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Which System Is better?: Watchman or Cardiac Plug or Something Else?

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LAA Closure

Epicardial

- SentreHeart
- AEGIS
- AtriCure
- Medtronic

Endocardial

- Watchman
- Cardiac Plug
- Coherex
- Sideris Patch
- Occlutech
- pfm Medical
- Lifetech
- Gore

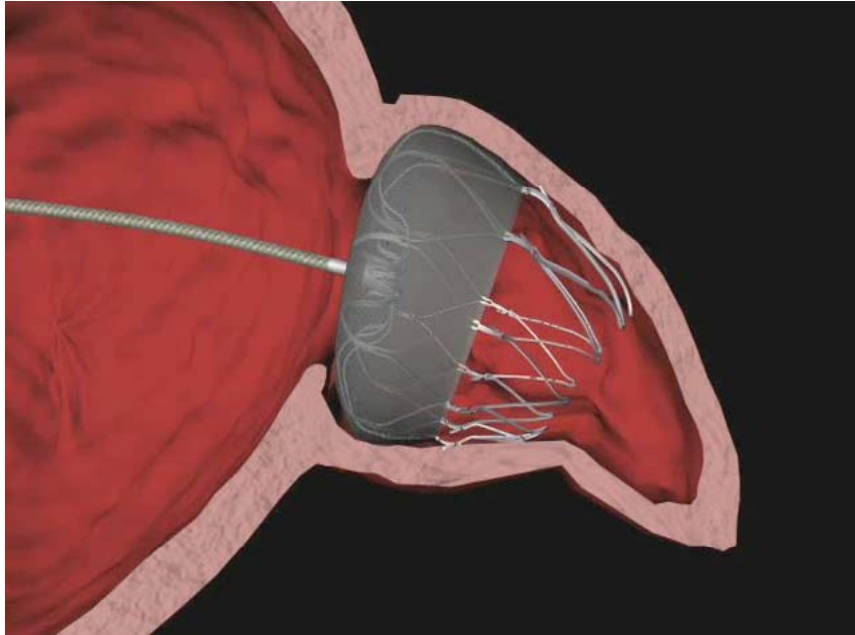
Watchman Device



Gen 2

- Nitinol frame with PET membrane and fixation bars
- CE mark
- Proven to be non-inferior to anticoagulation
 - Randomized PROTECT AF trial and large registries

Watchman Device



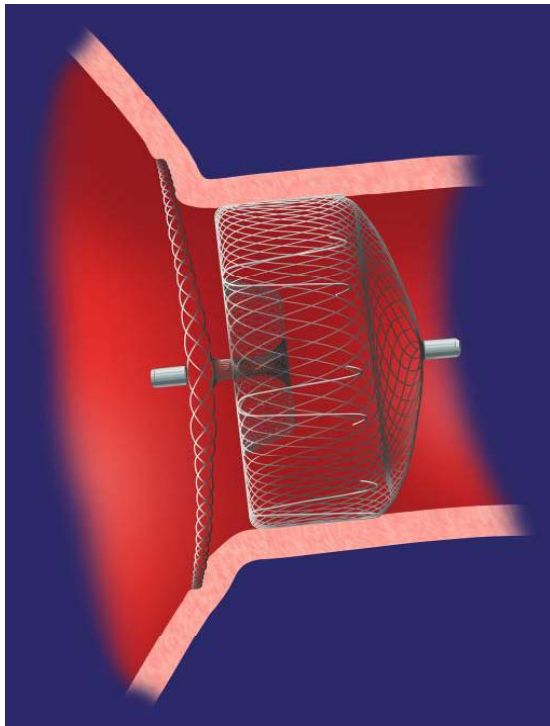
- Frame sits in the LAA
- Fixation barbs prevent dislodgement
- PET membrane gets covered by endothelium

Amplatzer Cardiac Plug ACP



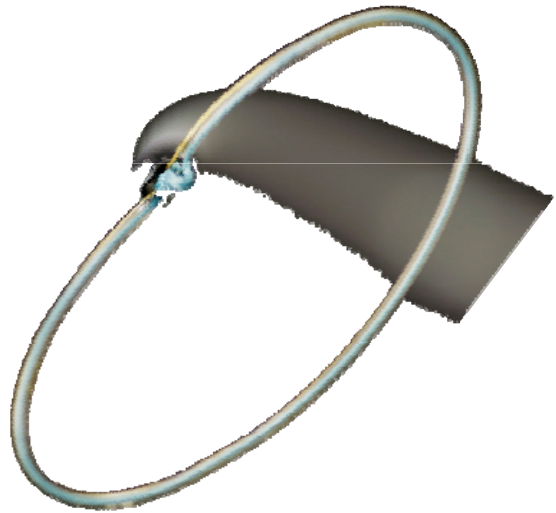
- Nitinol wire mesh with distal plug and proximal disk connected by a central waist
- Polyester patch inside
- CE mark
- So far only retrospective registries
 - Results of prospective EU registry are pending
 - Randomized trial just started

Amplatzer Cardiac Plug ACP



- Plug sits in the LAA
- Hooks prevent dislodgement
- Umbrella closes the orrifice

Sentre Heart - LARIAT

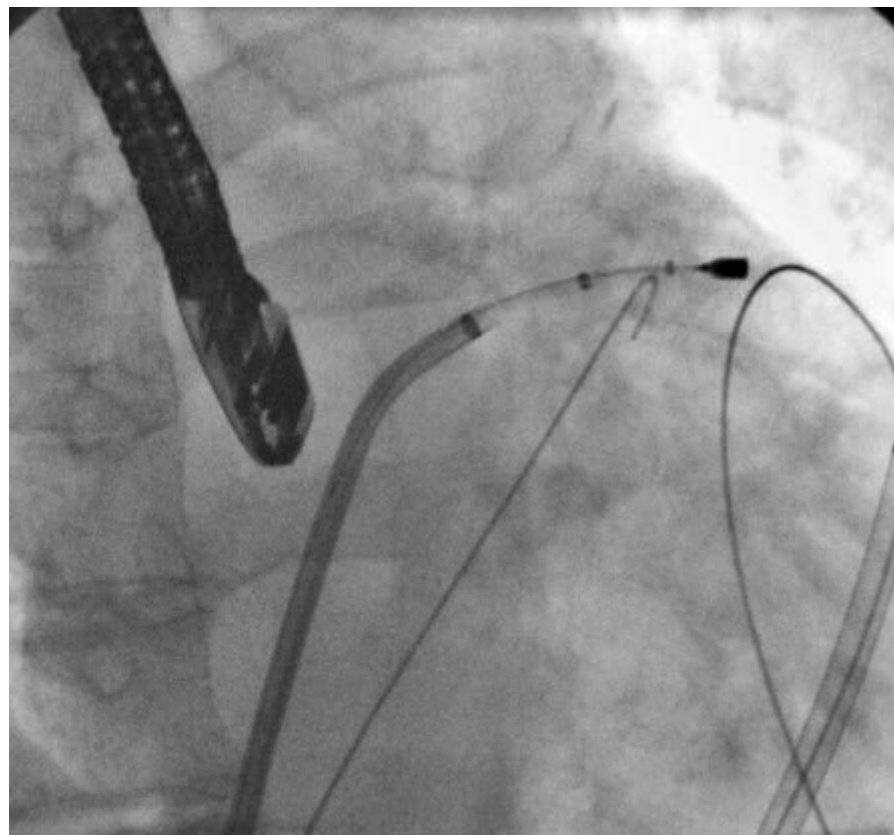


- Pericardial access
 - Wire with magnetic tip → pericardial space
- Transseptal access
 - Wire with magnetic tip → LAA
- The two wire find each other
- A loop suture is advanced over the pericardial wire
- LAA sutured from outside



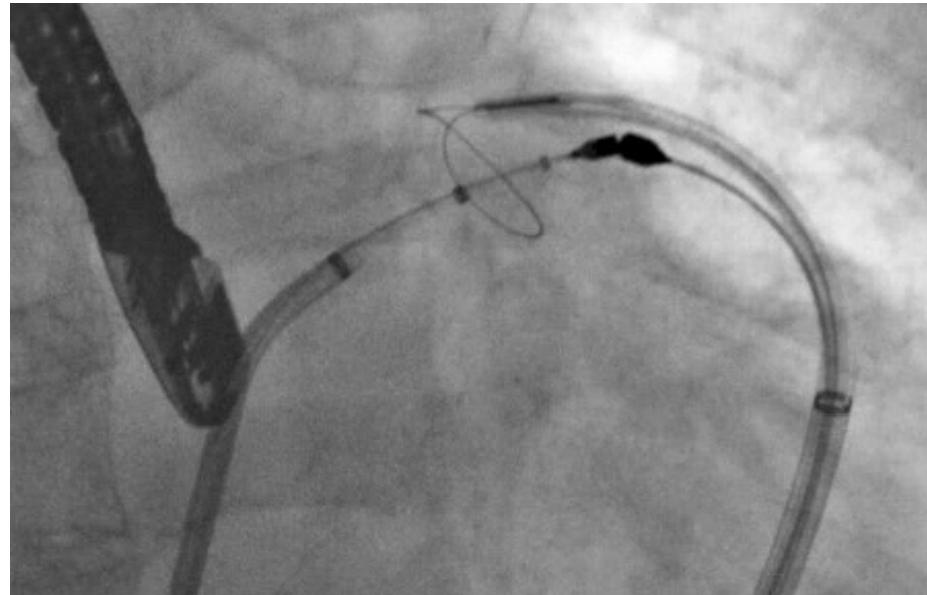
Sentre Heart - LARIAT

- Transseptal access
 - Wire with magnetic tip
→ LAA
- Pericardial access

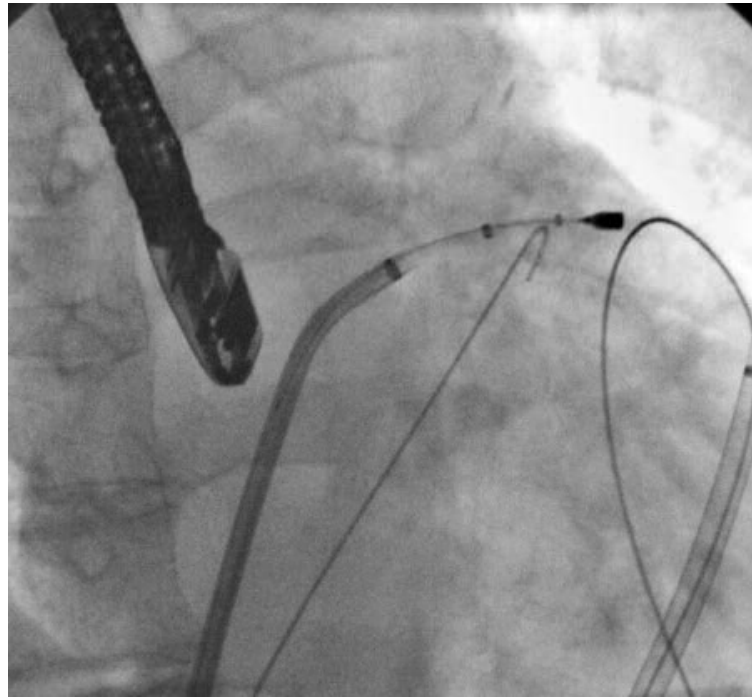


Sentre Heart - LARIAT

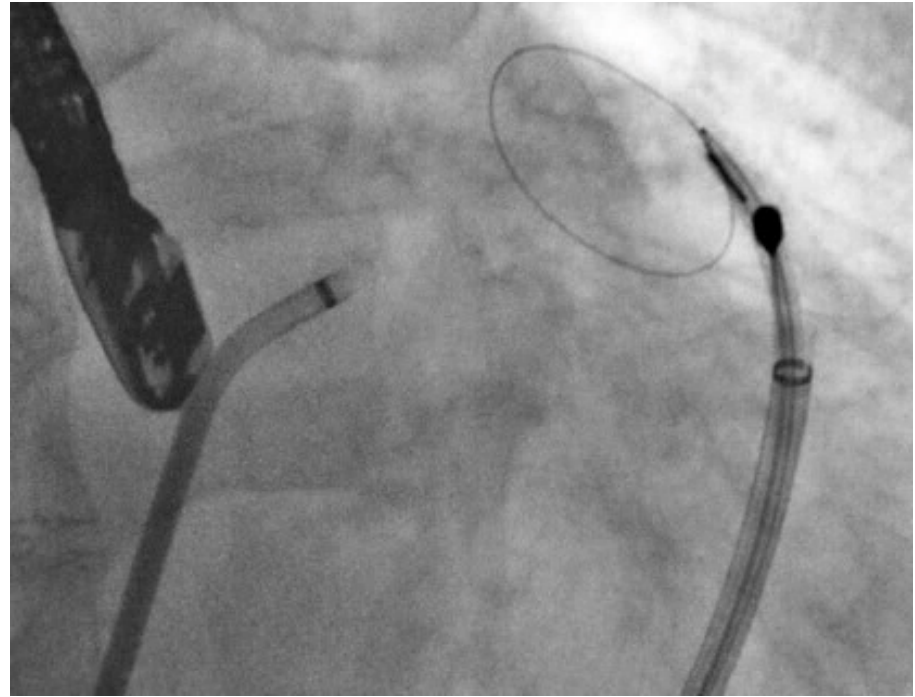
- 2nd magnet wire introduced via the pericardial access
- The wires find each other
- Suture snare advanced in the pericardial space



Sentre Heart - LARIAT



Before ligation



After ligation

LAA Ligation

- Advantages
 - Some of the most serious complications of LAA closure can almost not occur
 - Tamponade
 - Device embolisation
 - Thrombus on the device
- Disadvantages
 - Learning curve of pericardial puncture
 - Not possible after cardiac surgery

Is one better than the other?

