Strategies to prevent nerve damage in Bernese periacetabular osteotomy

Morteza Kalhor MD

Iran university of medical science
Orthopedic Department

Tehran Iran

Lisbon Hip Meeting
Nov.. 16, 17 2017

Nerves within the confines of Bernese PAO

- Lateral femoral cutaneous (LFCN)
- Obturator (ON)
- Femoral (FN)
- Sciatic (SN)

Incidence (literature)

- Femoral and sciatic %0-%15
- LFCN 30-100%
- Obturator nerve?

when and how a nerve may be damaged during Bernese PAO?

- During exposure?
- During osteotomy?
- After reposition of the acetabular fragment?

Reducing the risk of nerve injury during Bernese periacetabular osteotomy

A ADAVERIC STUDY

M Kalhor, D Collado, P Rego, R Ganz.

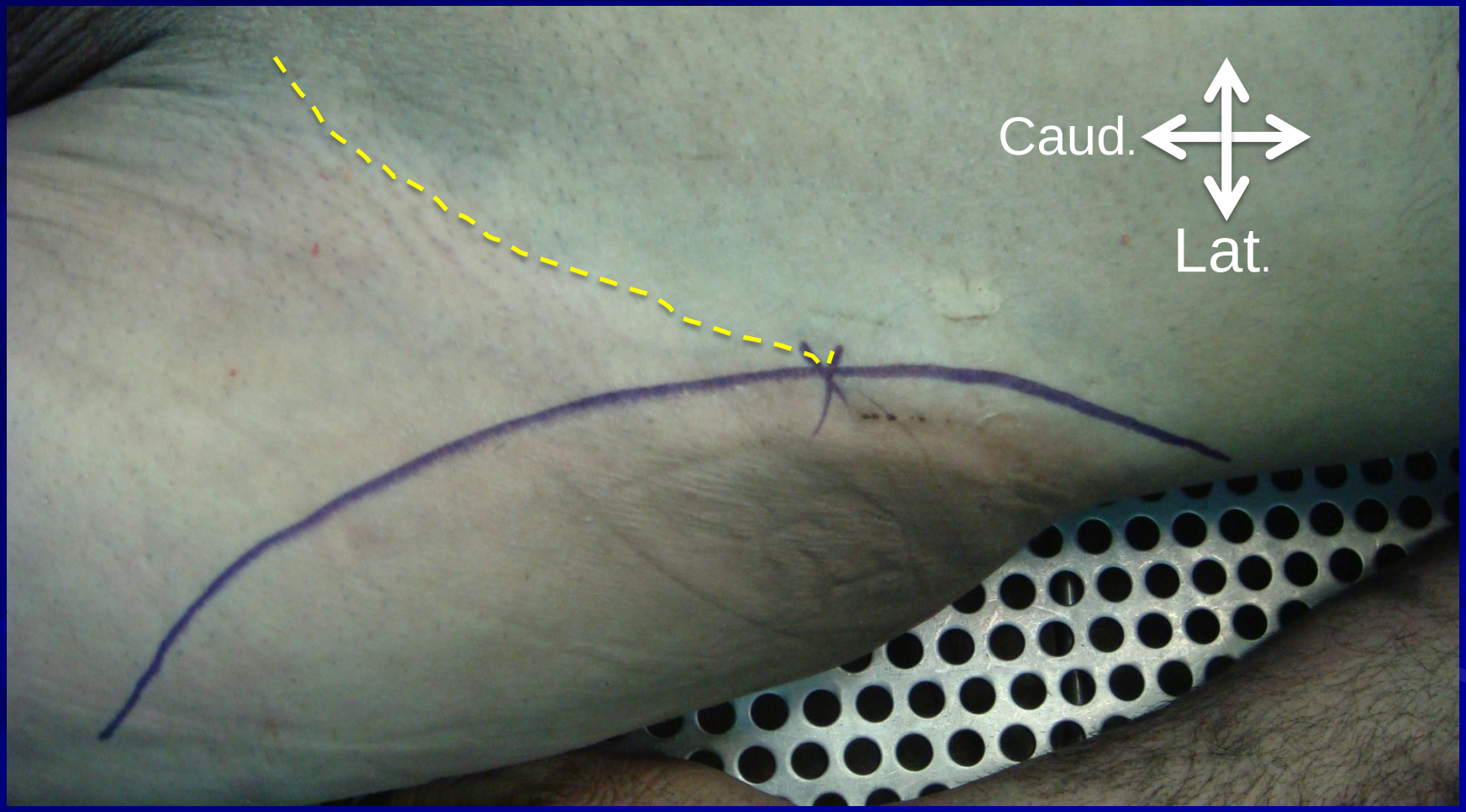
Materials and method

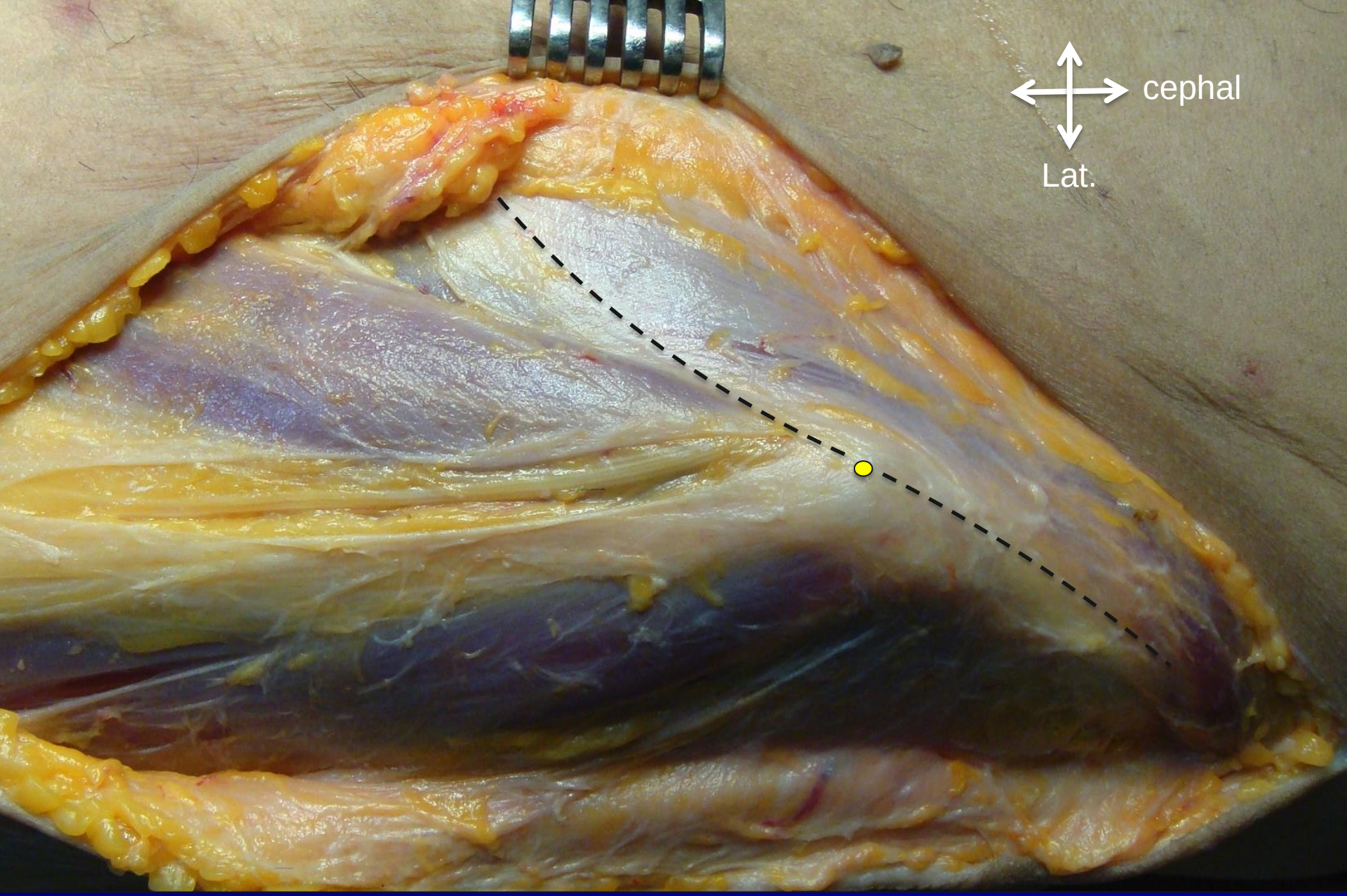
- 20 fresh cadaver hips
- Modified Smith-Petersen approach
- Kocher-Longenbeck approach

