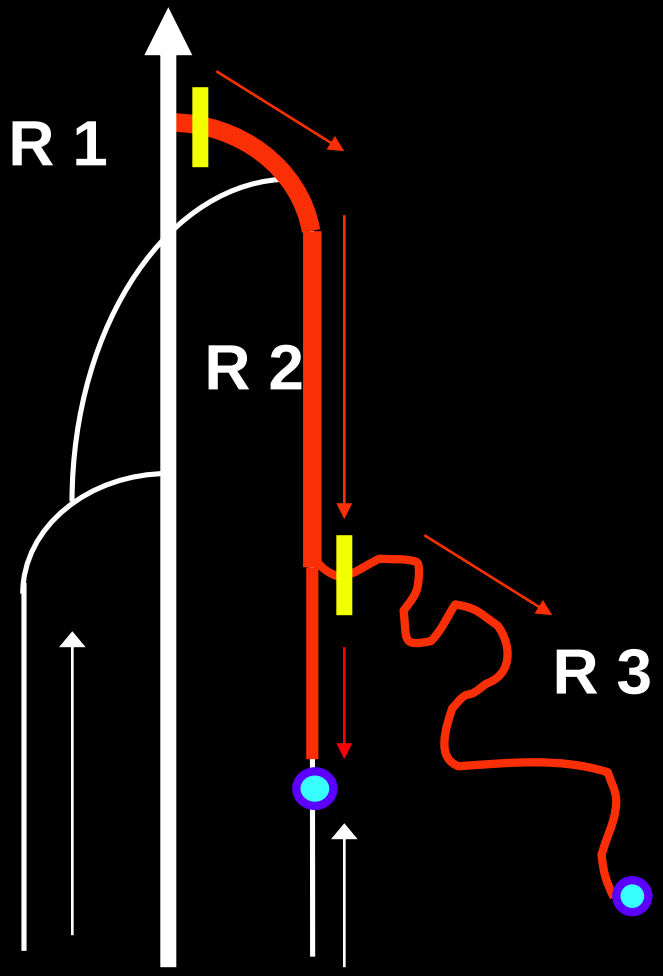
CHIVA 1

SHUNT TYPE 2



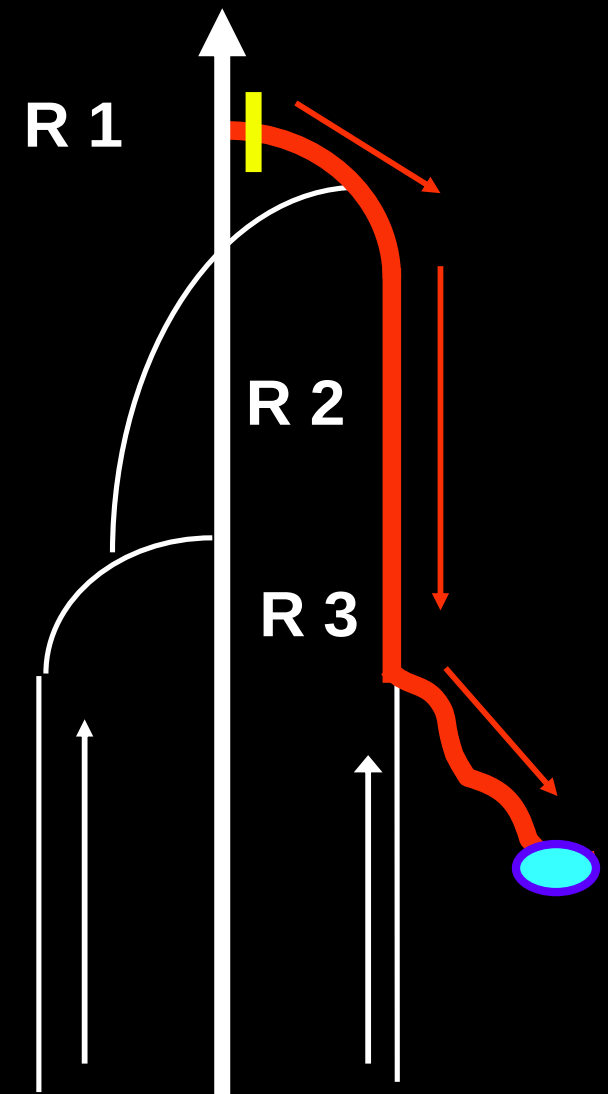
CHIVA 1

SHUNT TYPE 1+2



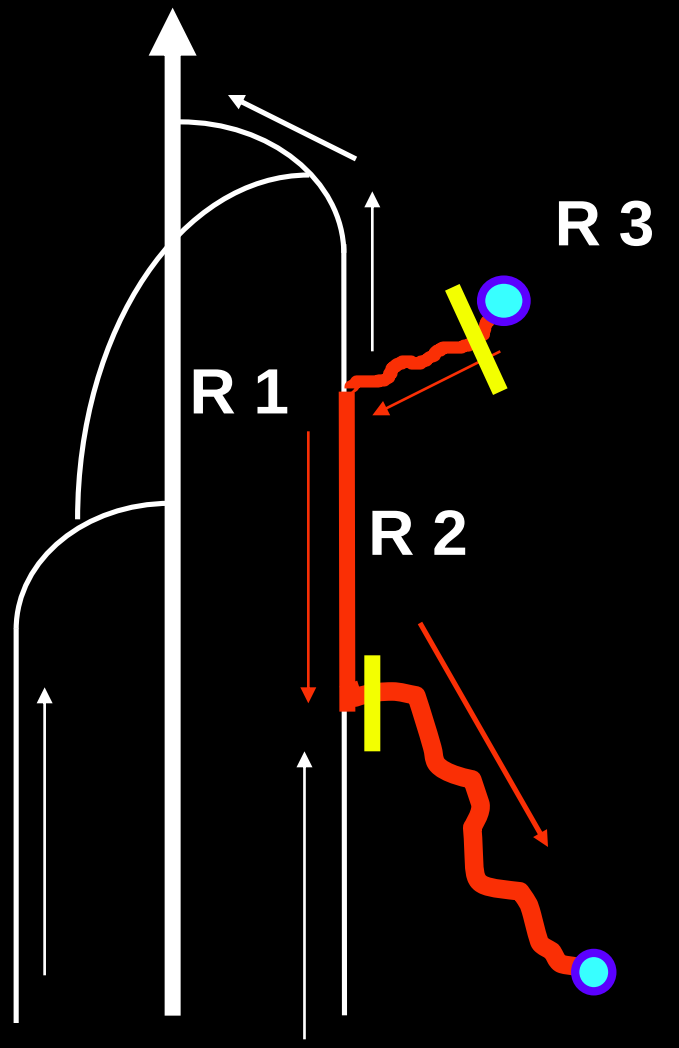