- It is rare that a LAA can not be closed
 - less than 5% with all devices
- There are no data comparing the different devices head to head
- You can almost use what you are used to use
- However, the devices have
 - some specific exclusion-inclusion criteria
 - some advantages and disadvantages in specific anatomical subsets

Size of the LAA

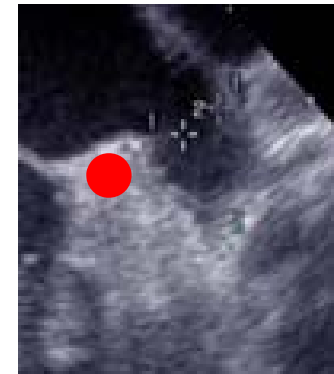
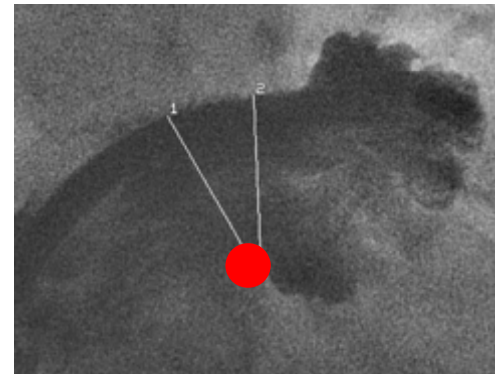
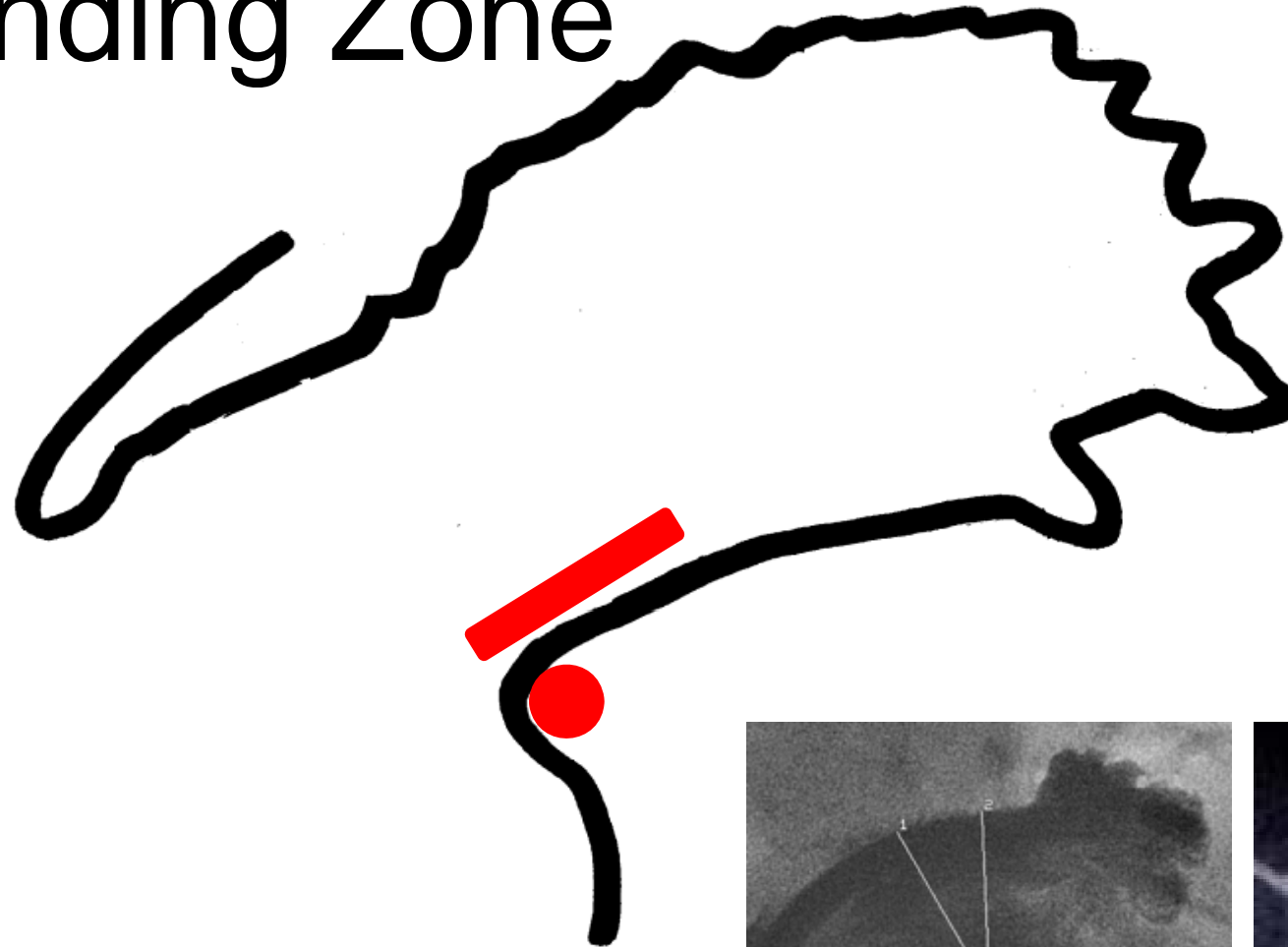
- Watchman:
 - LAA ostium has to be 17- 29 (-31) mm
- ACP
 - LAA ostium has to be 10-28mm
- Sentre Heart
 - Diameter of the LAA body has to be < 40mm

Morphology of the LAA

- Watchman:
 - Minimum "functional" LAA length should be at least equal to device diameter
- ACP
 - Minimum "functional" LAA length 10mm
- Sentre Heart
 - Posterior oriented and "chicken wing"
LAAs can not be closed

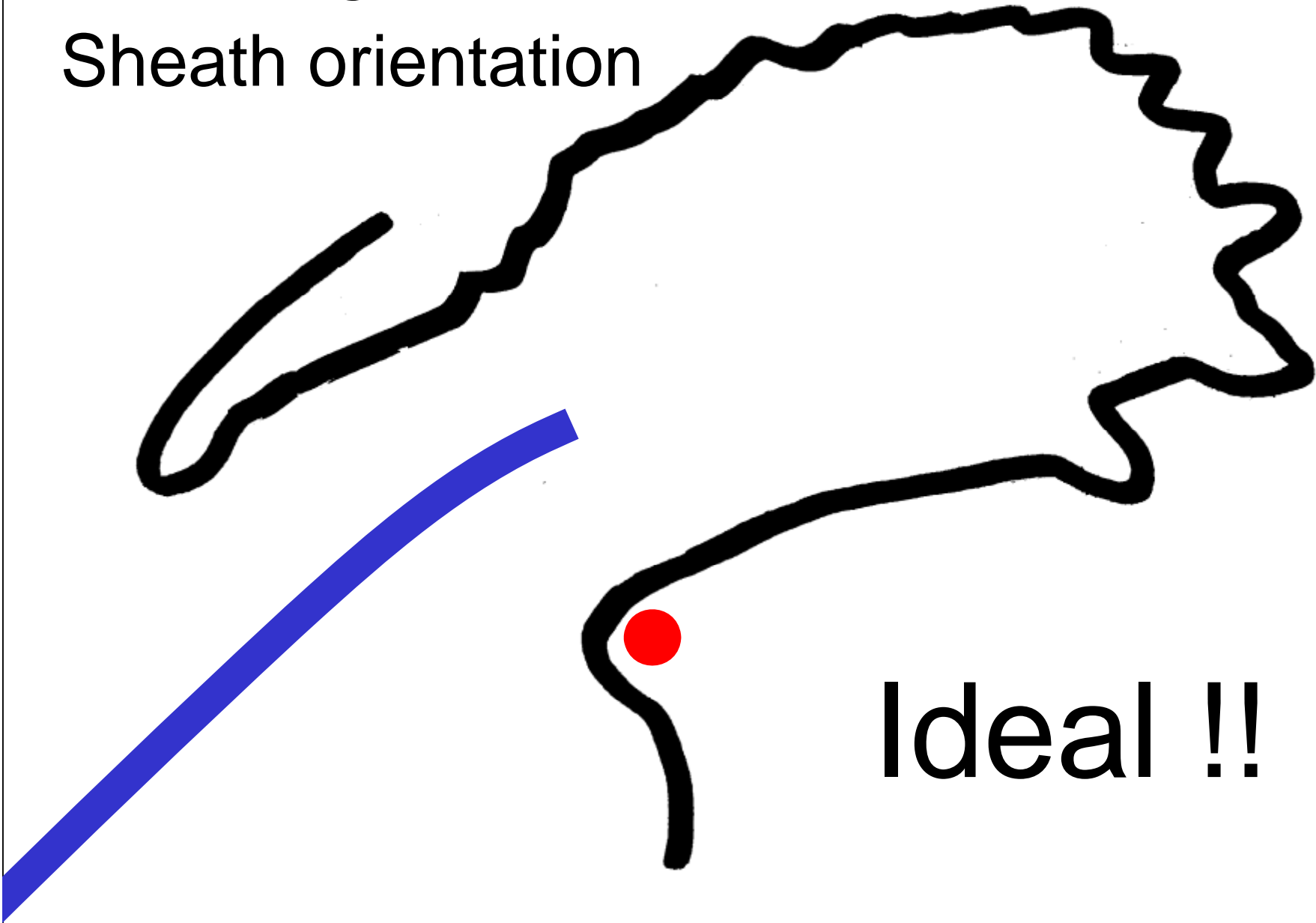
Watchman is more
forgiving regarding
sheath position

ACP Landing Zone



ACP

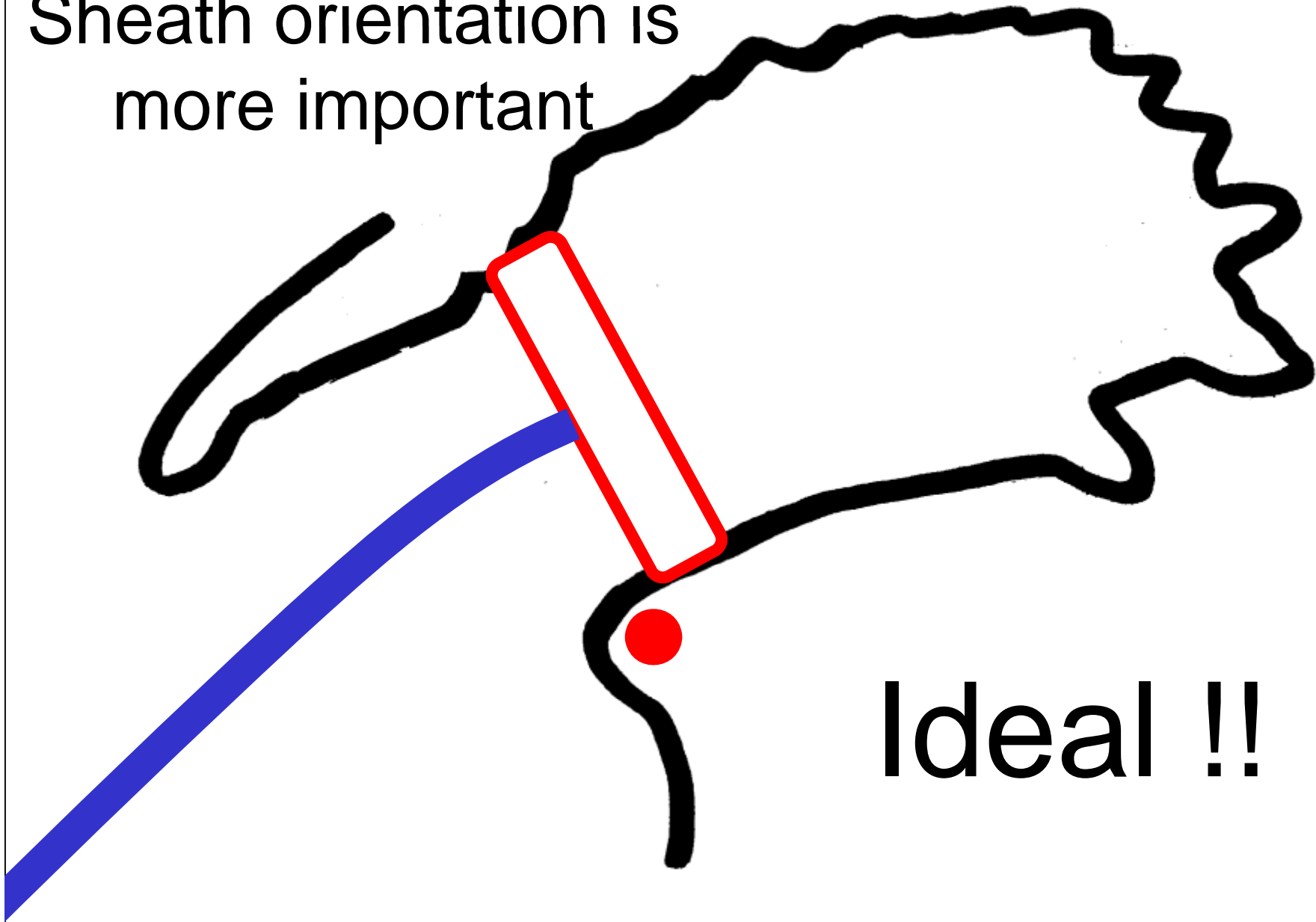
Sheath orientation



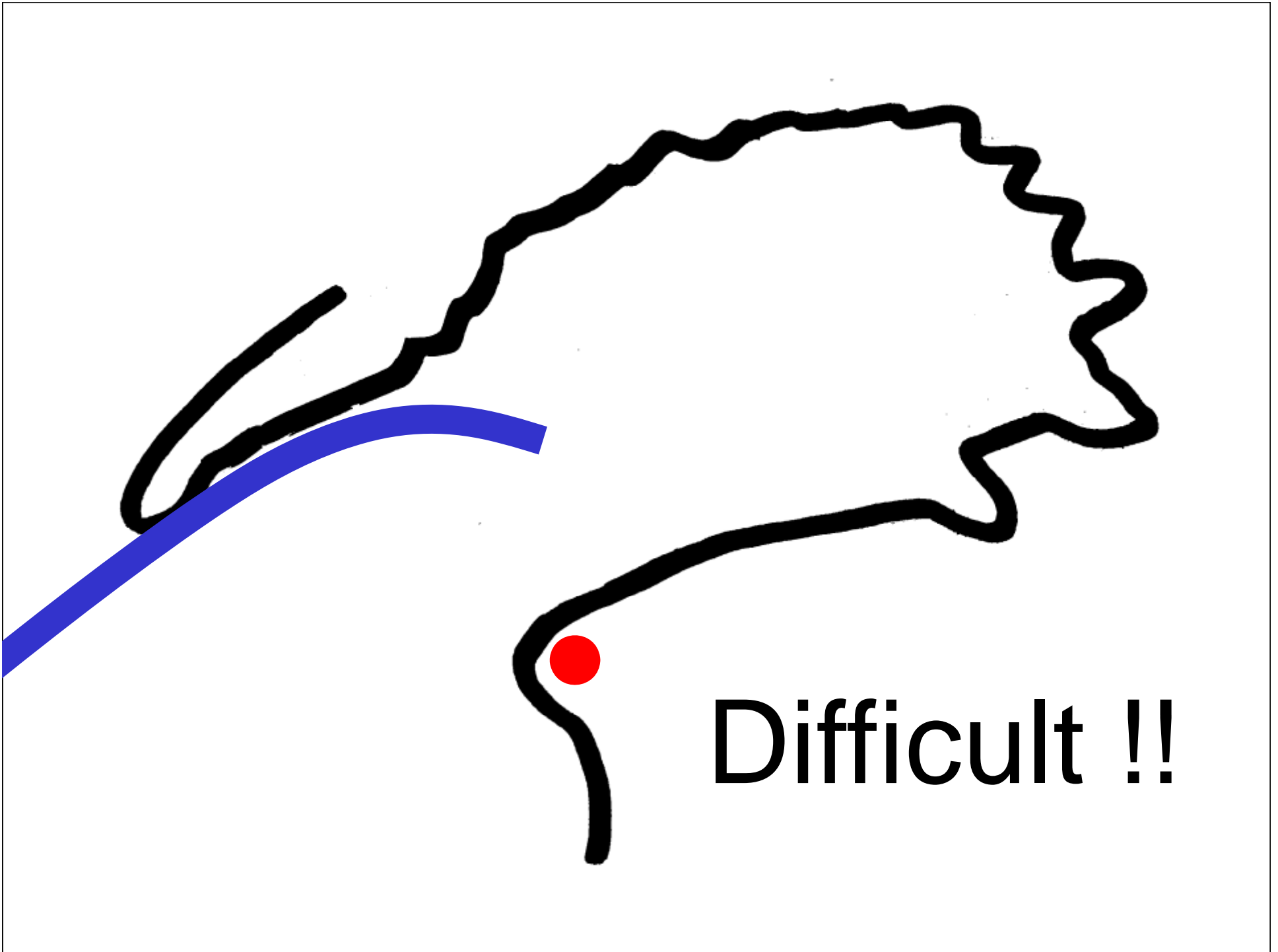
Ideal !!