Methods

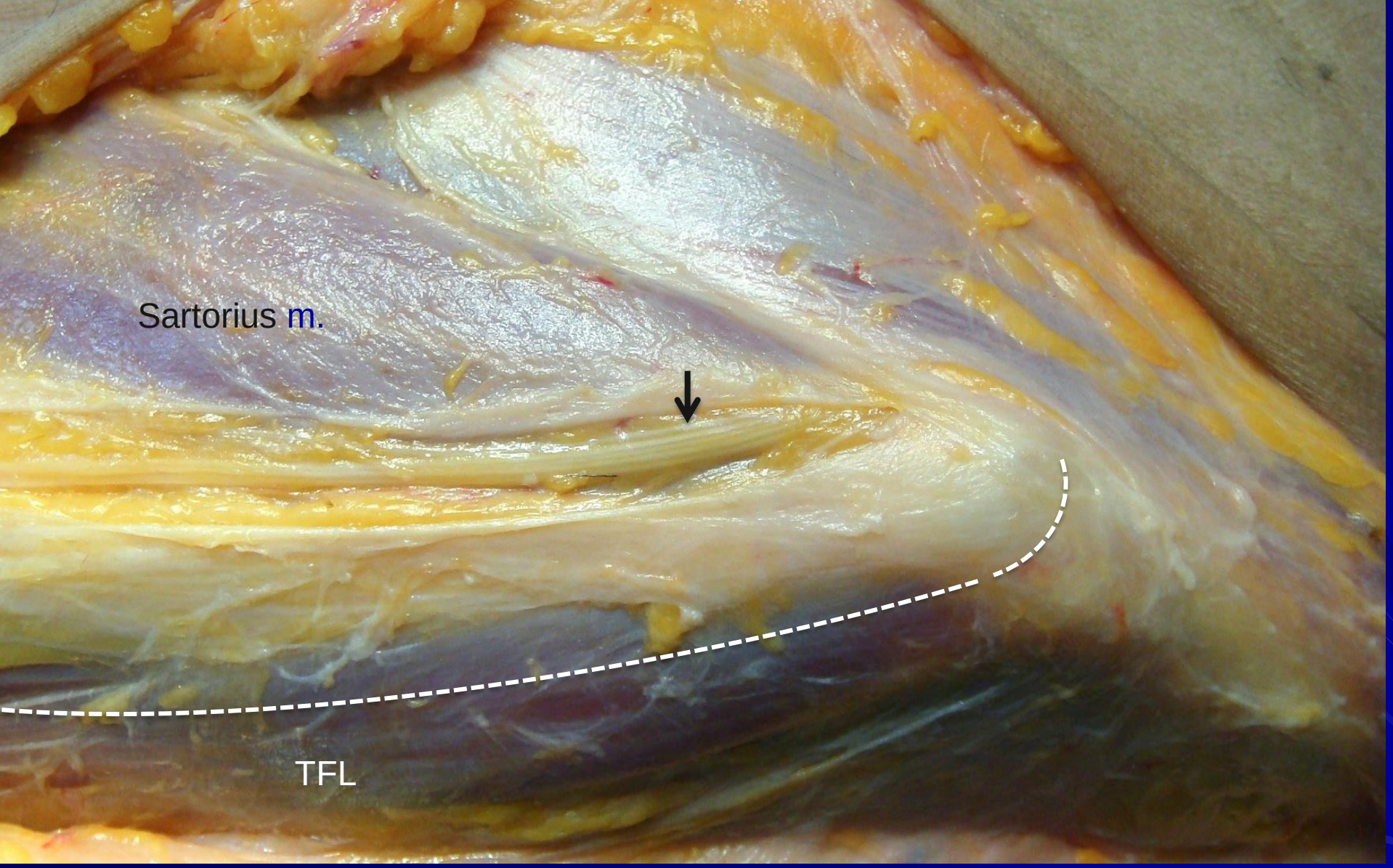
- In 10 hips each nerve was exposed during osteotomy of the corresponding nearby bone.
- In 10 hips the nerves were exposed after reposition of the acetabulum.