CHIVA 1

SHUNT TYPE 3



CHIVA 1

OTHER TYPES OF SHUNTS



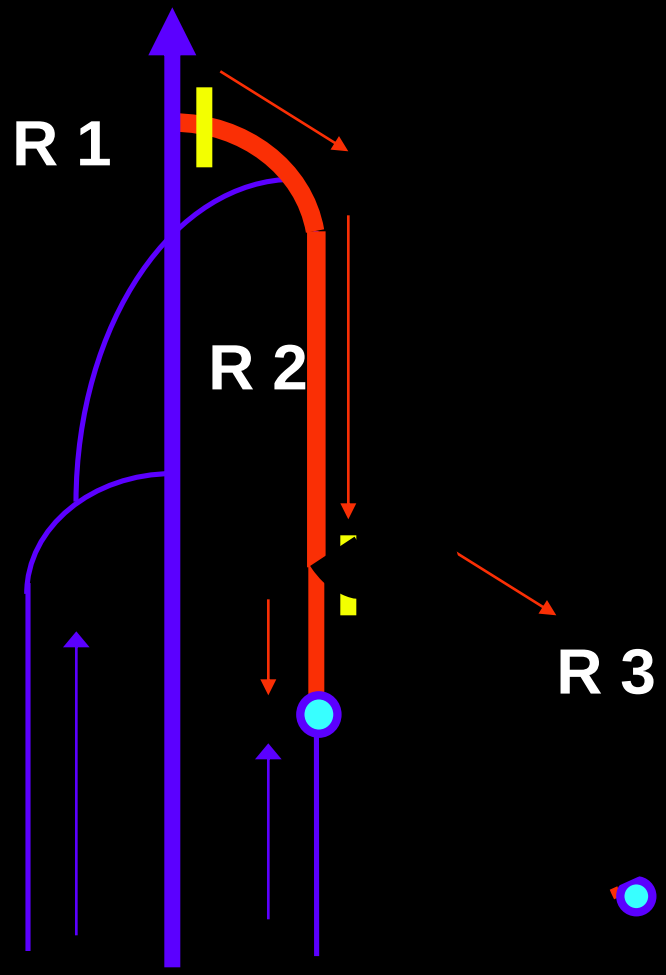
- Eligible when the escape point is accesible.