ACP

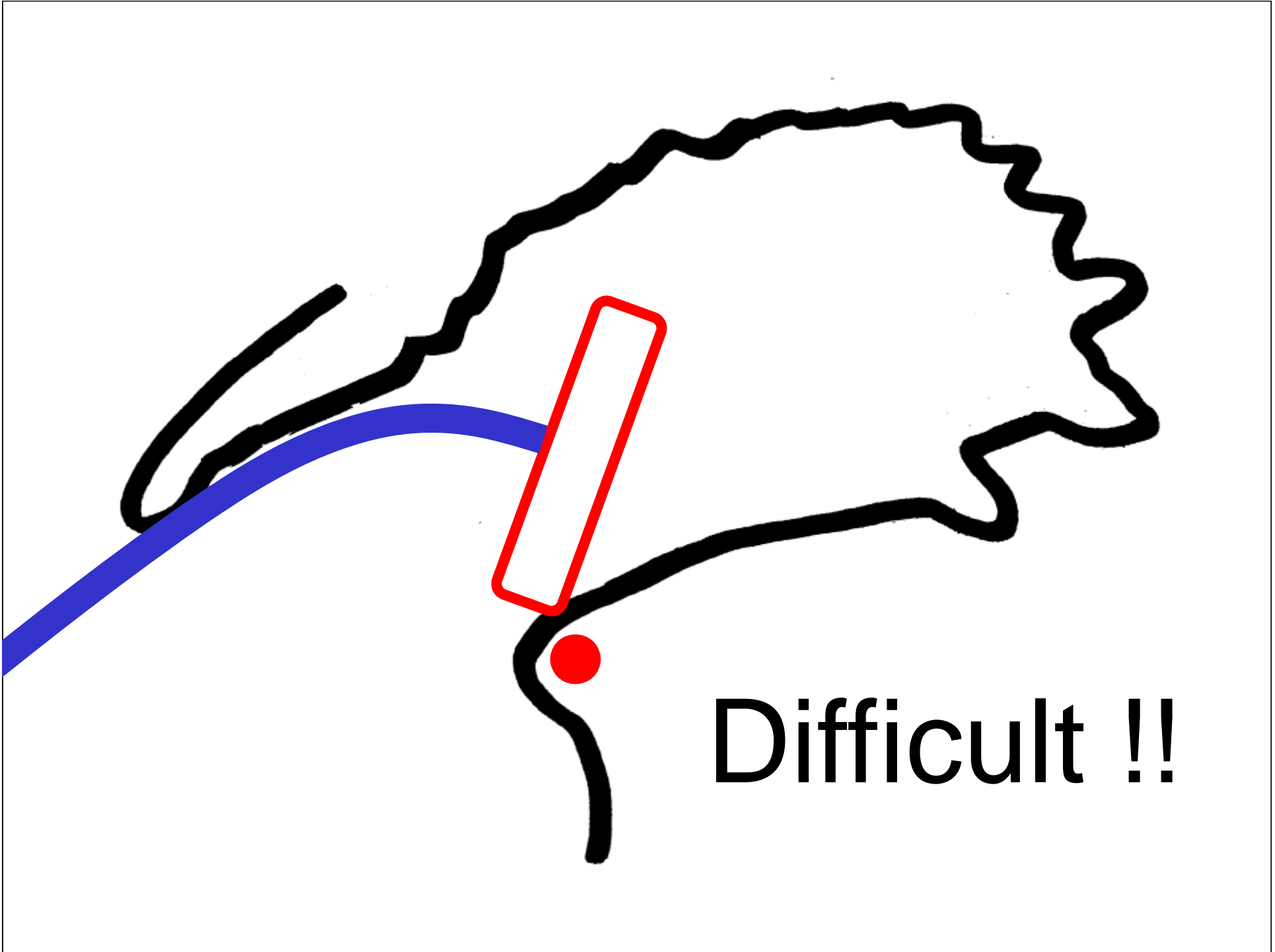
Sheath orientation is
more important



Ideal !!

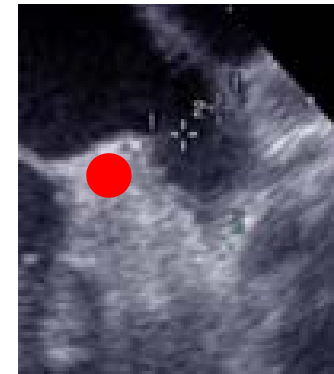
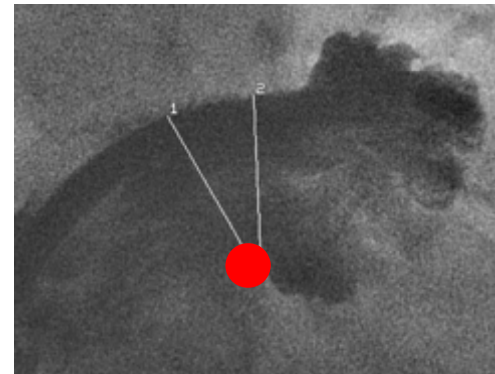
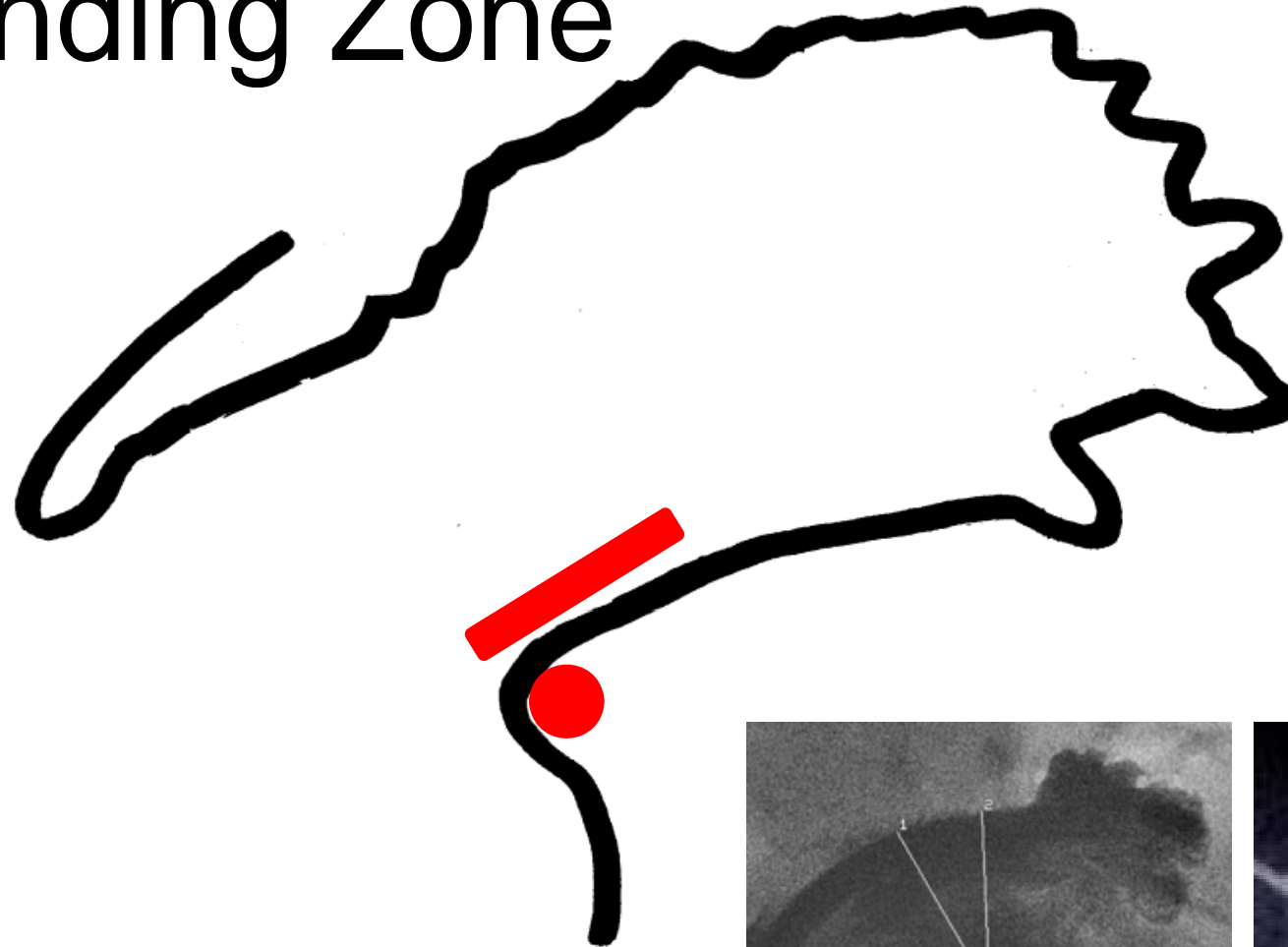


Difficult !!