Left hip anterior aspect

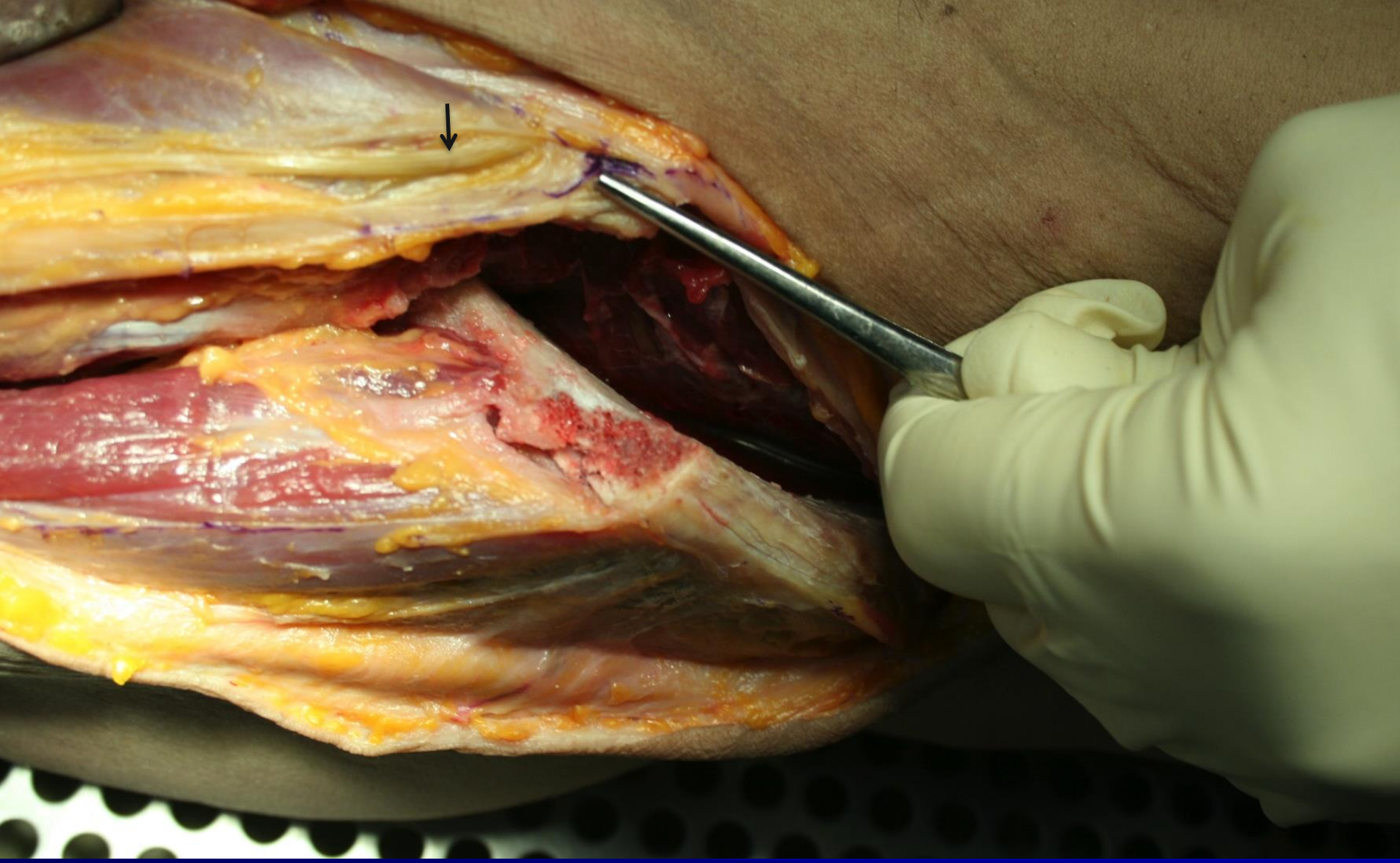




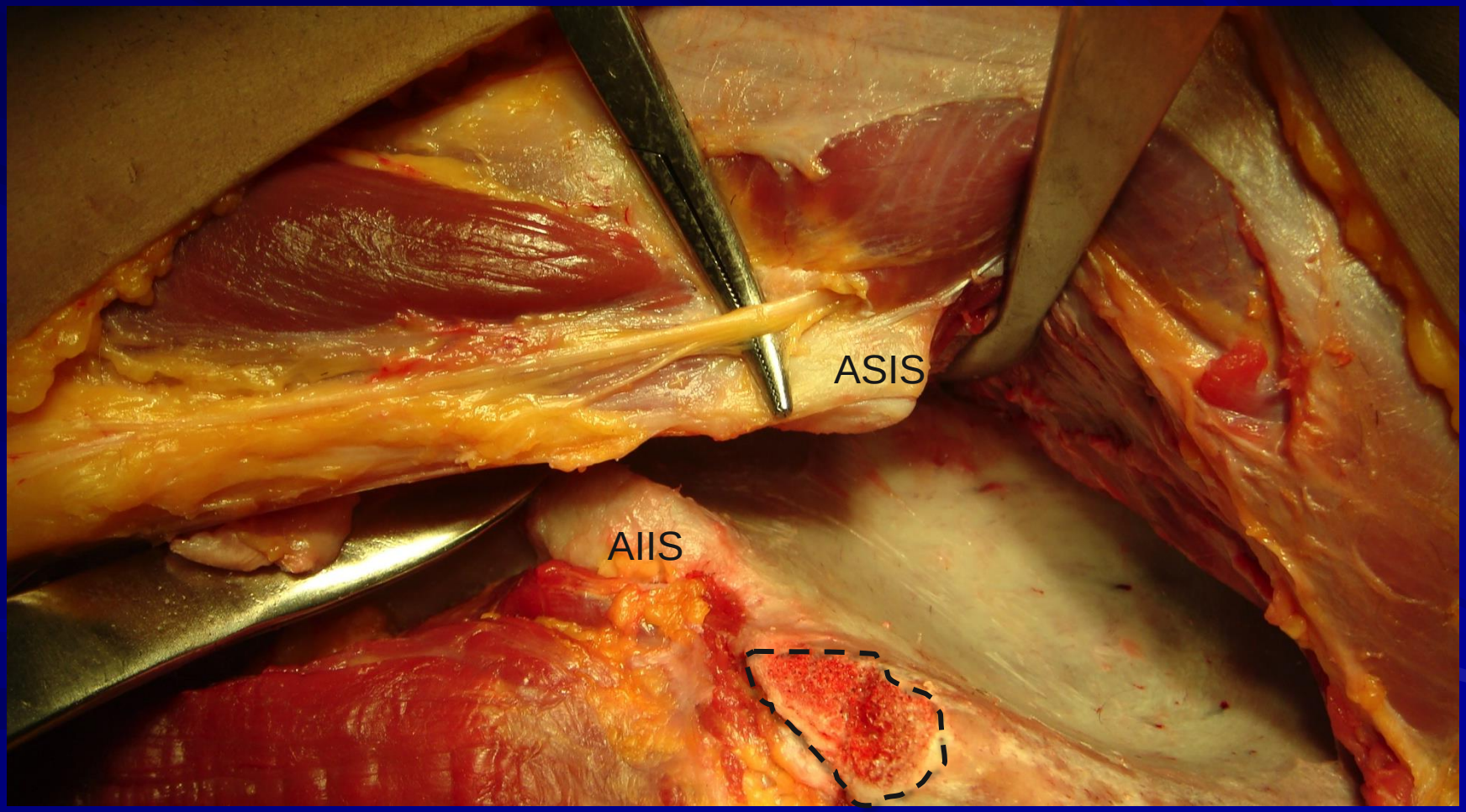
Anterior aspect of left hip

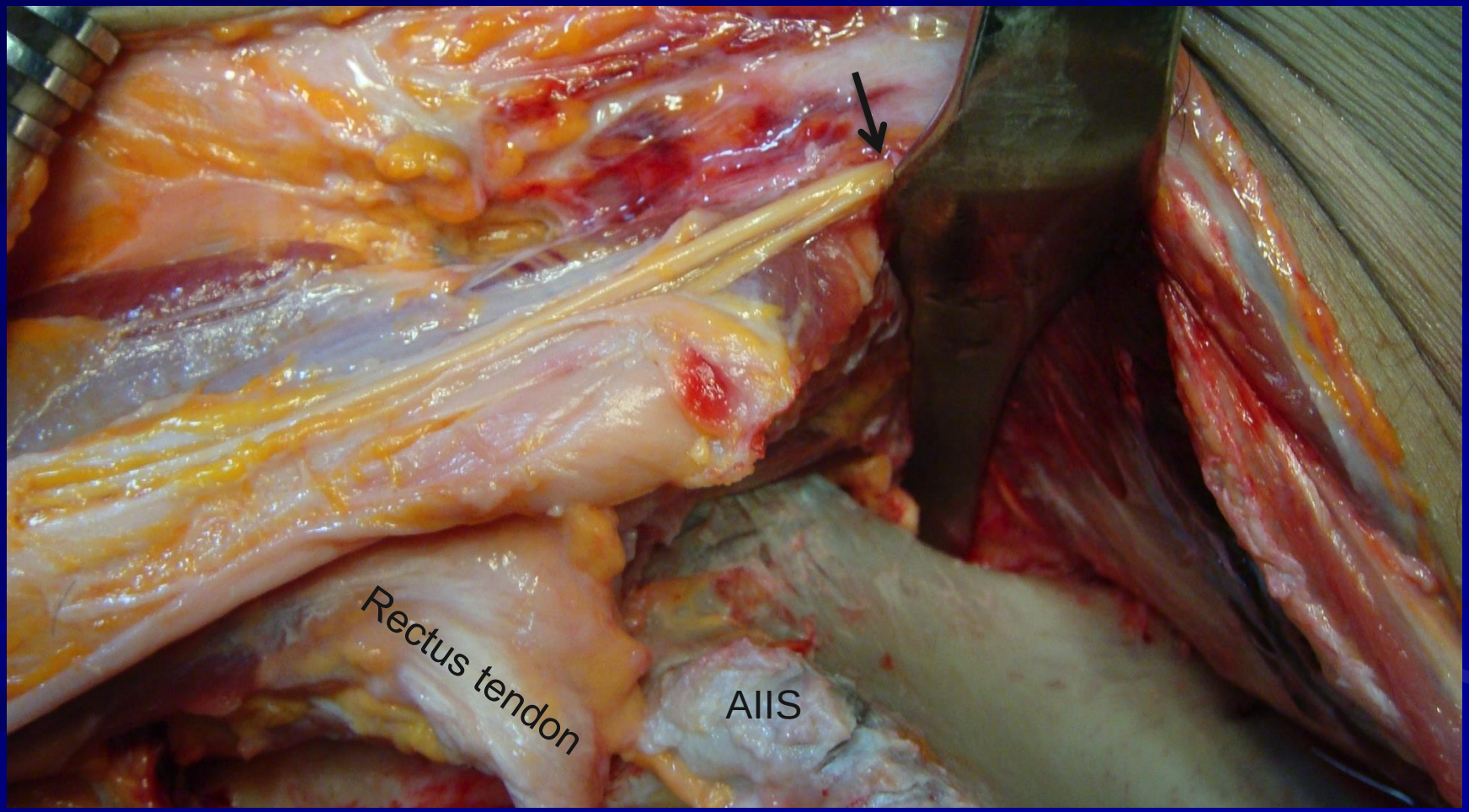