CHIVA 2: CONCEPT

Implementation of the CHIVA strategy principles in 2 steps by providing a draining system. (Mainly eligible in shunt type 3).

CHIVA 2

SHUNT TIYPE 3



1 Step: Disciionnection of the escape point R2-R3.

-collapse of R3

-Drainage through a safenous perforator

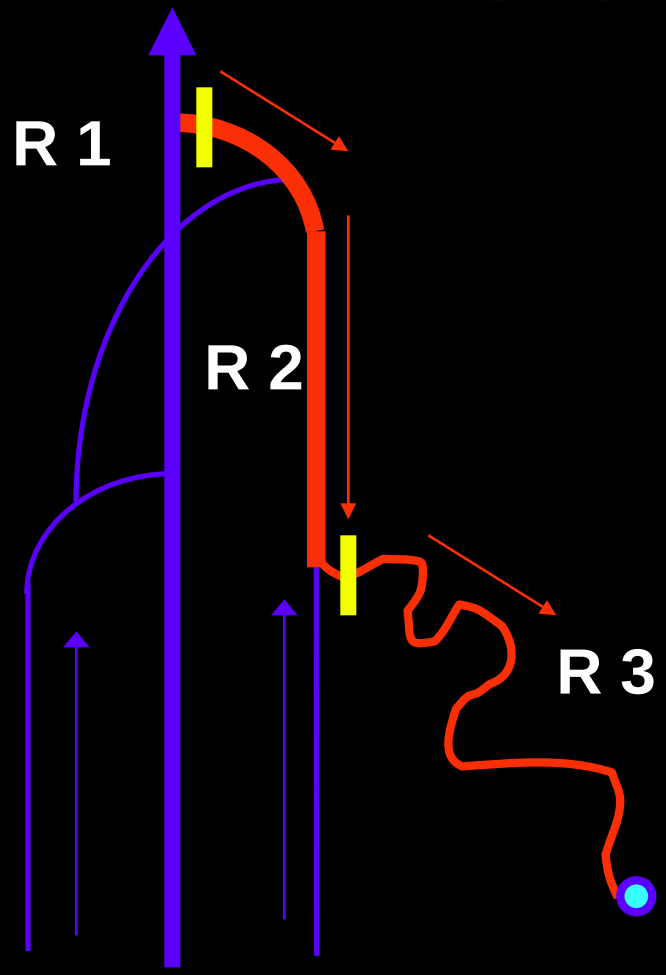
2 Step: Disconnection of the escape point R1-R2.