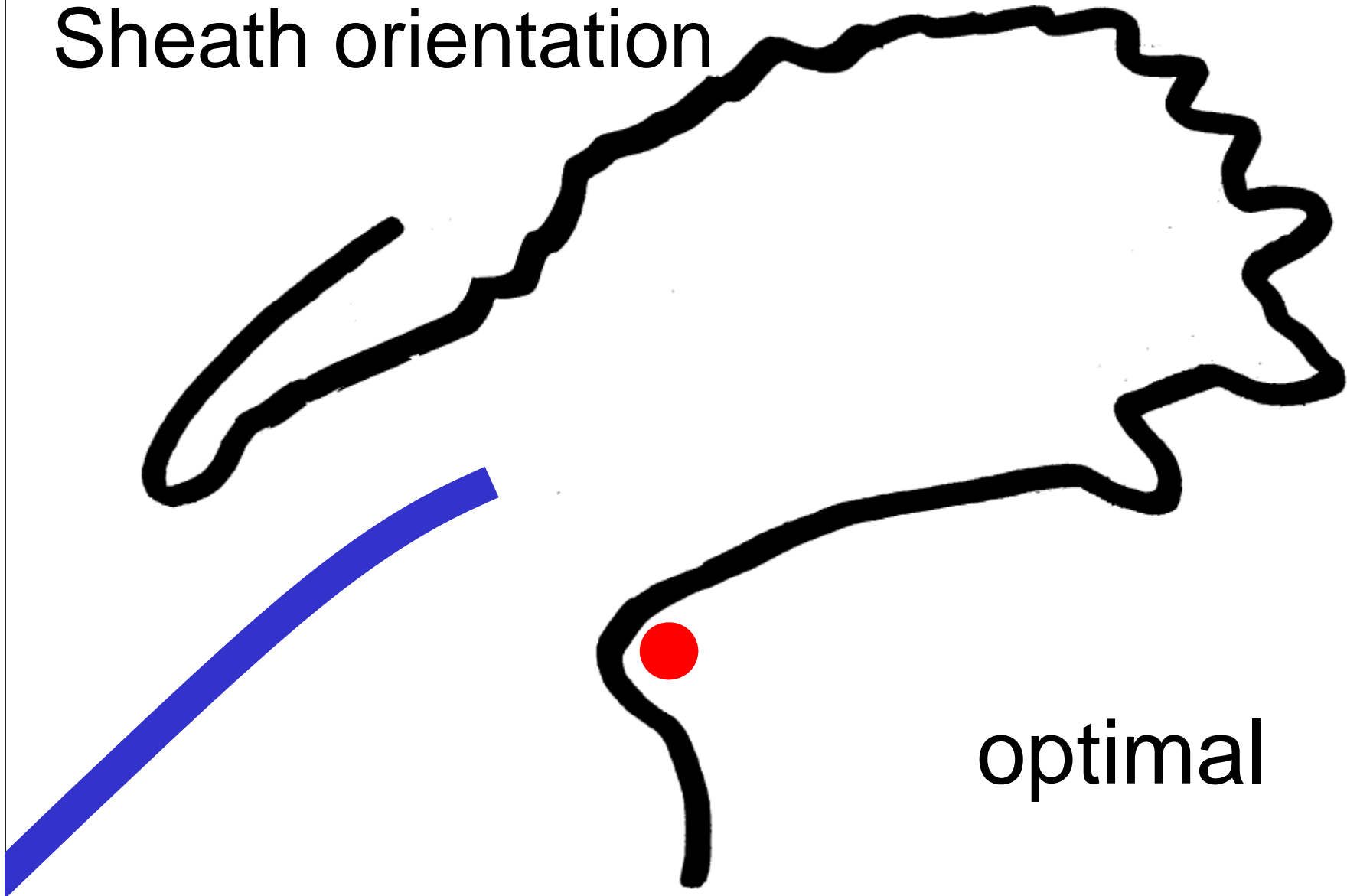


Sheath orientation not
so important with the
Watchman

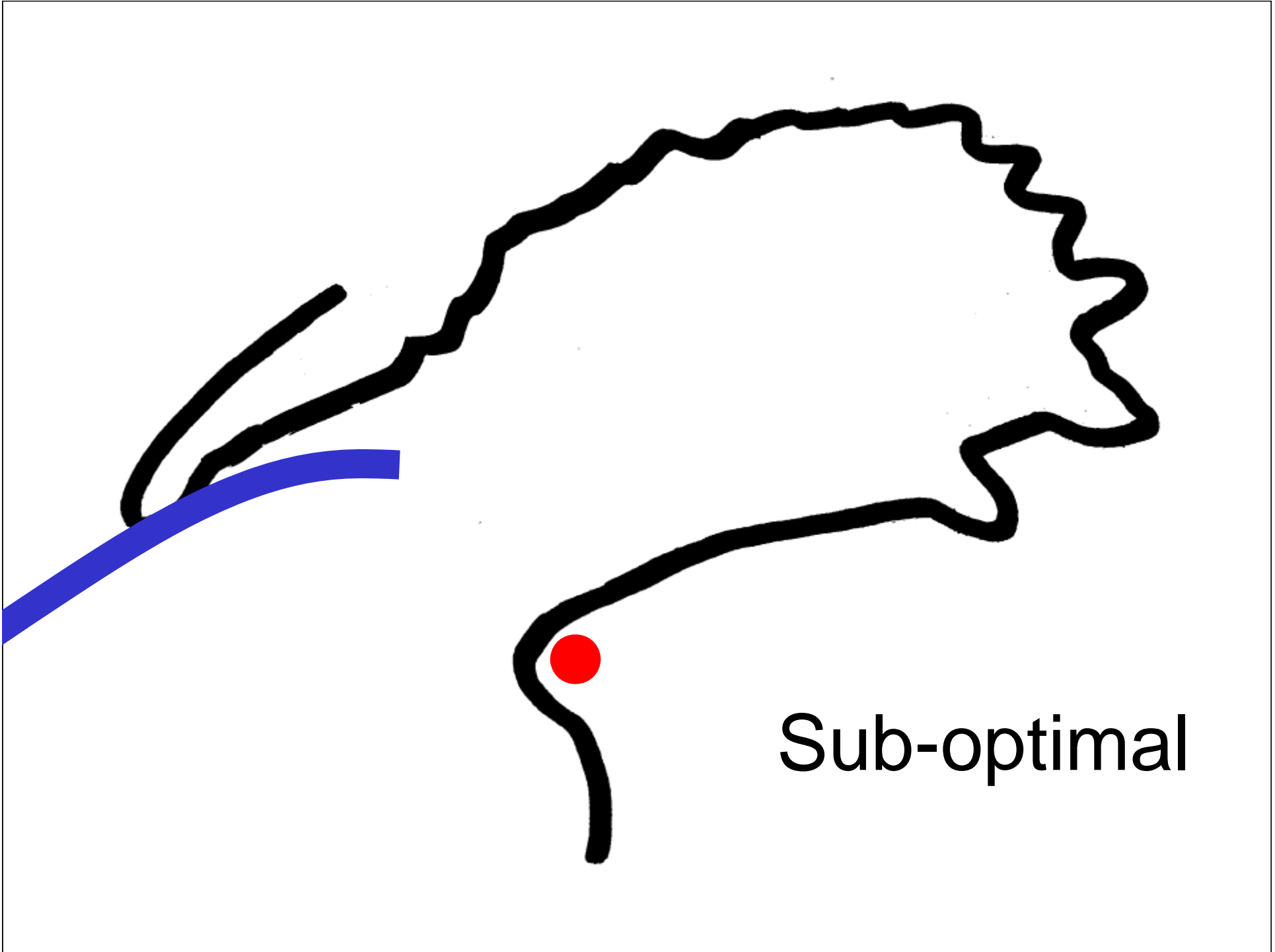
Watchman Landing Zone

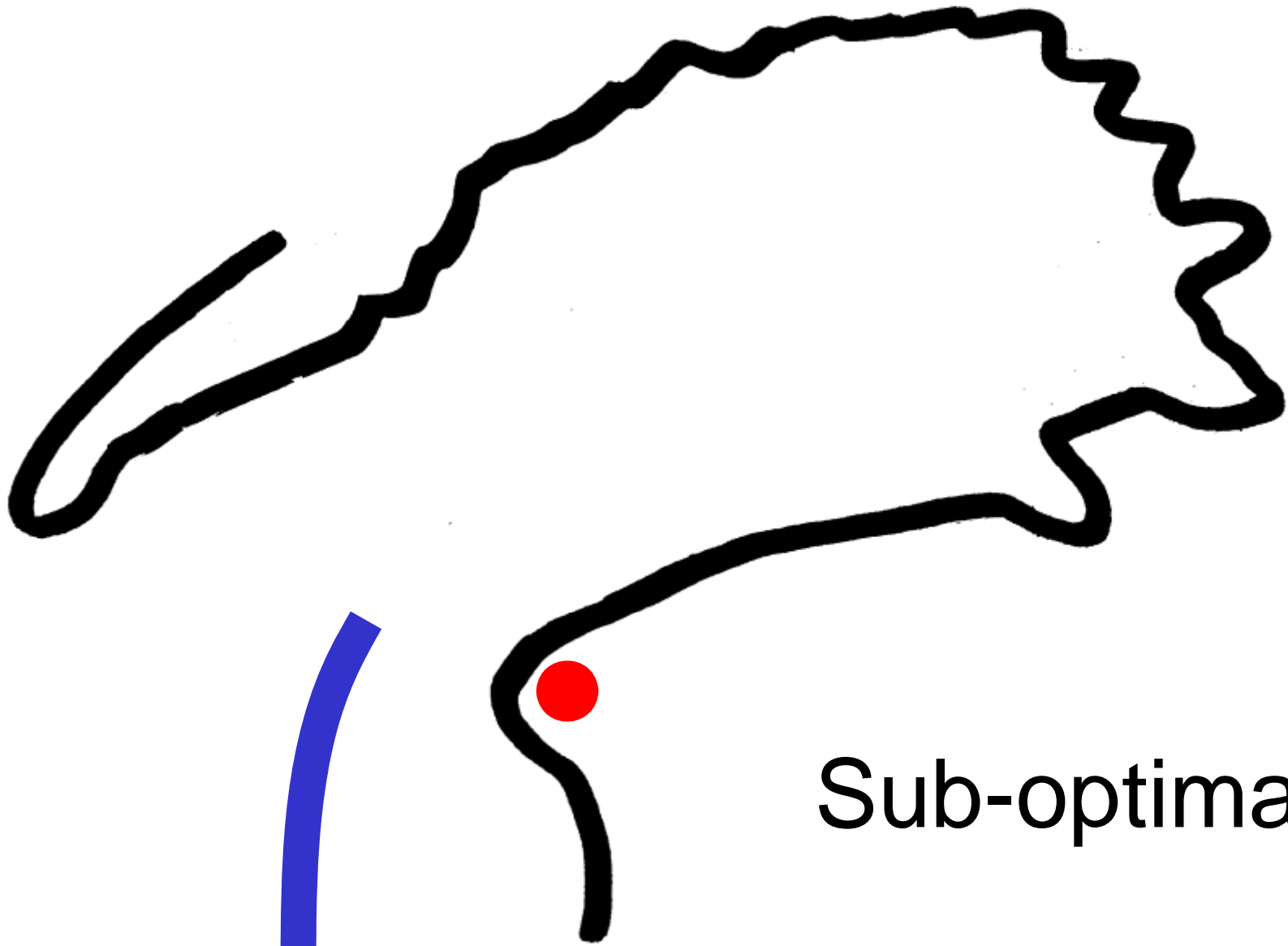


Watchman Sheath orientation

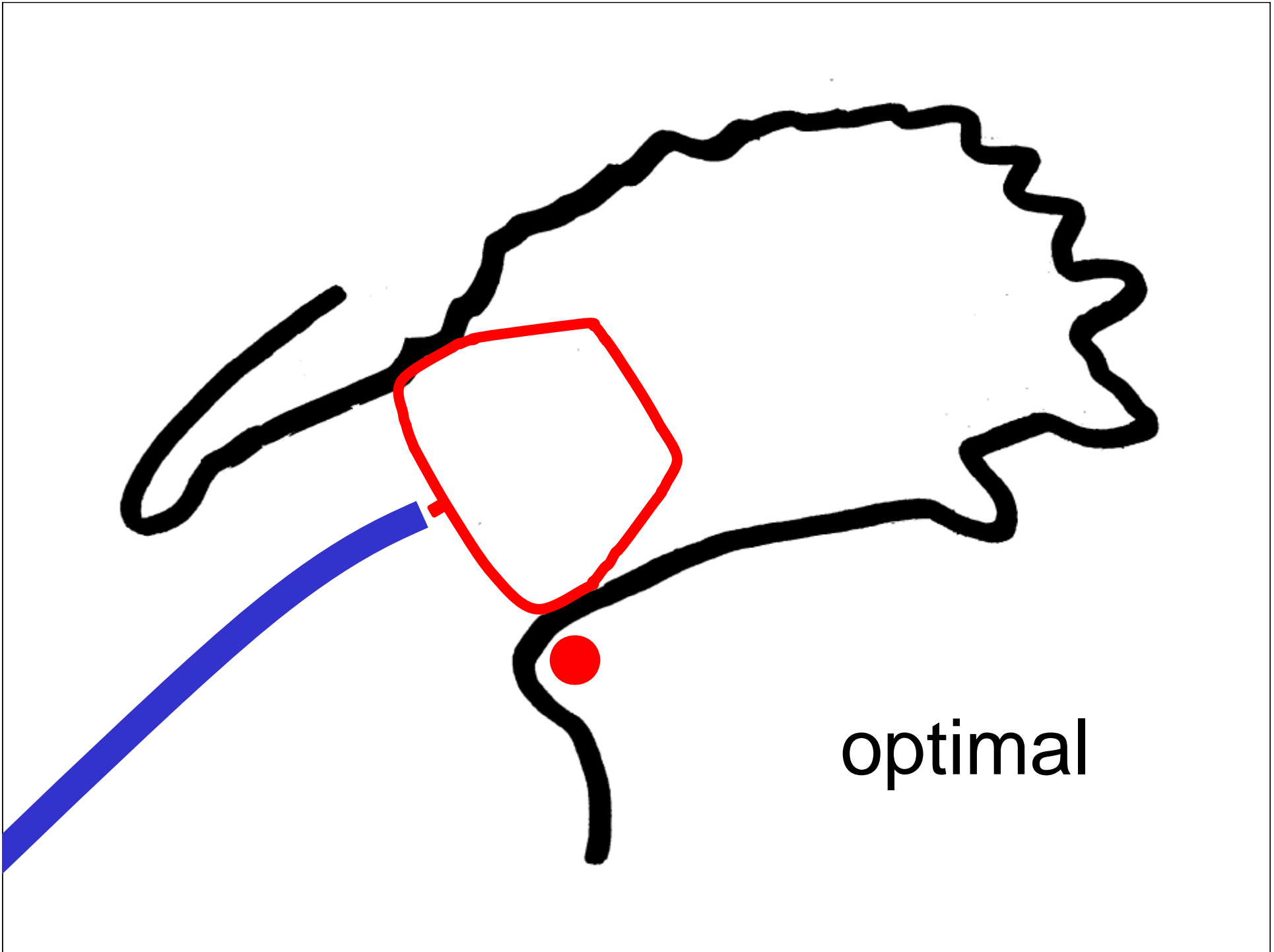


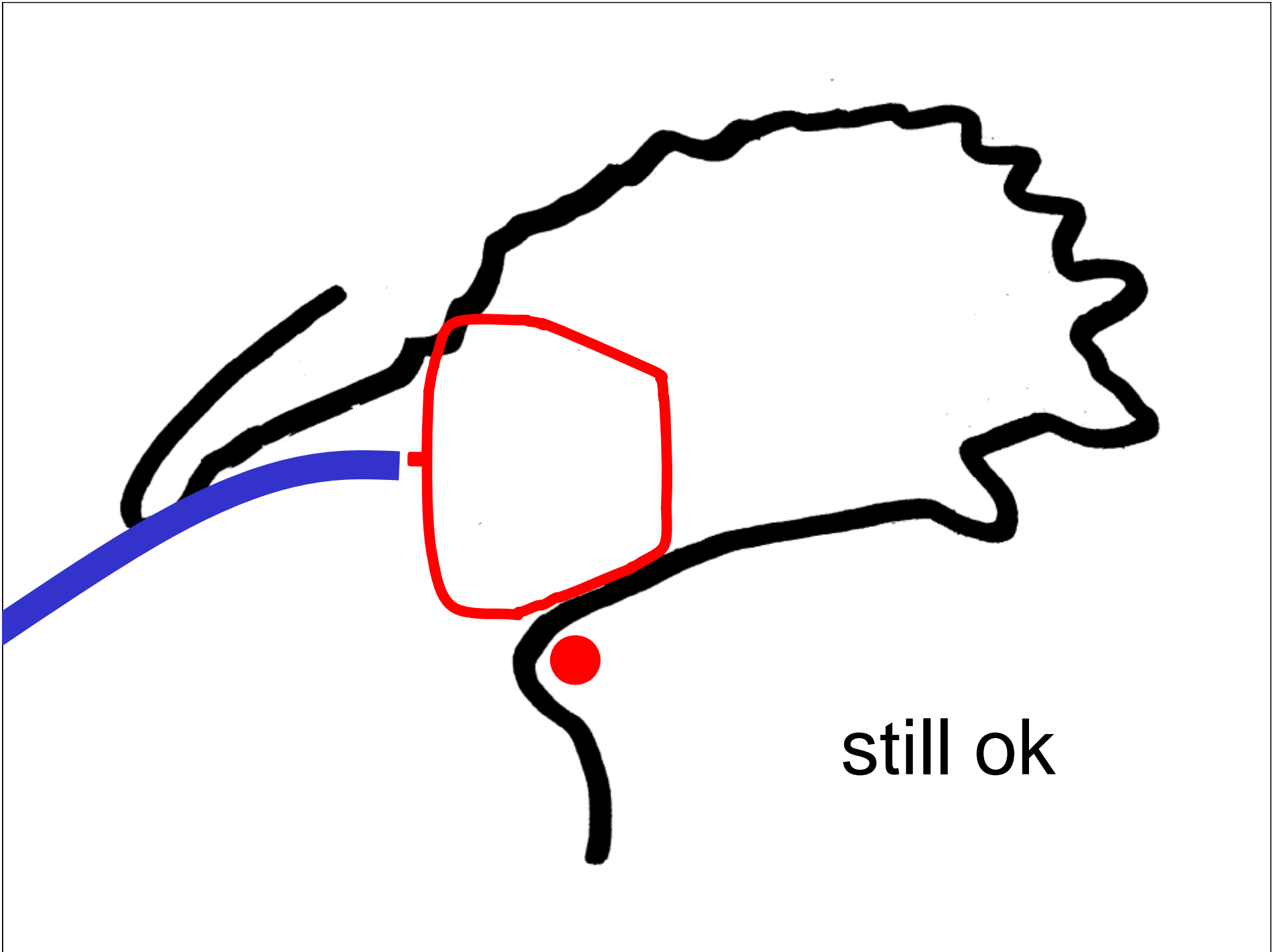
optimal



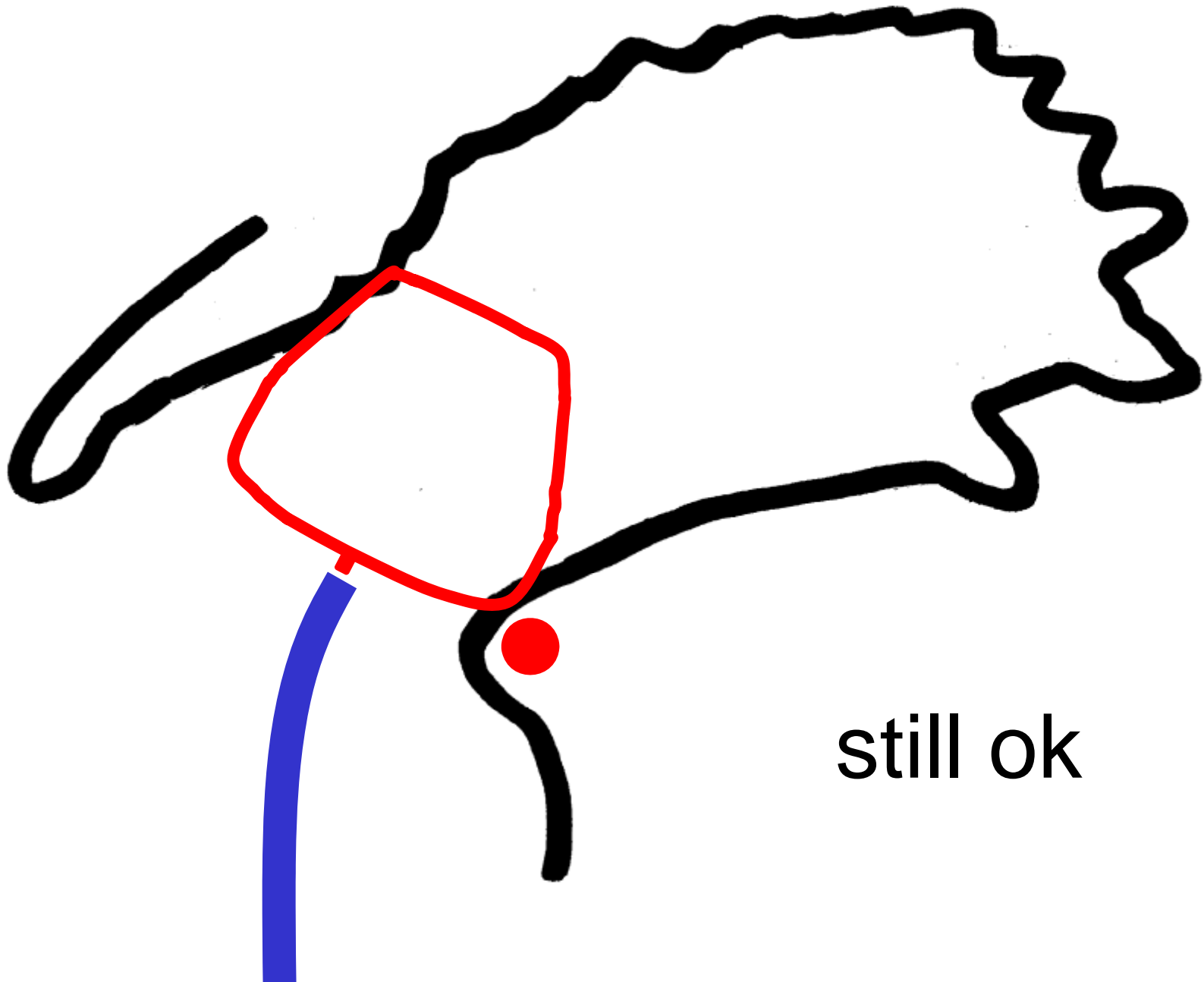


Sub-optimal