Left hip anterior aspect

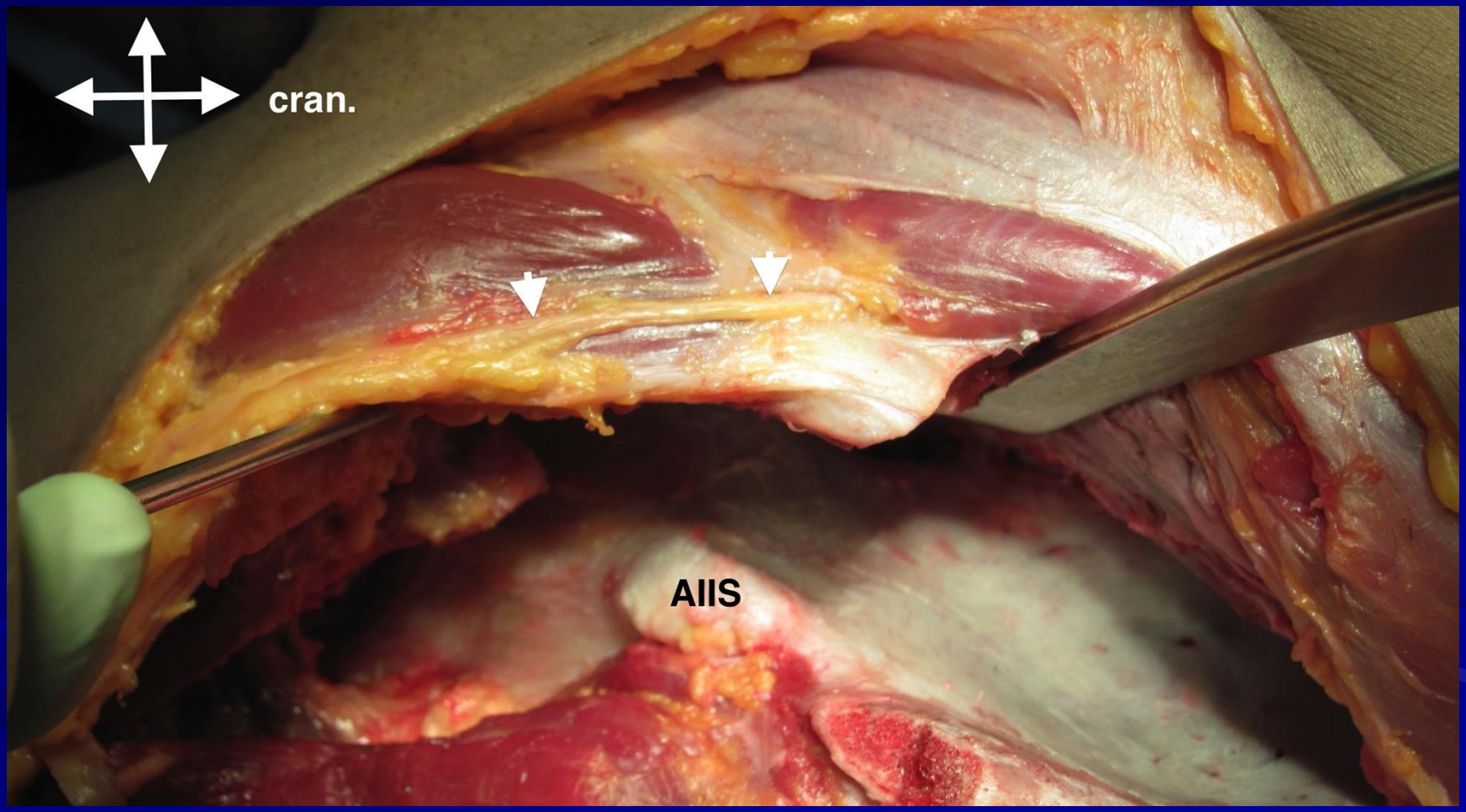


anterior aspect of right hip

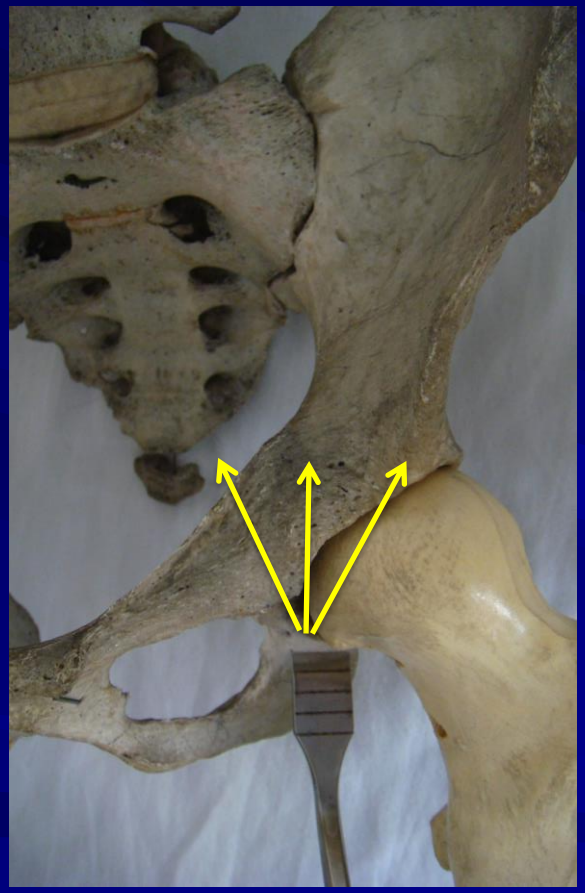

ASIS
AIIS

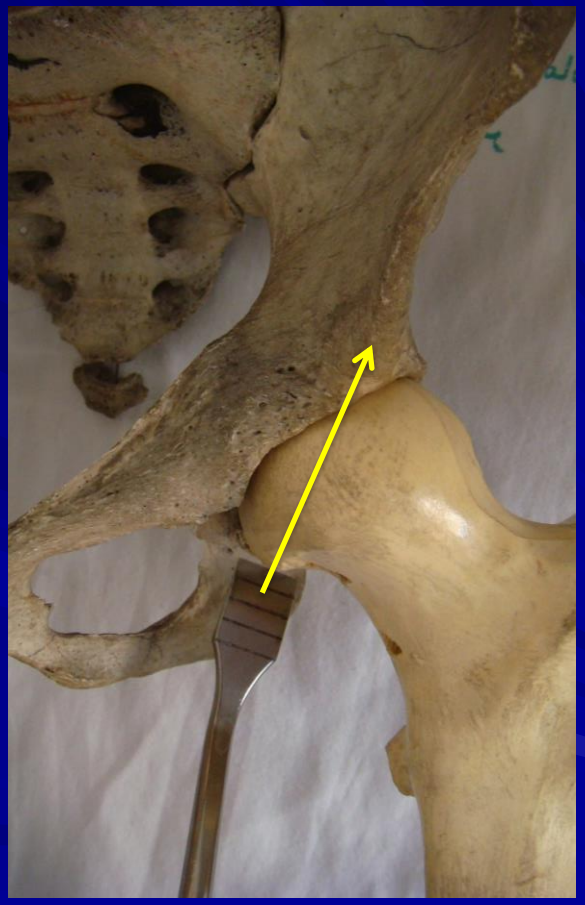