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

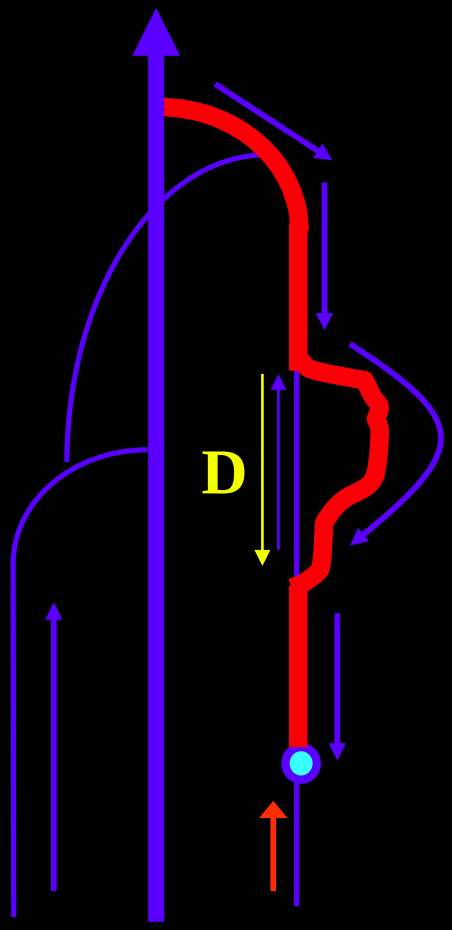
SHUNT TYPE 3



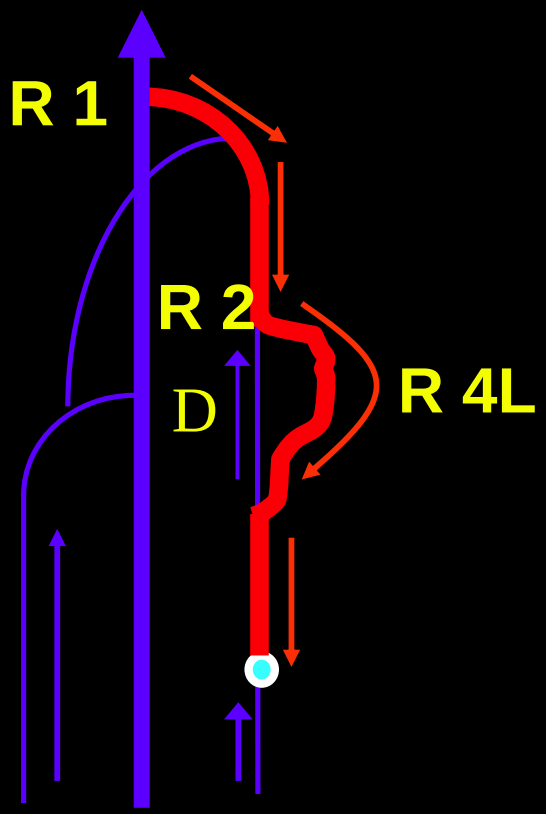
Disconnection at the same time of both escape points R1-R2 and R2-R3

Devalvulation:Purpose

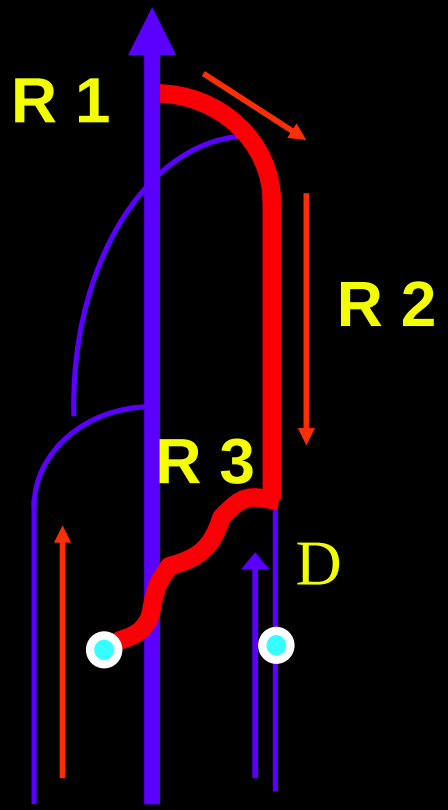
Achieves a 1 step surgical strategy in shunt type 3 that favors a drainage through a saphenous perforator



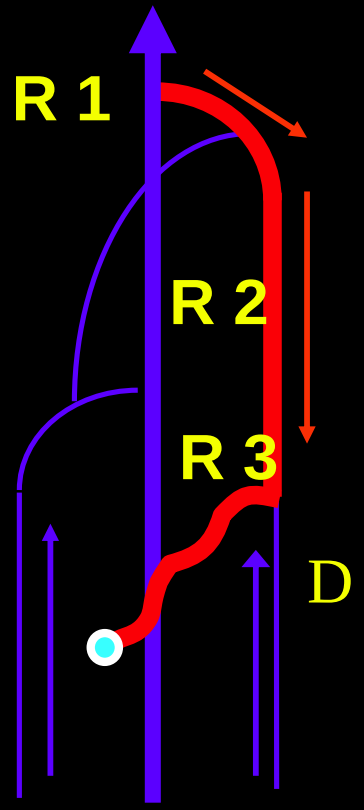
DEVALVULATION: TYPES



TYPE A



TYPE B



TYPE C

“Teaching is classifying and repeating”

Prof. Piulachs (1908-1976)