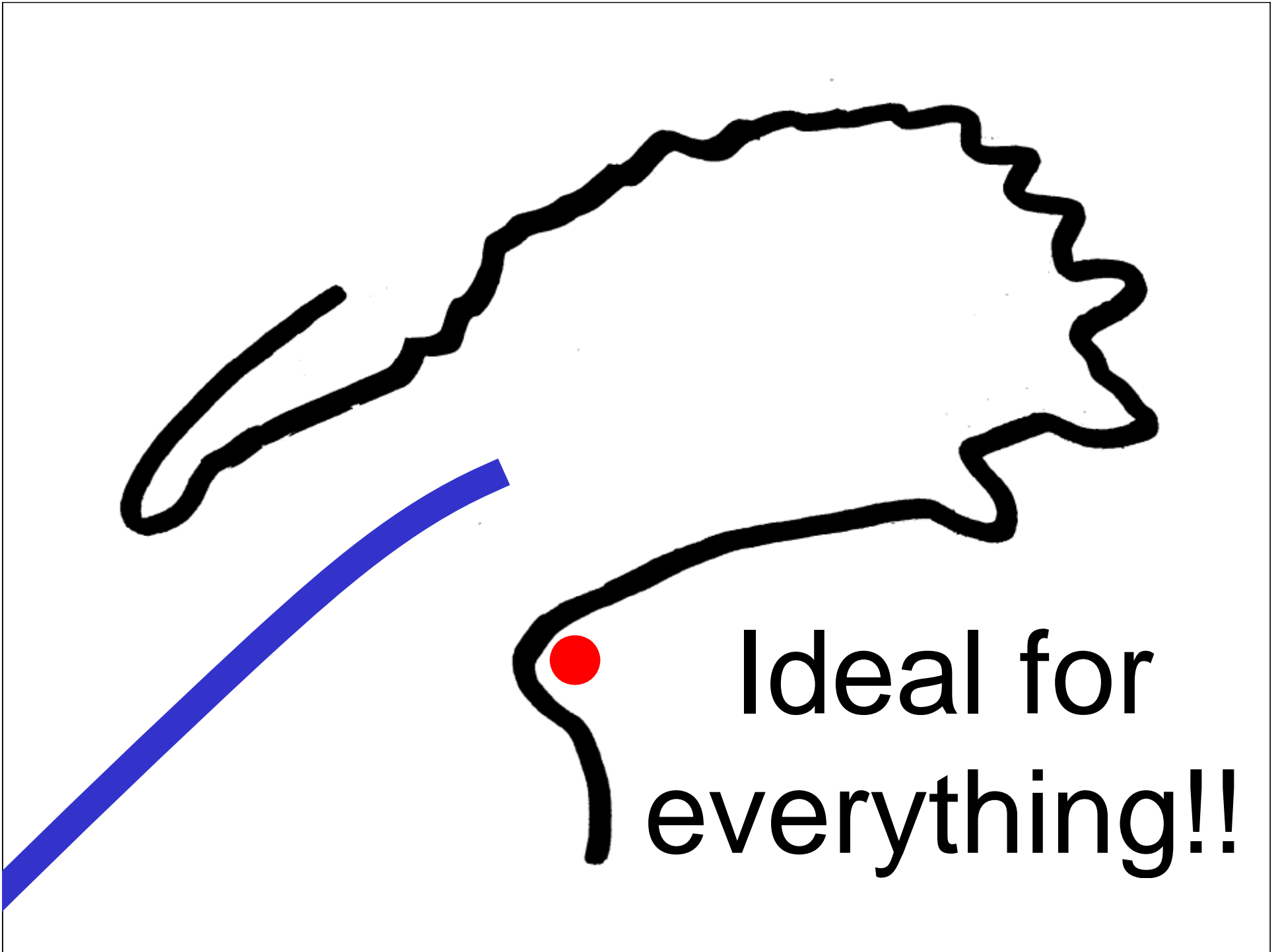
still ok



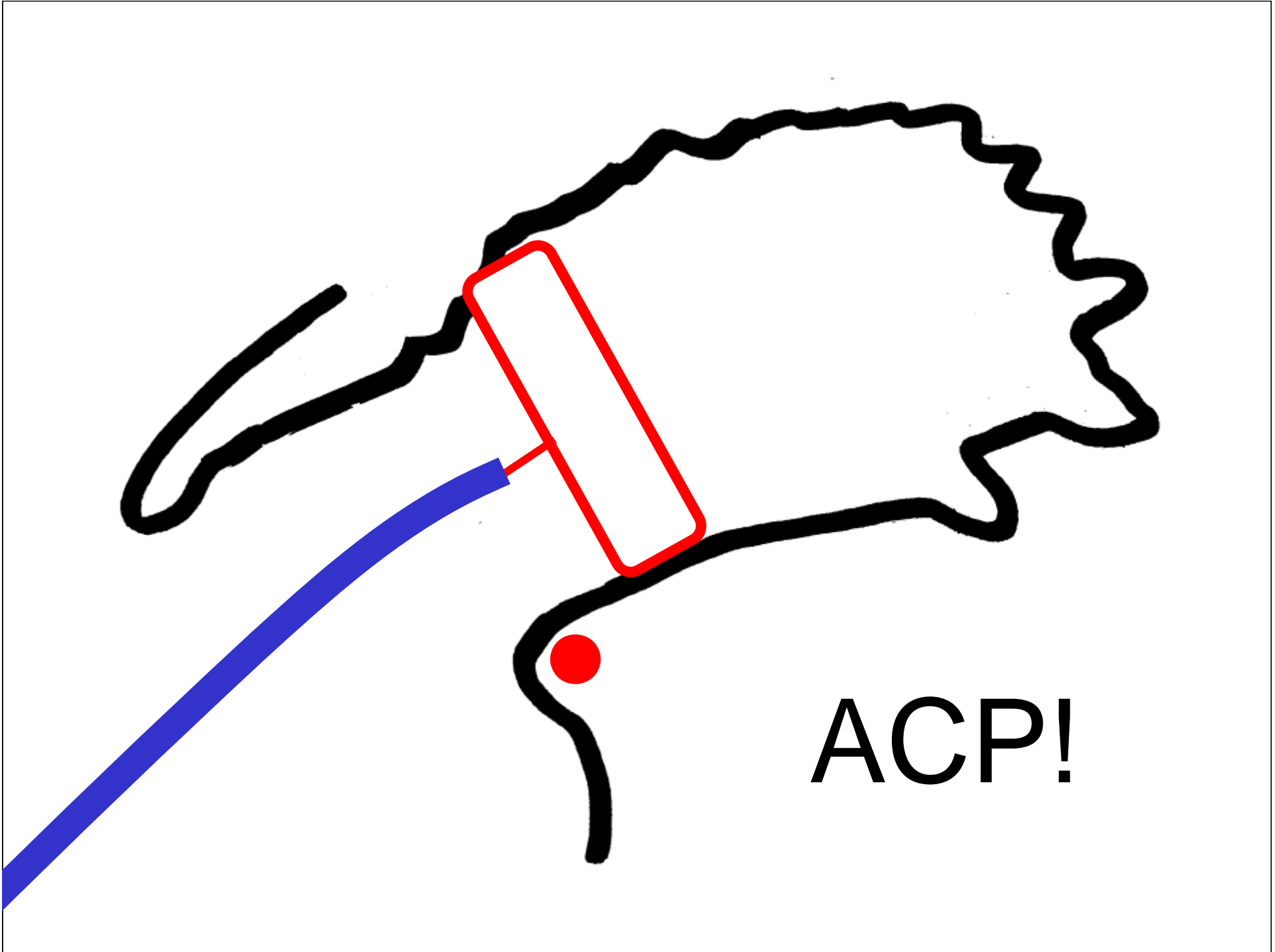
still ok

ACP requires more than the
Watchman a well defined landing
zone and a perpendicular
orientation of the sheath in
relation to the LAA ostium

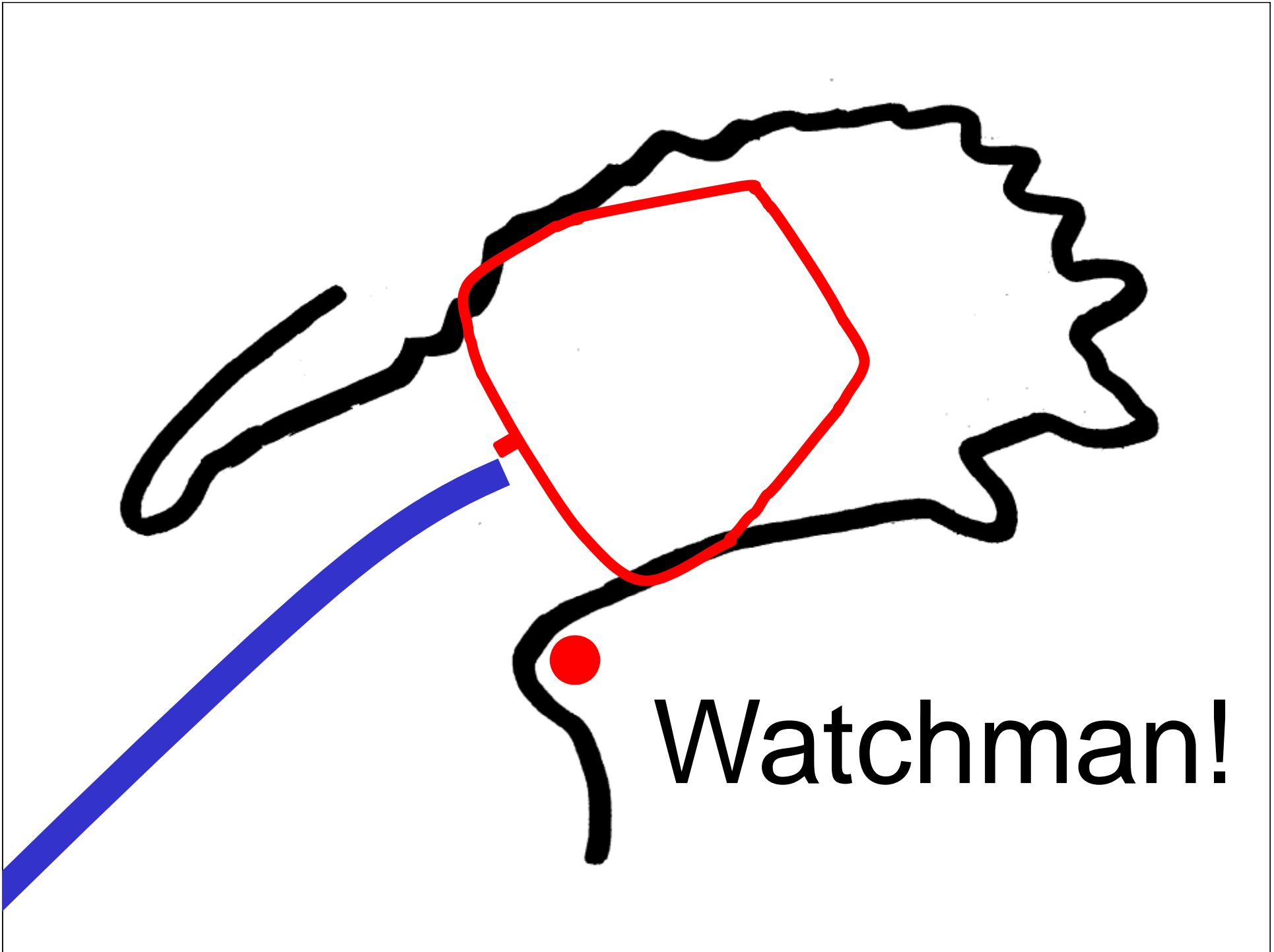
What's about different
LAA shapes?



Ideal for
everything!!



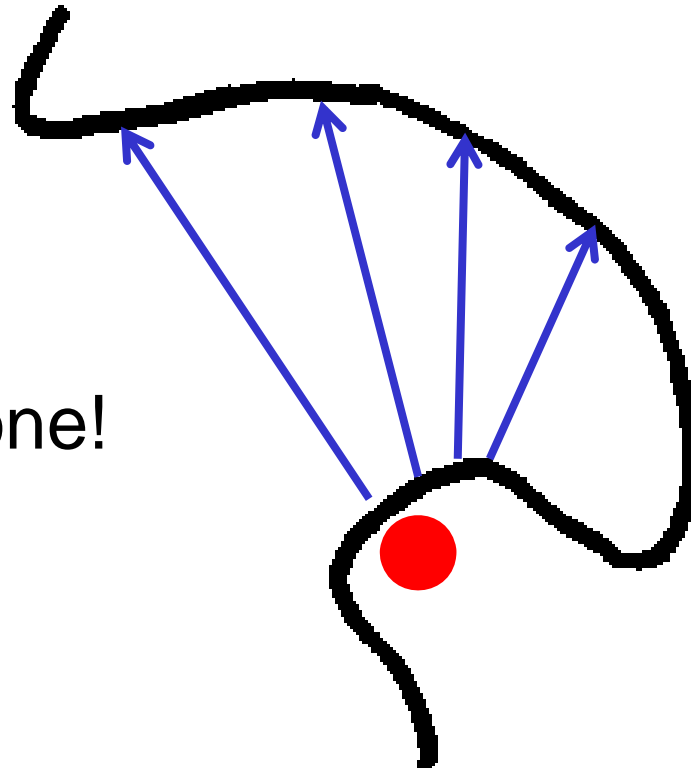
ACP!



Watchman!