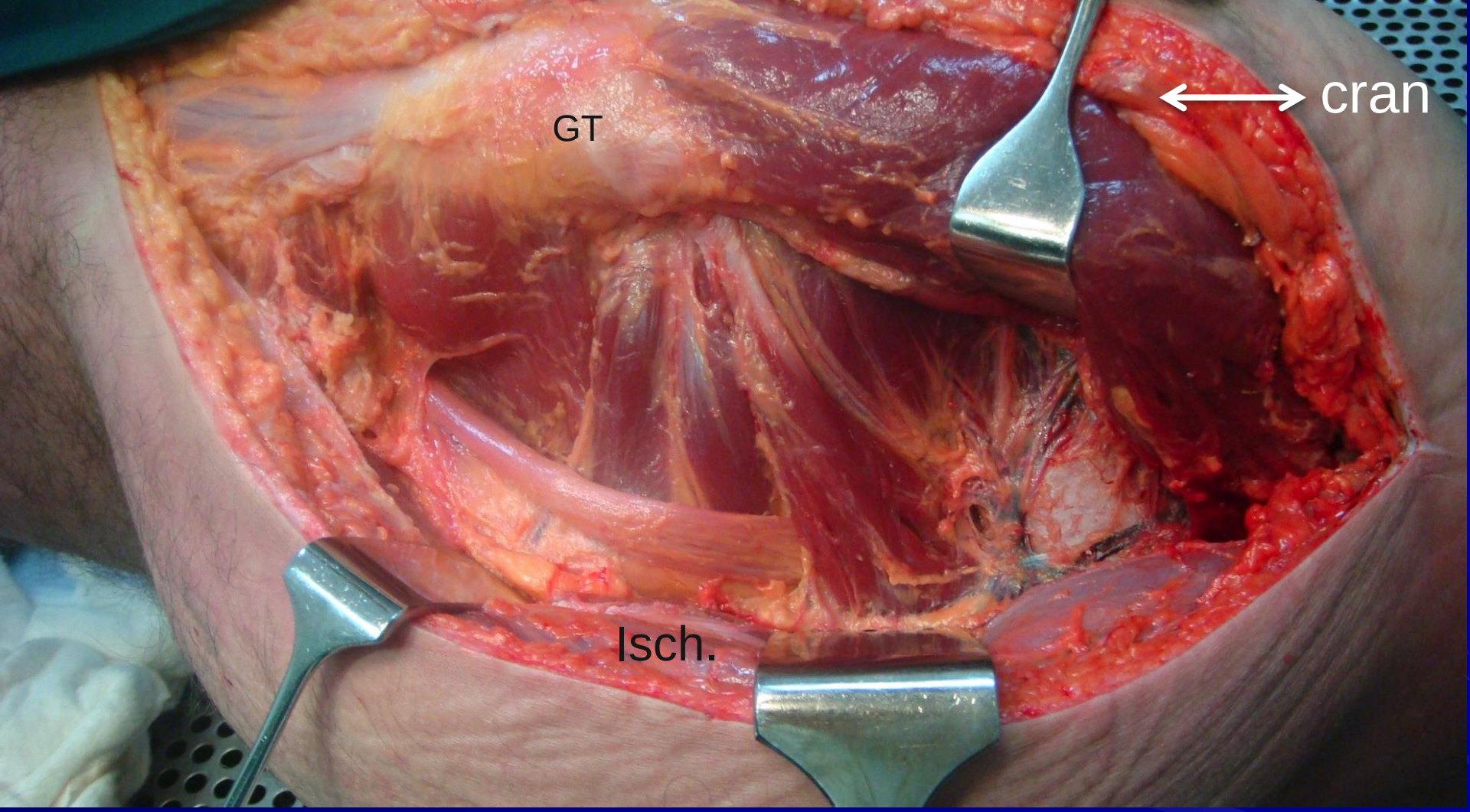
Exposure of internal aspect of pelvis without ASIS osteotomy


cran.
AIIS

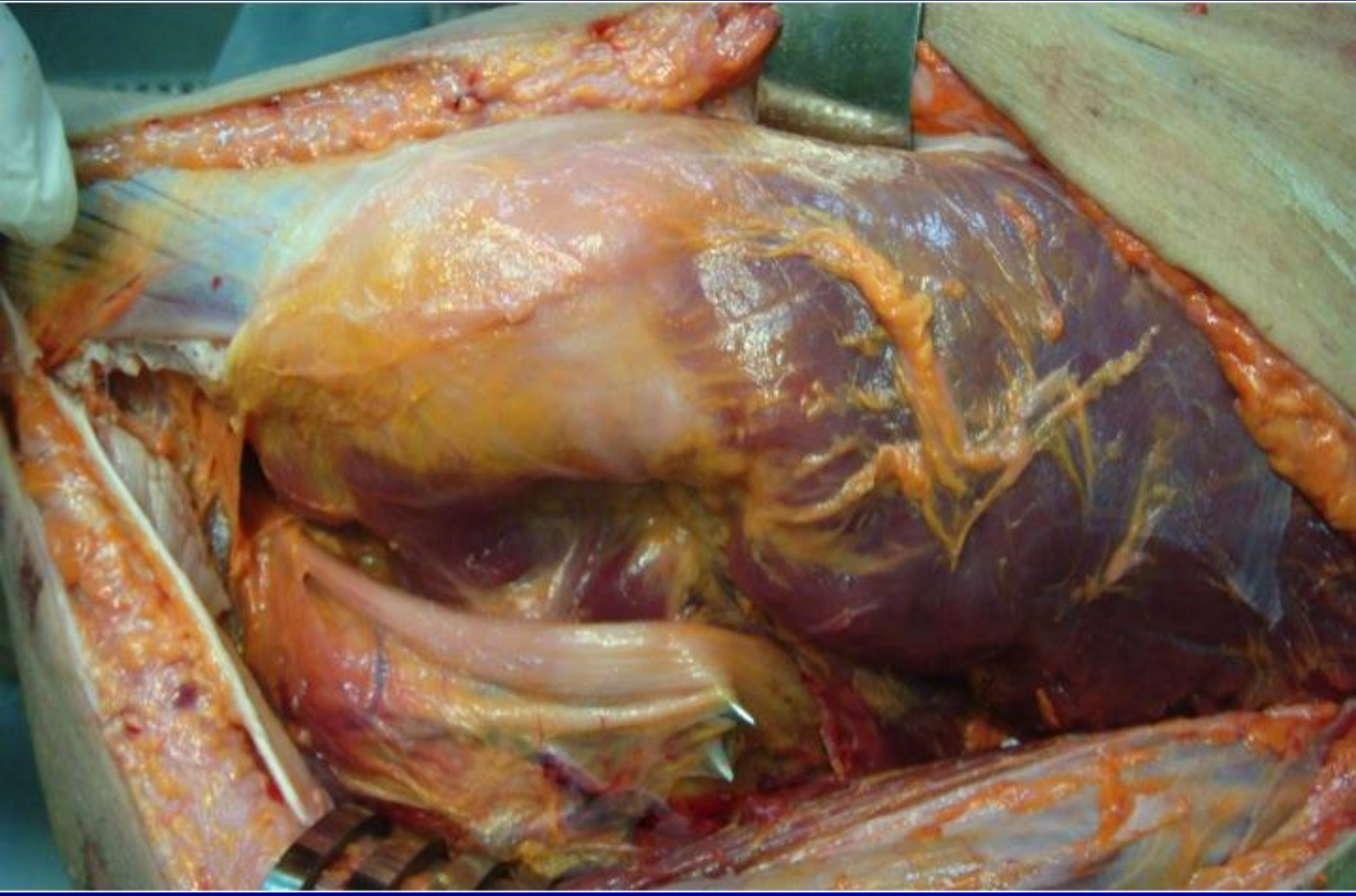
Osteotomy of ischium through the anterior approach