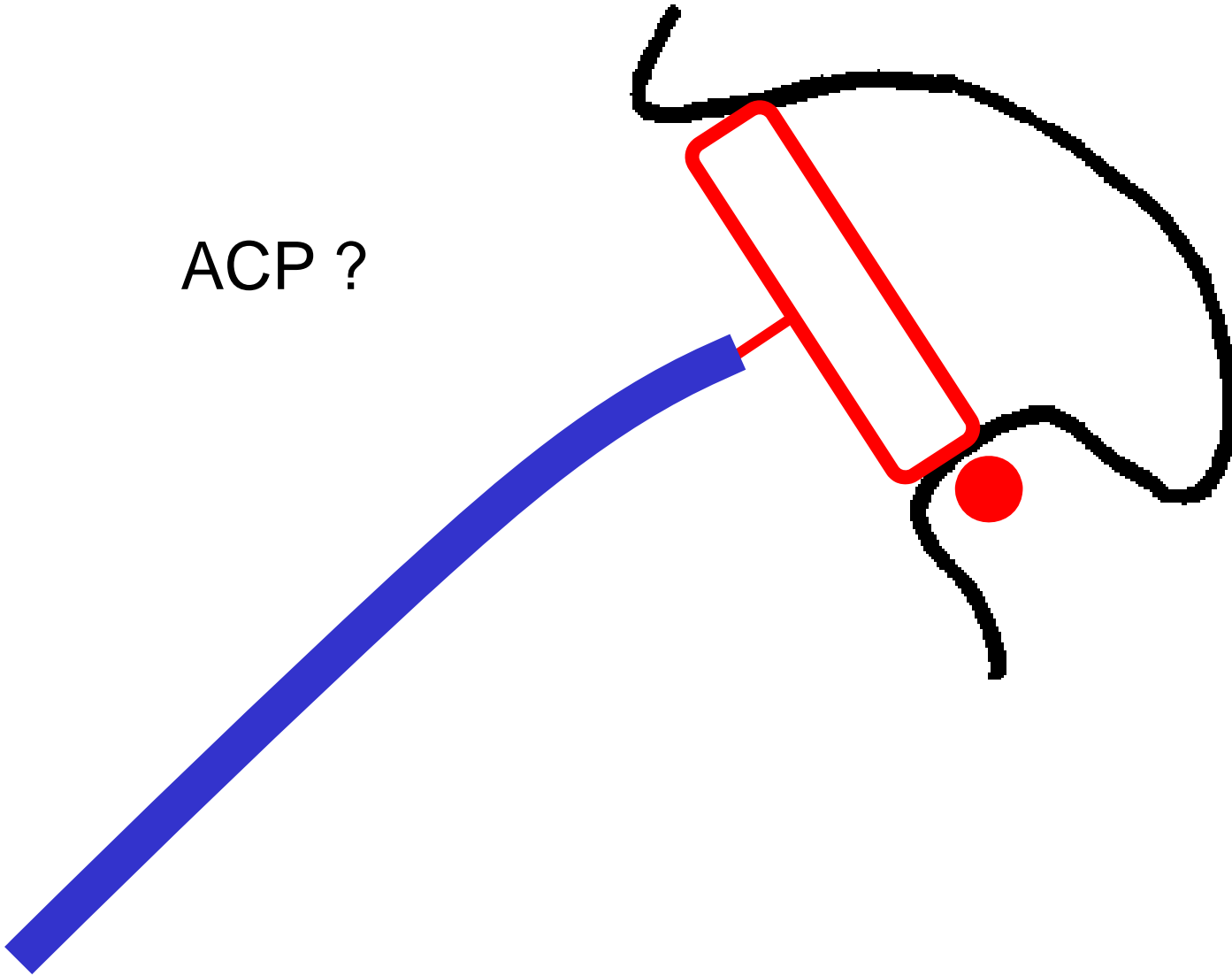
Not as easy as it looks!

No good landing zone!



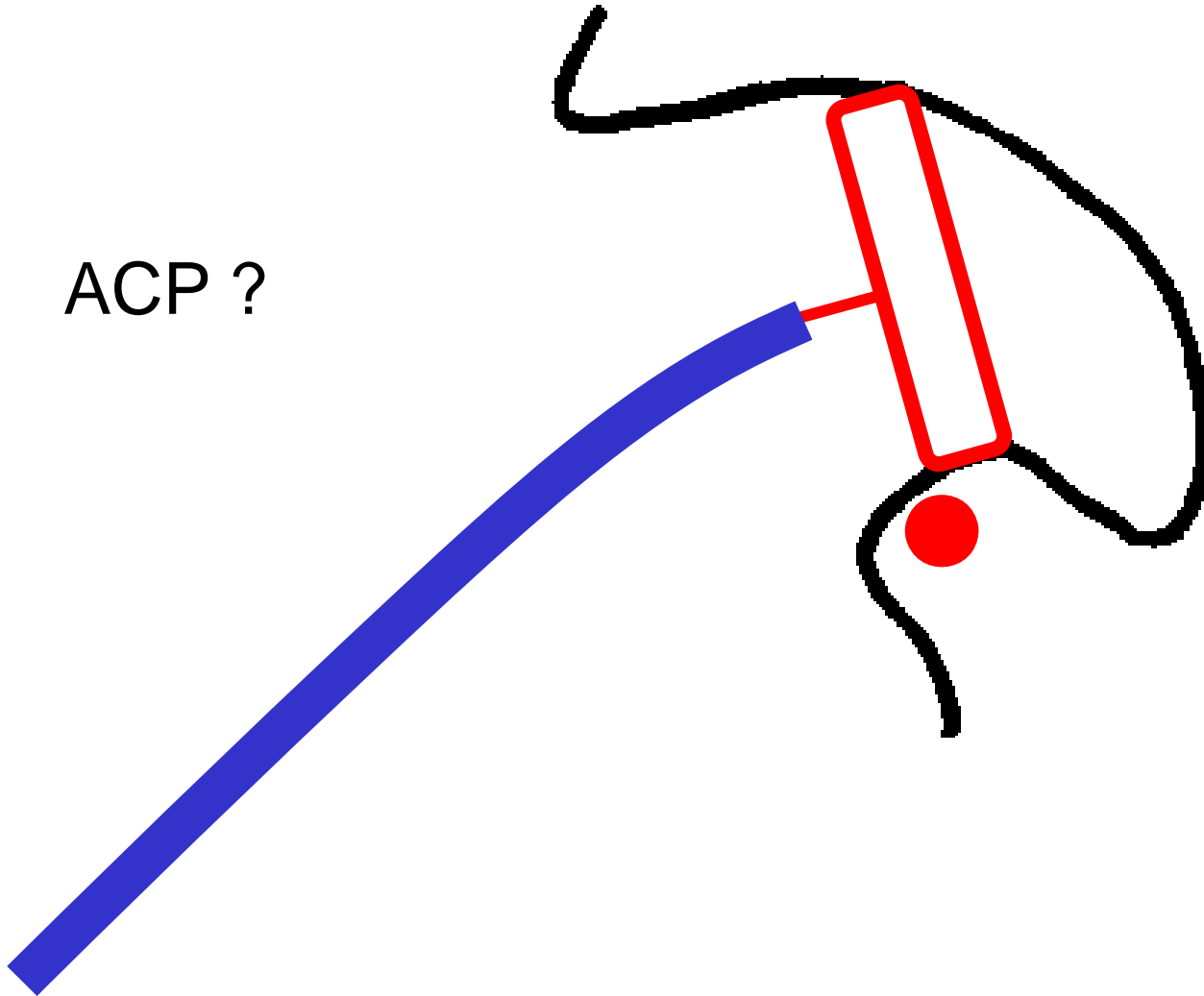
Not as easy as it looks!

ACP ?



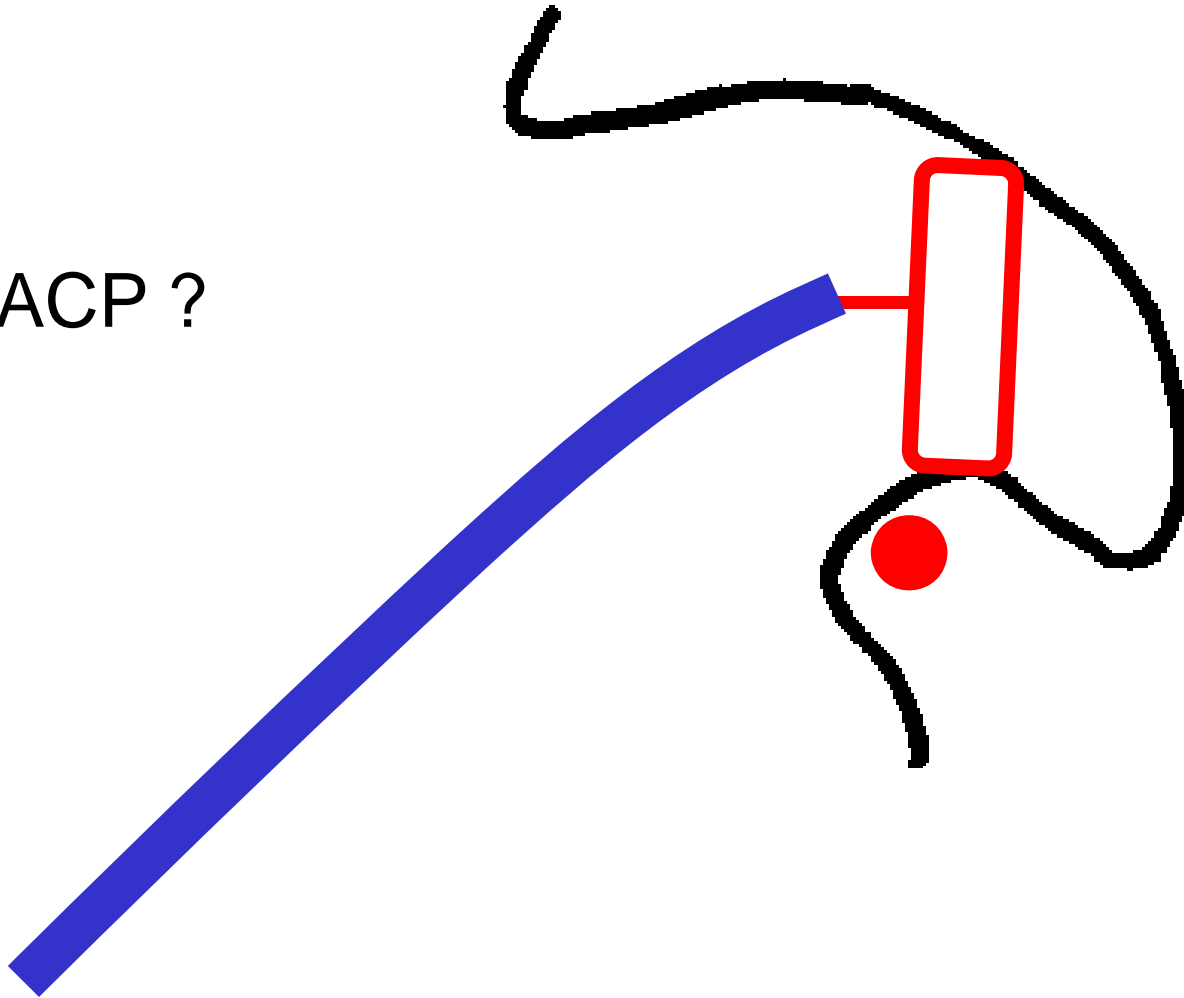
Not as easy as it looks!

ACP ?



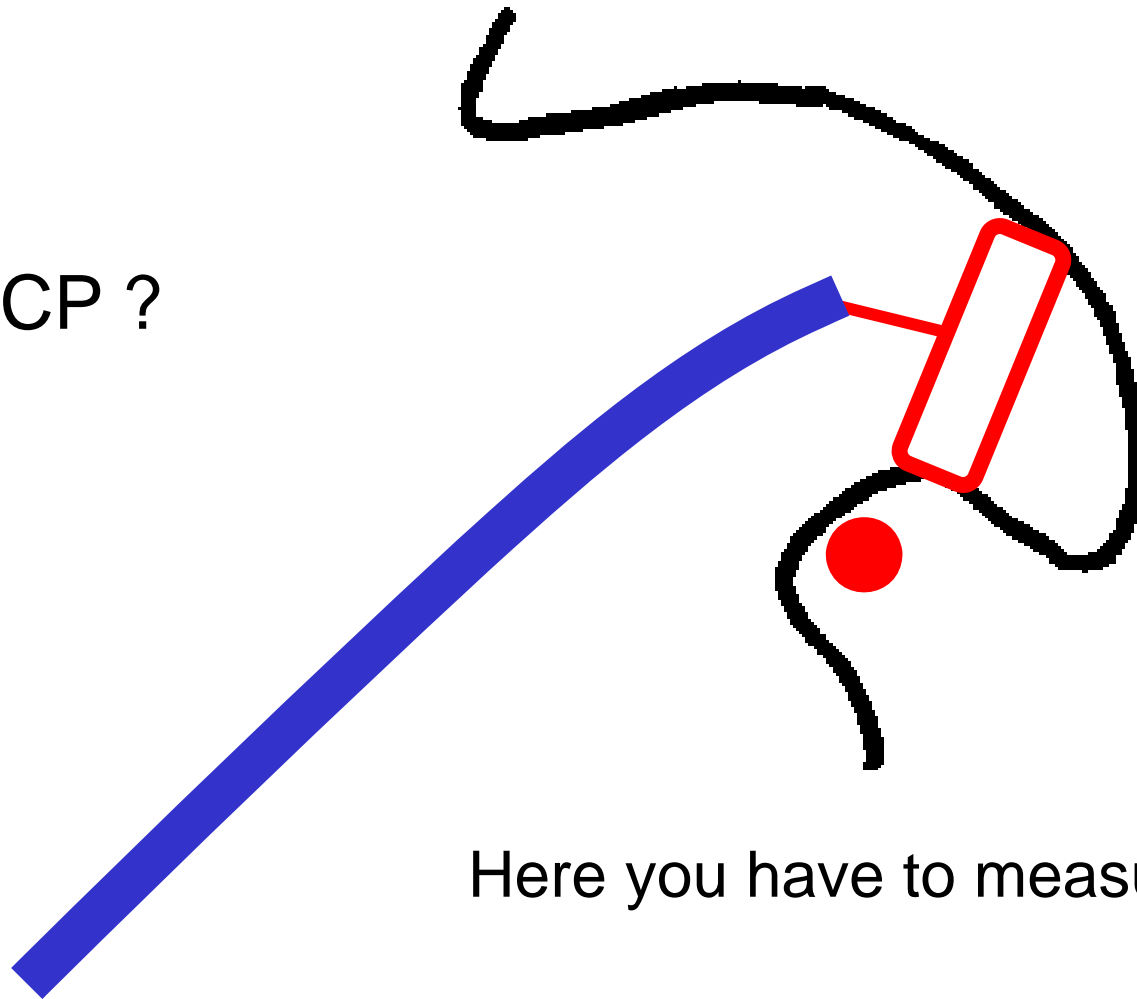
Not as easy as it looks!

ACP ?



Not as easy as it looks!

ACP ?

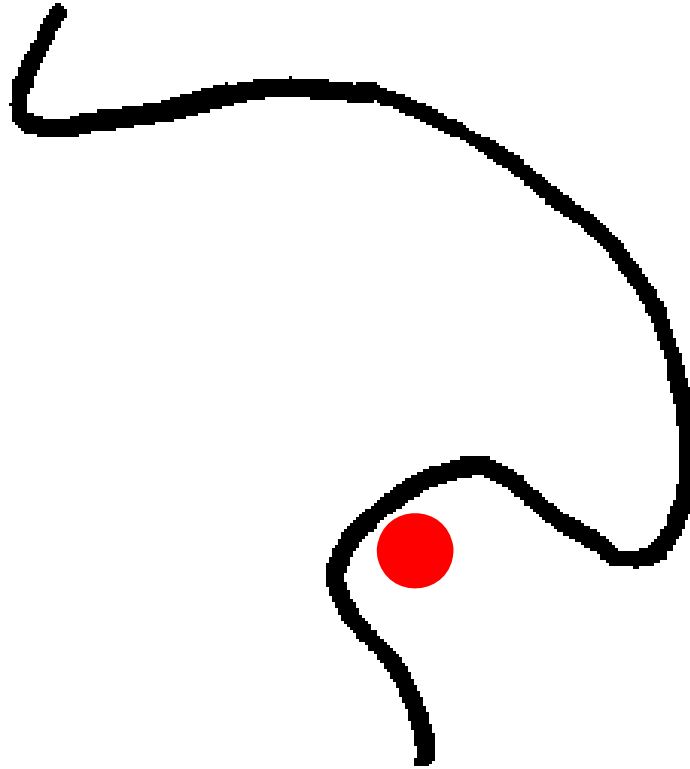


Here you have to measure precisely!

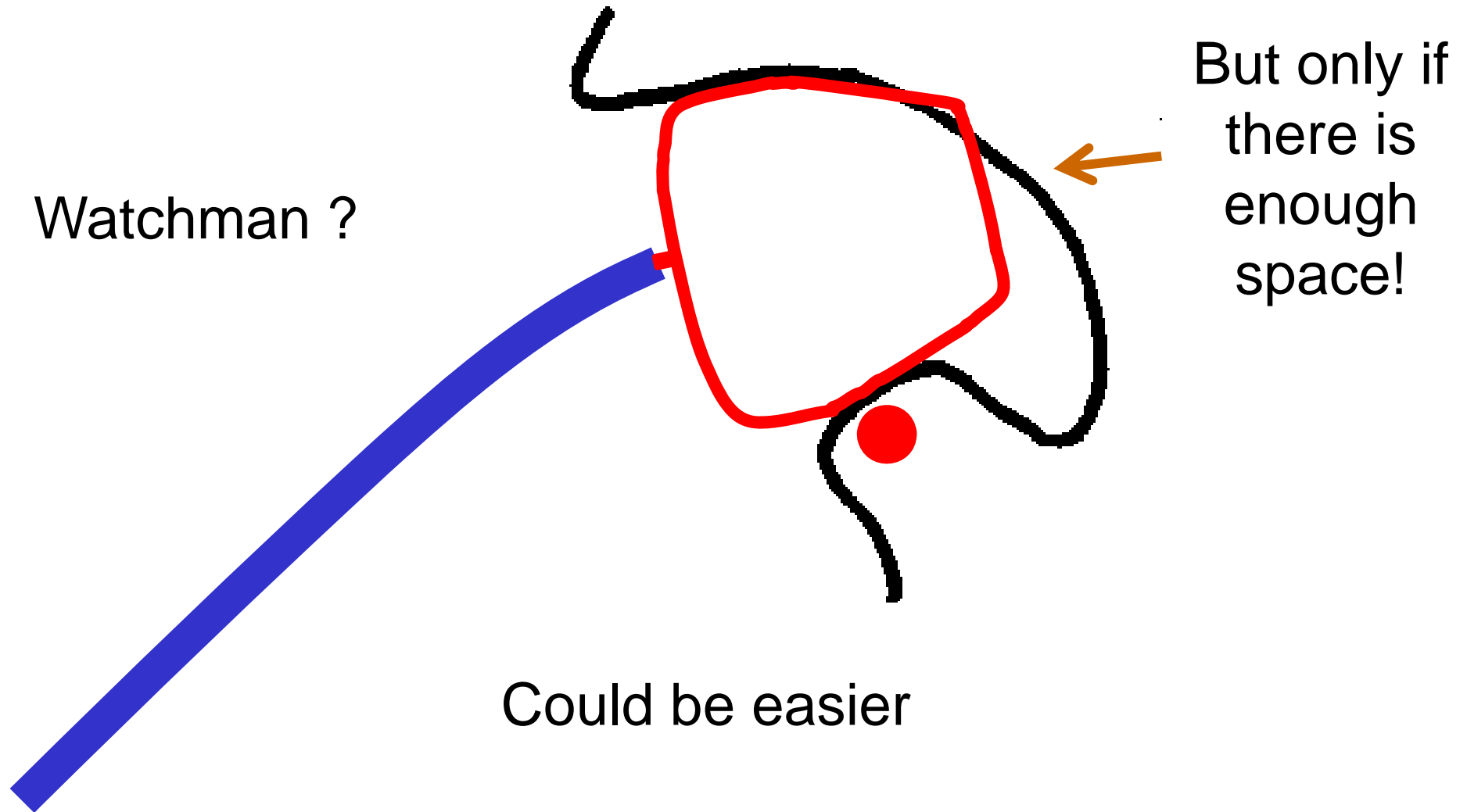
Precisely where you want to place the device

Not as easy as it looks!

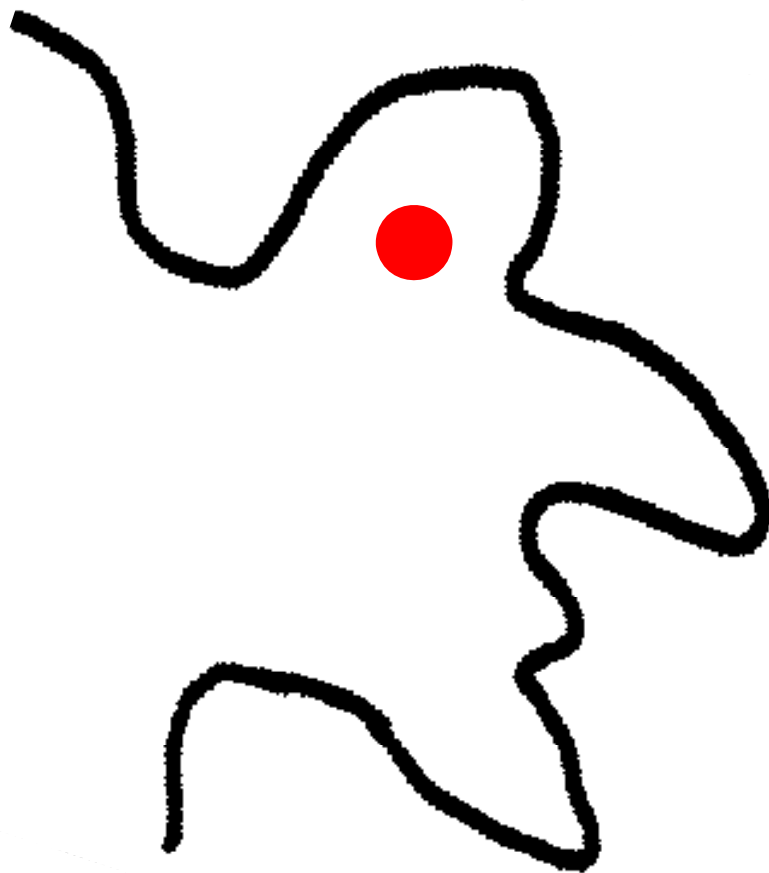
And Watchman ?



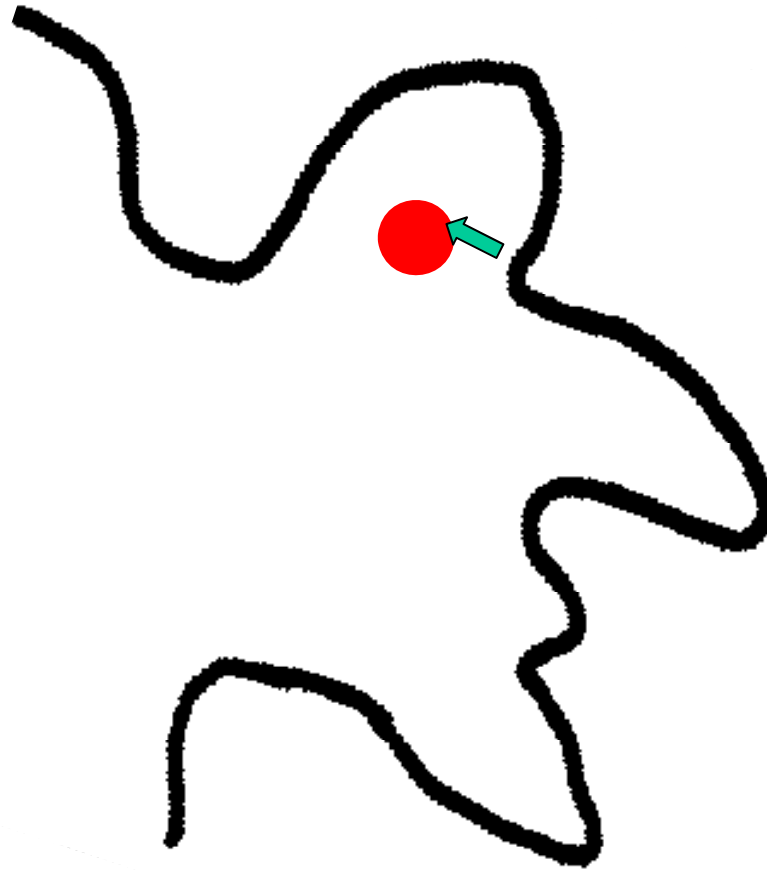
Not as easy as it looks!



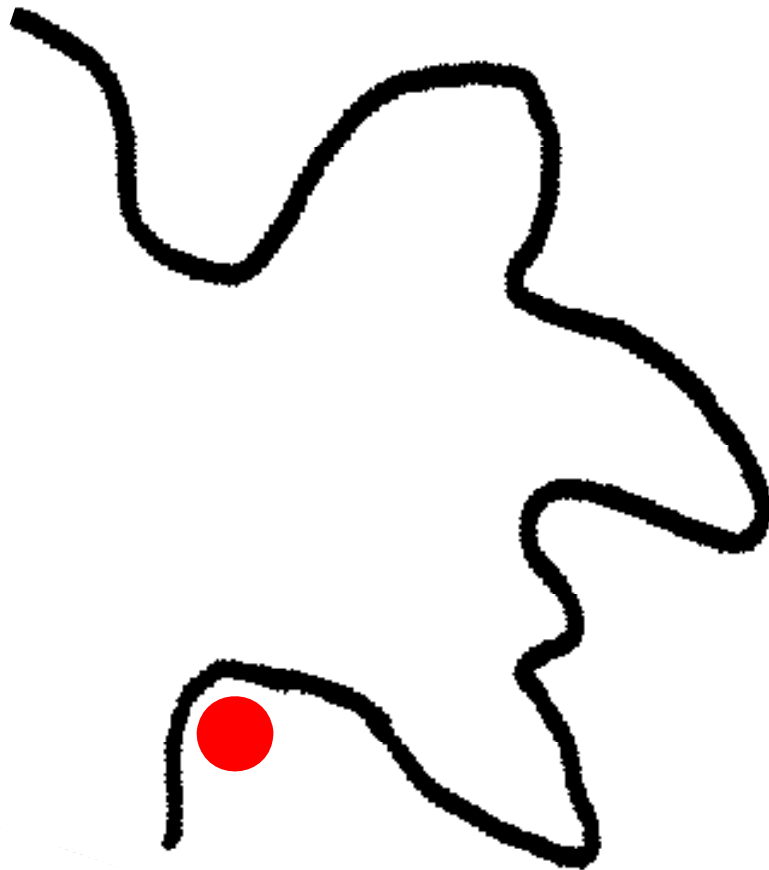
What's that?



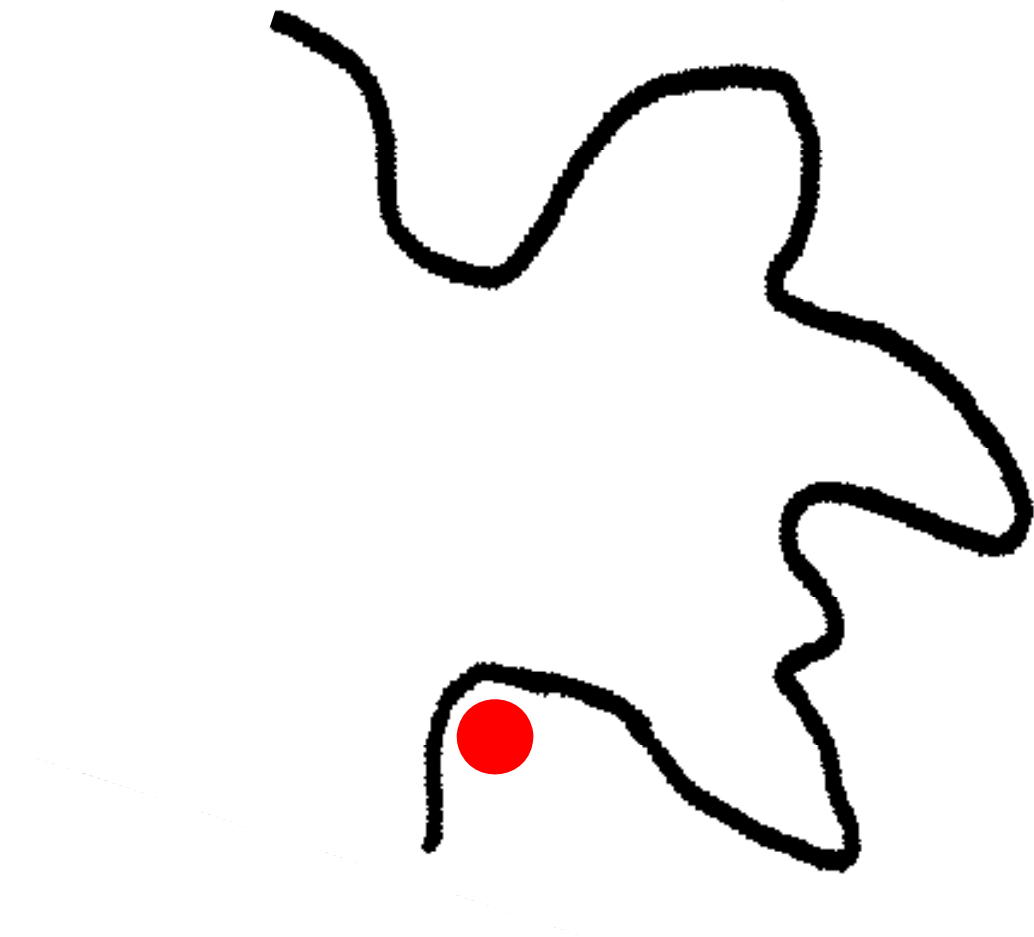
What's that?