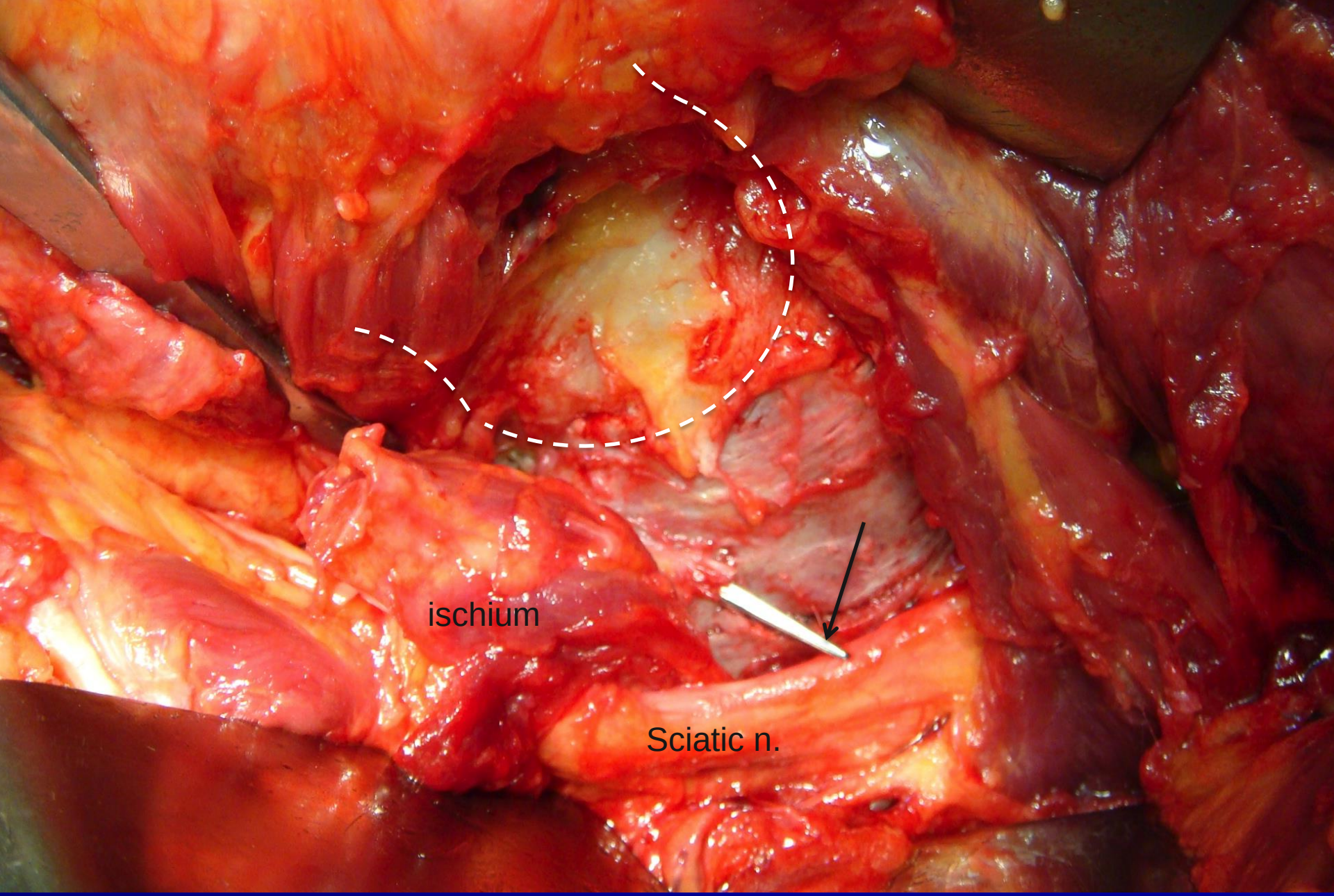




Posterior aspect of left hip

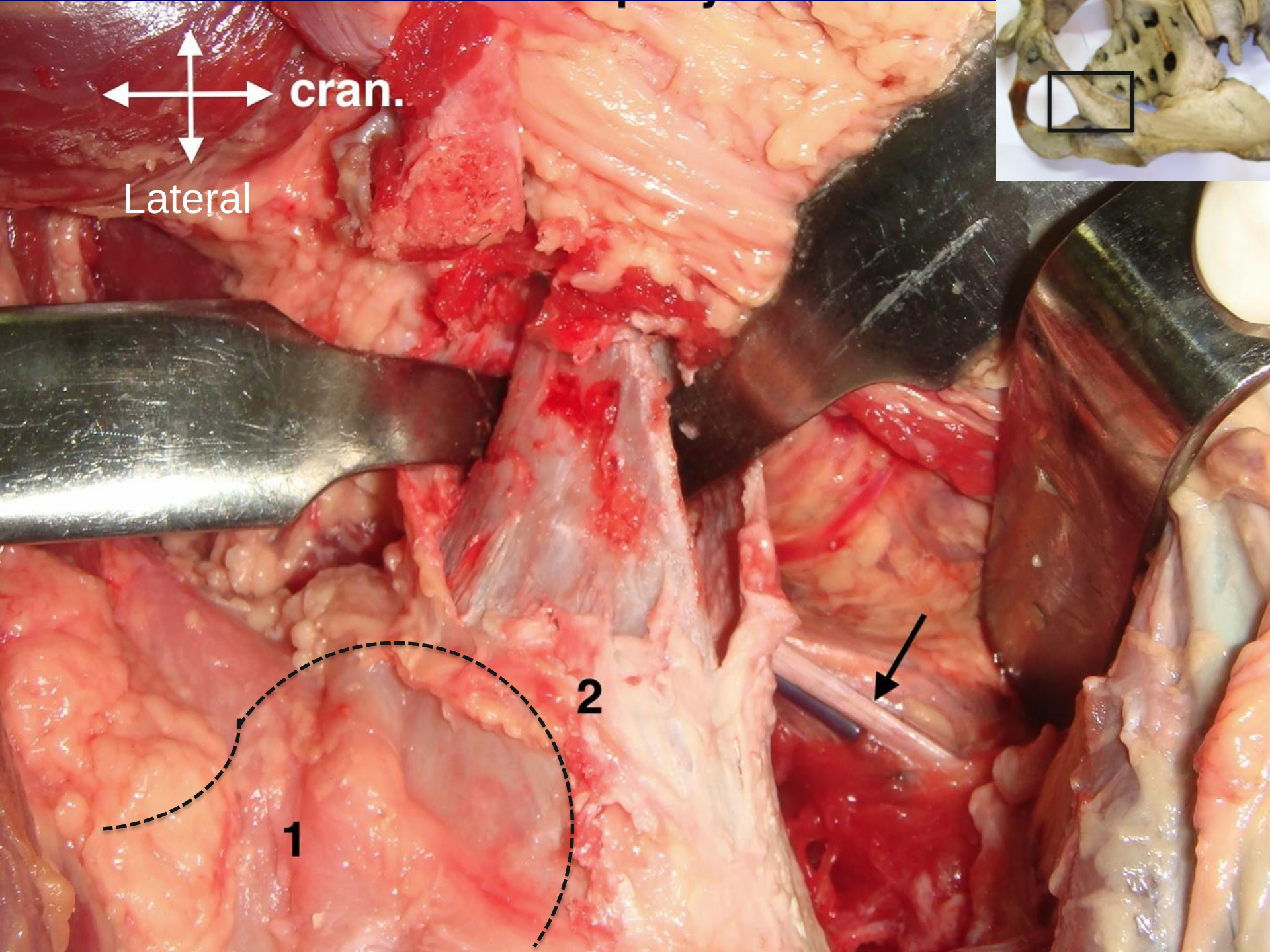


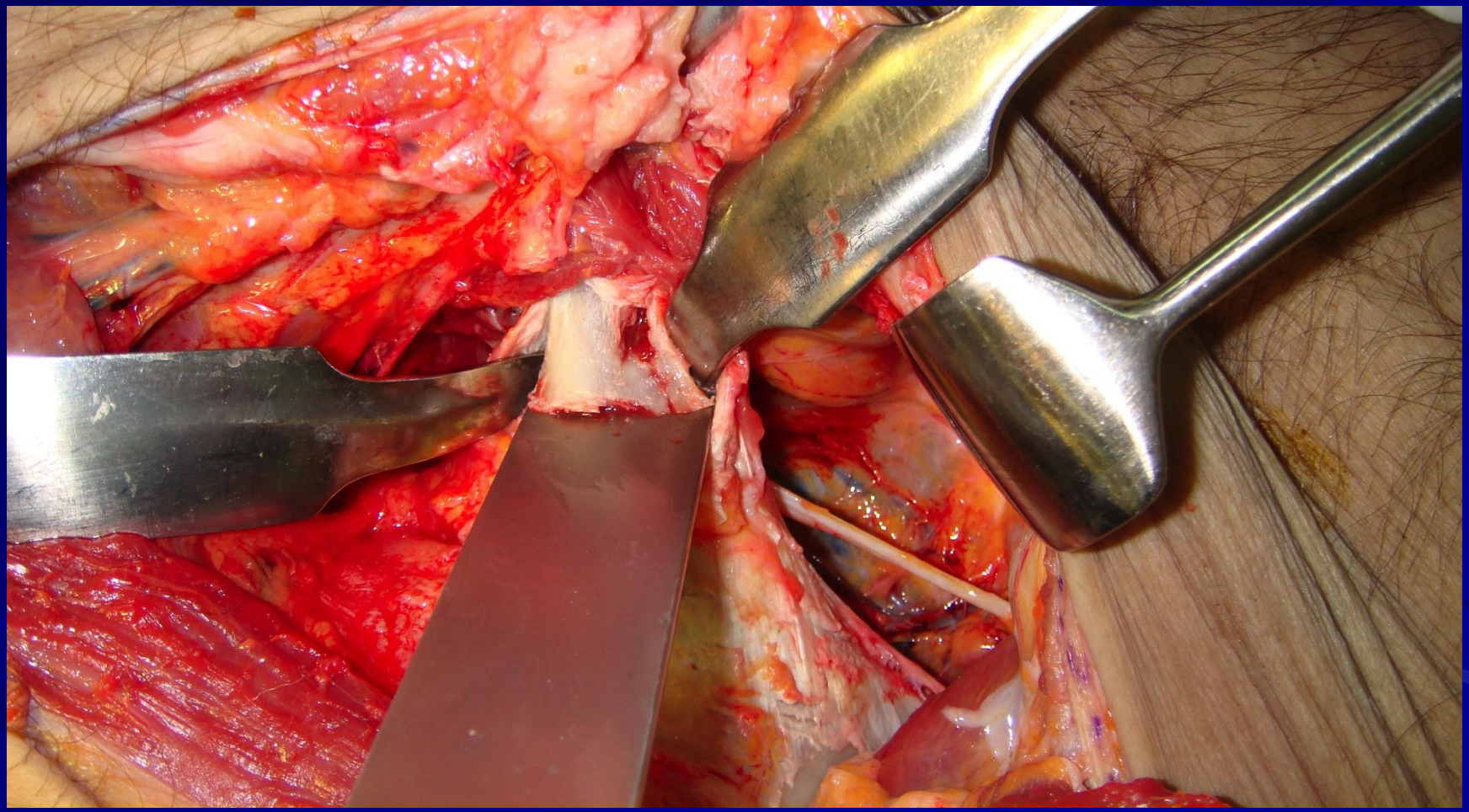
Left hip posterior aspect
ischial osteotomy first step