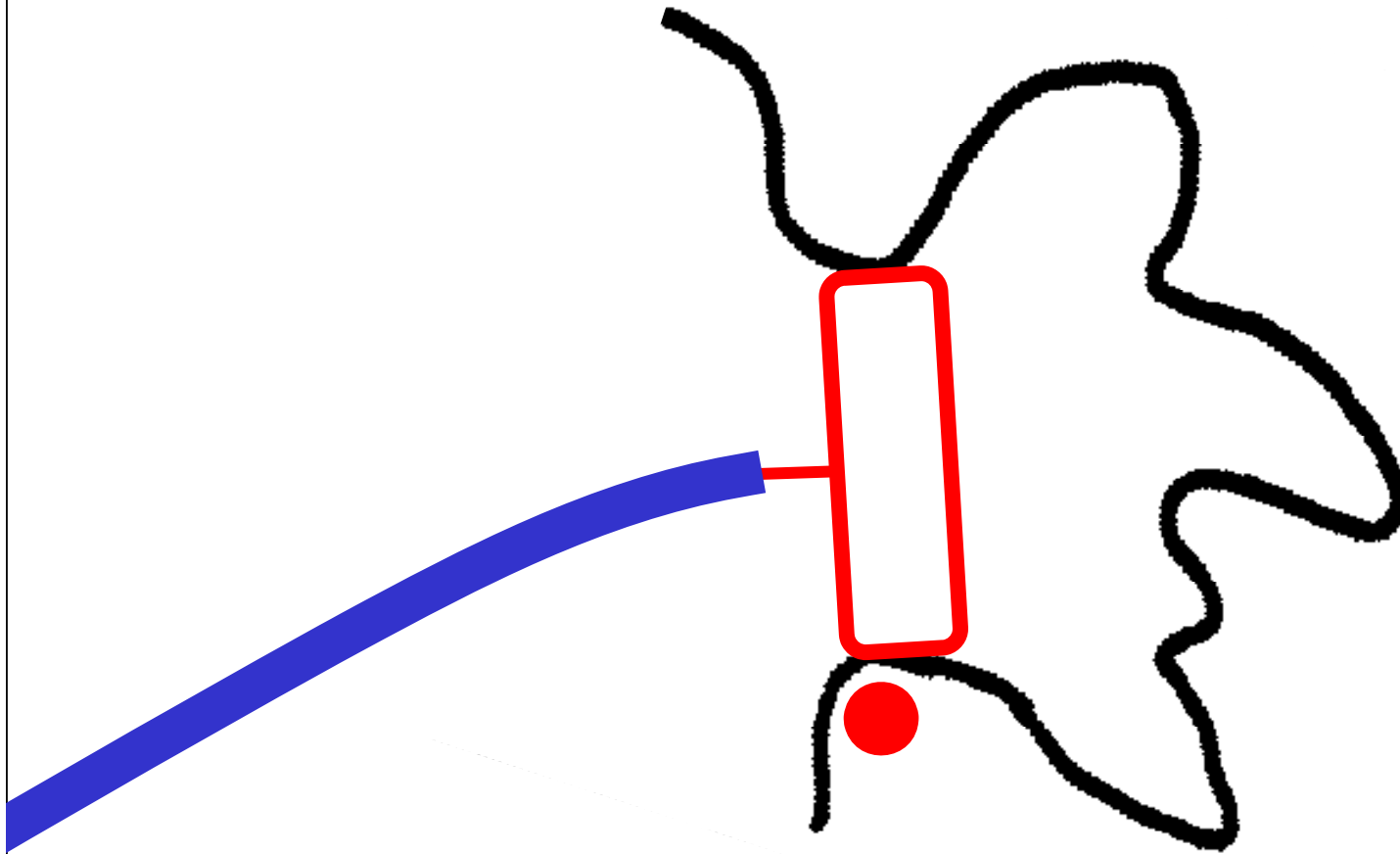
What's that?



Complex morphology

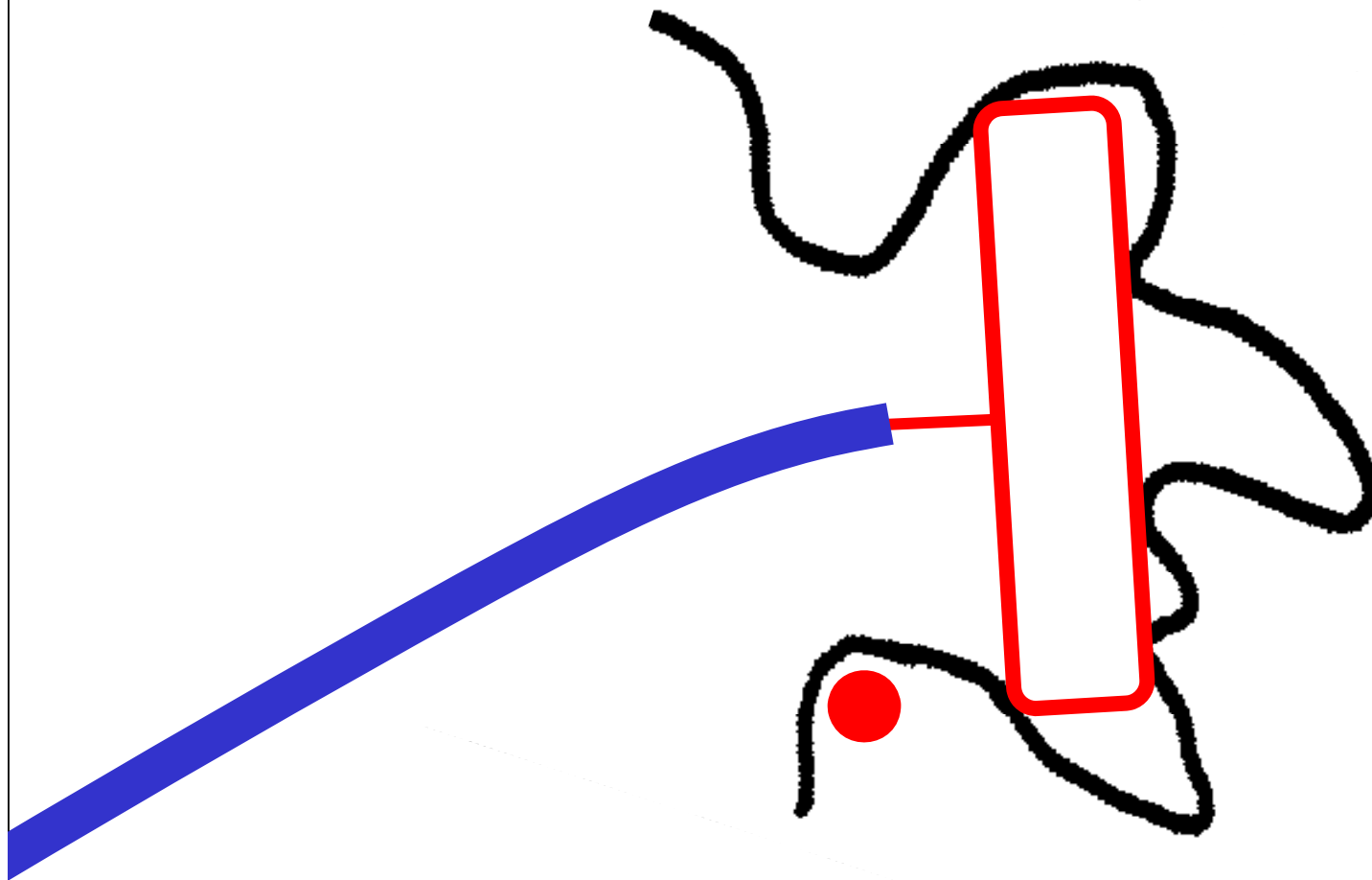


Complex morphology



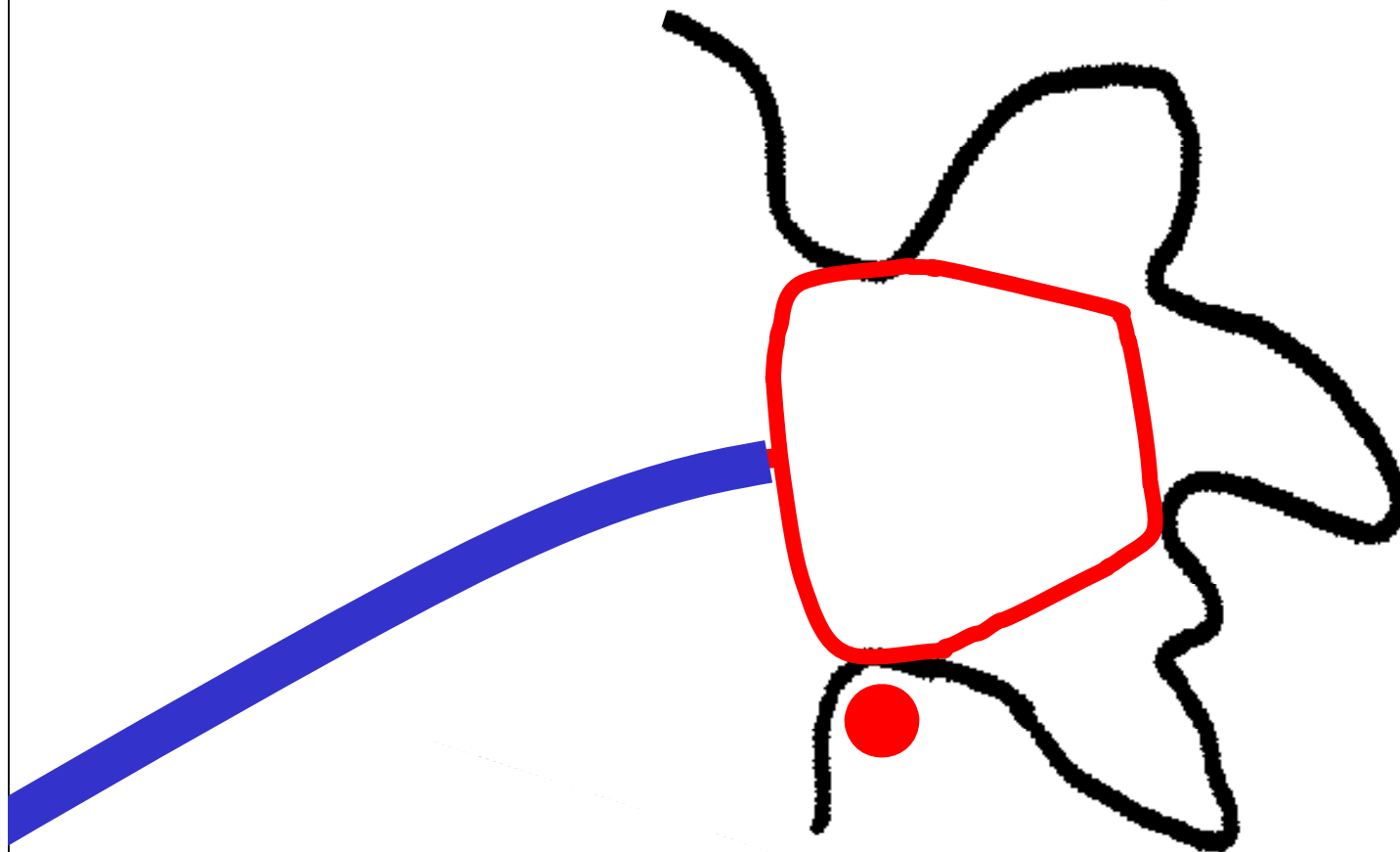
Difficult to place
an ACP right here!

Complex morphology



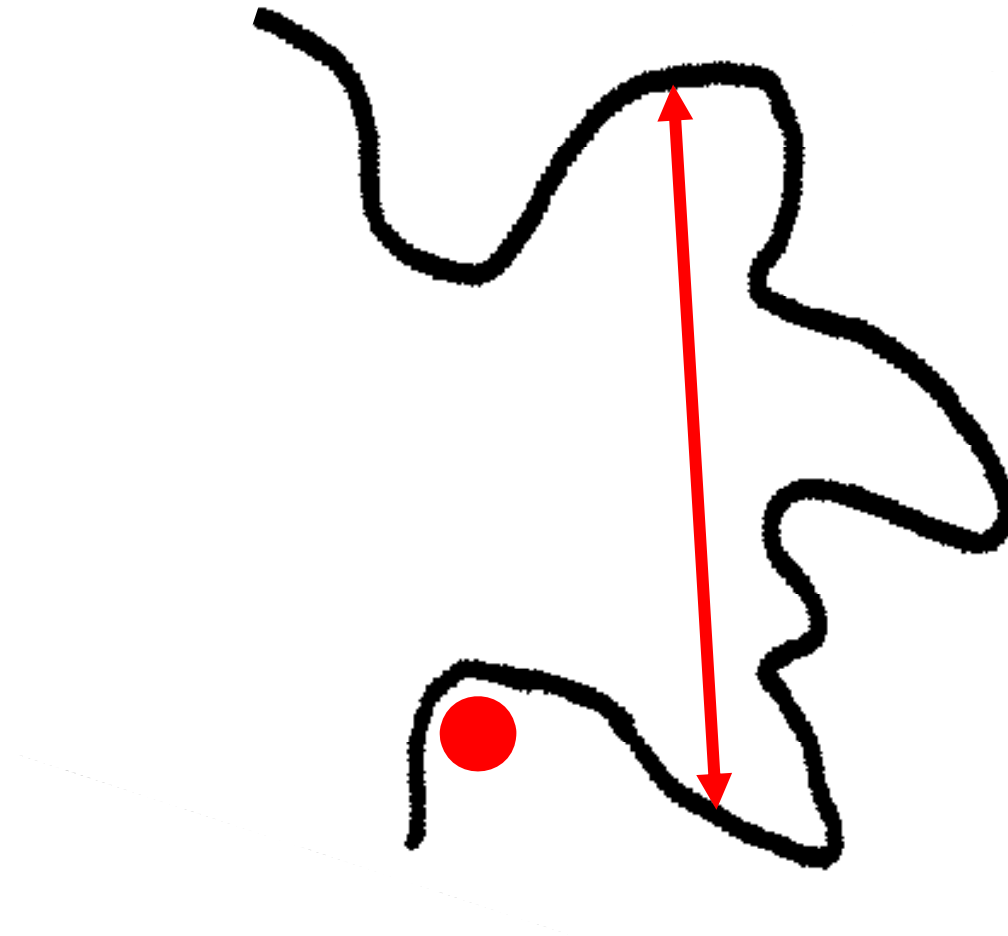
But rather easy here!

Complex morphology



And Watchman also easy –
despite complex morphology

Complex morphology



Body diameter may be too large for Centre Heart

Other considerations

- In case of device embolisation it is easier to snare and extract the Watchman than the ACP
- With Watchman one sheath size fits for all device sizes
 - The sheath can be used for calibration
 - Decision about device size can be made after sheath insertion
- With ACP no quantitative measurements are needed after device implantation
- That one LAA closure device is effective in stroke prevention does not mean necessarily that all other devices are effective as well
 - Data are still much more solid for Watchman
- To compare the safety profile of different devices a randomized study is needed

When to use which device?

- Very short LAA
 - ACP may be better than Watchman
- Very large LAA (>28mm)
 - Watchman may be better (up to 31mm)
- Multiple proximal lobes
 - ACP may be better (short landing zone, umbrella may cover all lobes)
- But if there is a bad angle between delivery system and LAA
 - Watchman may be better
- Patient can not take any blood thinner therapy
 - Sentre Heart better