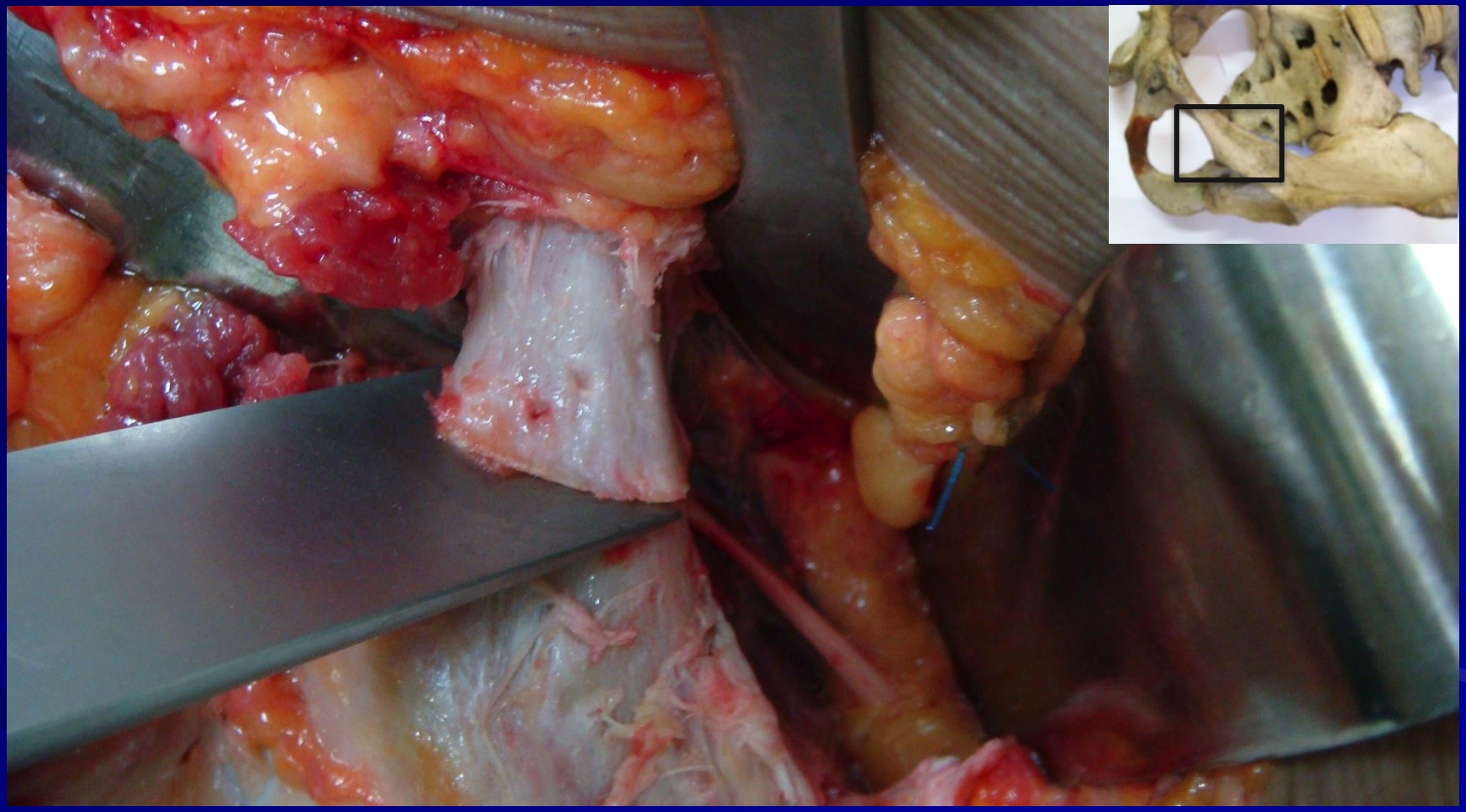


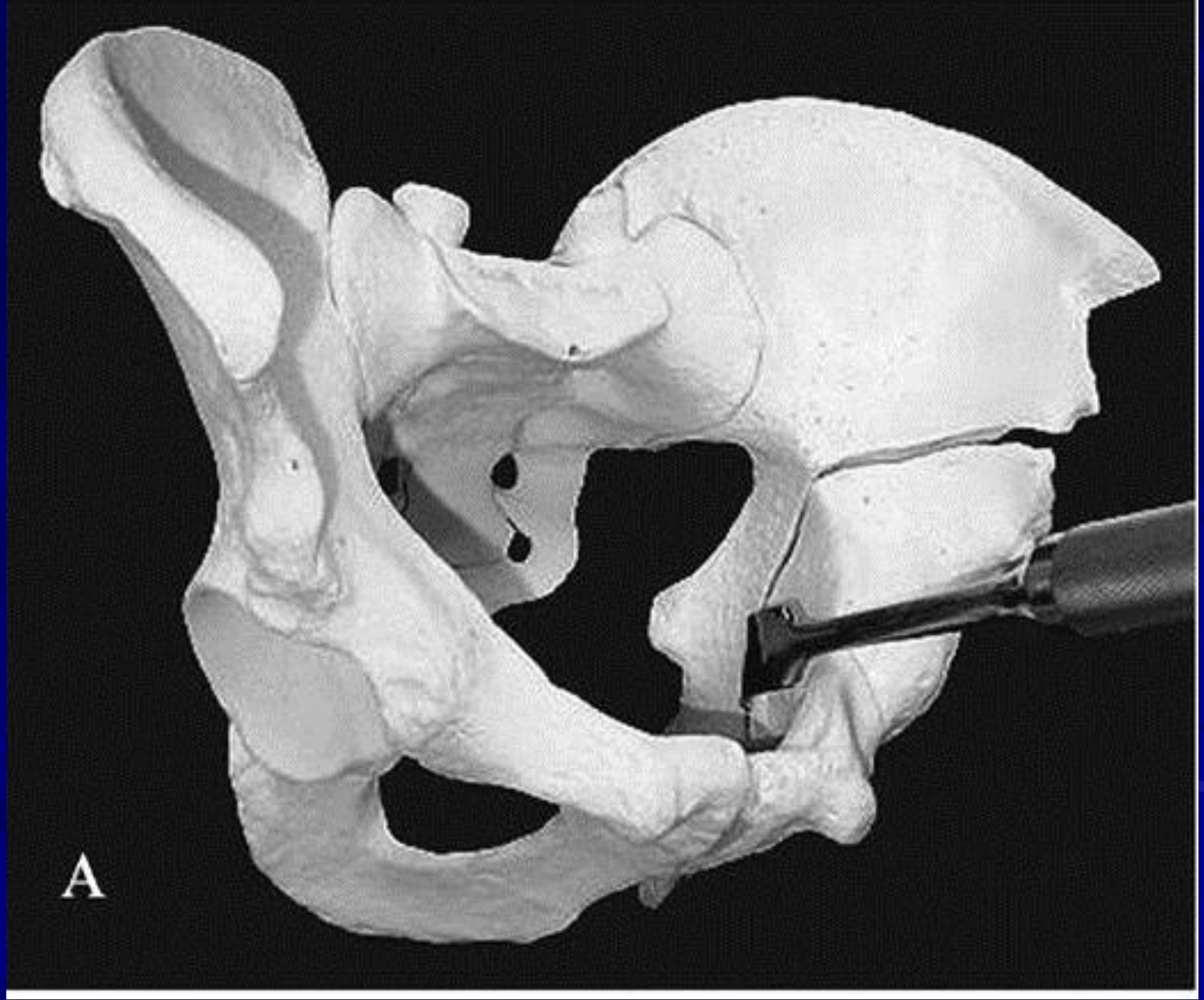
Posterior aspect of left hip

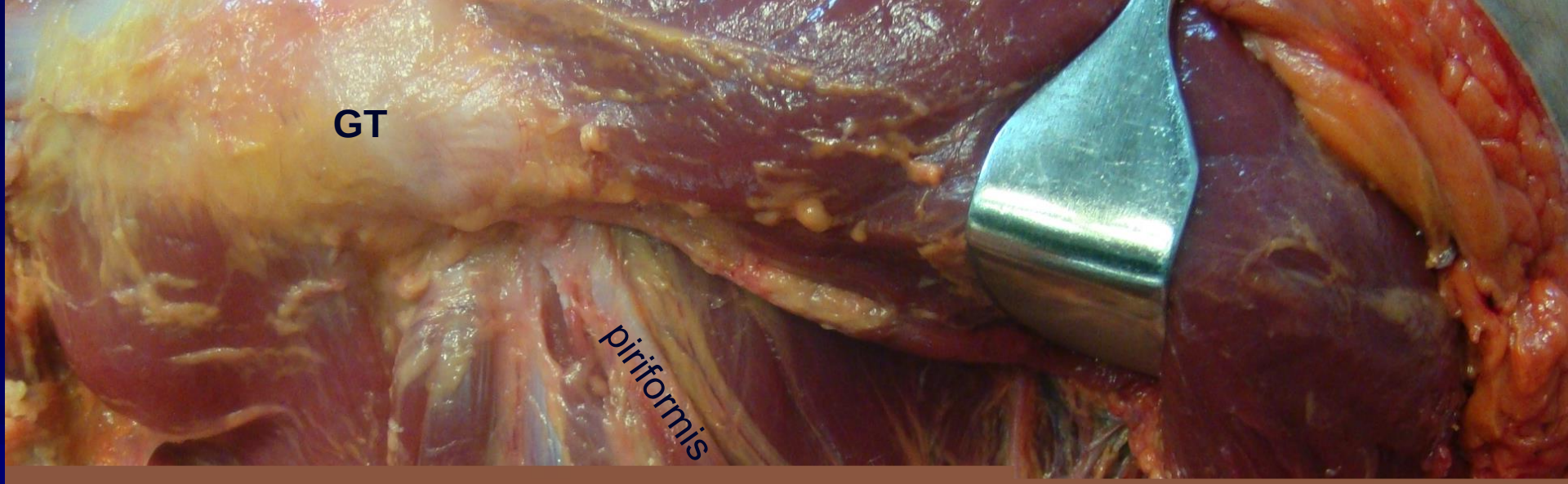
Pubic osteotomy


cran.
Lateral
2
1

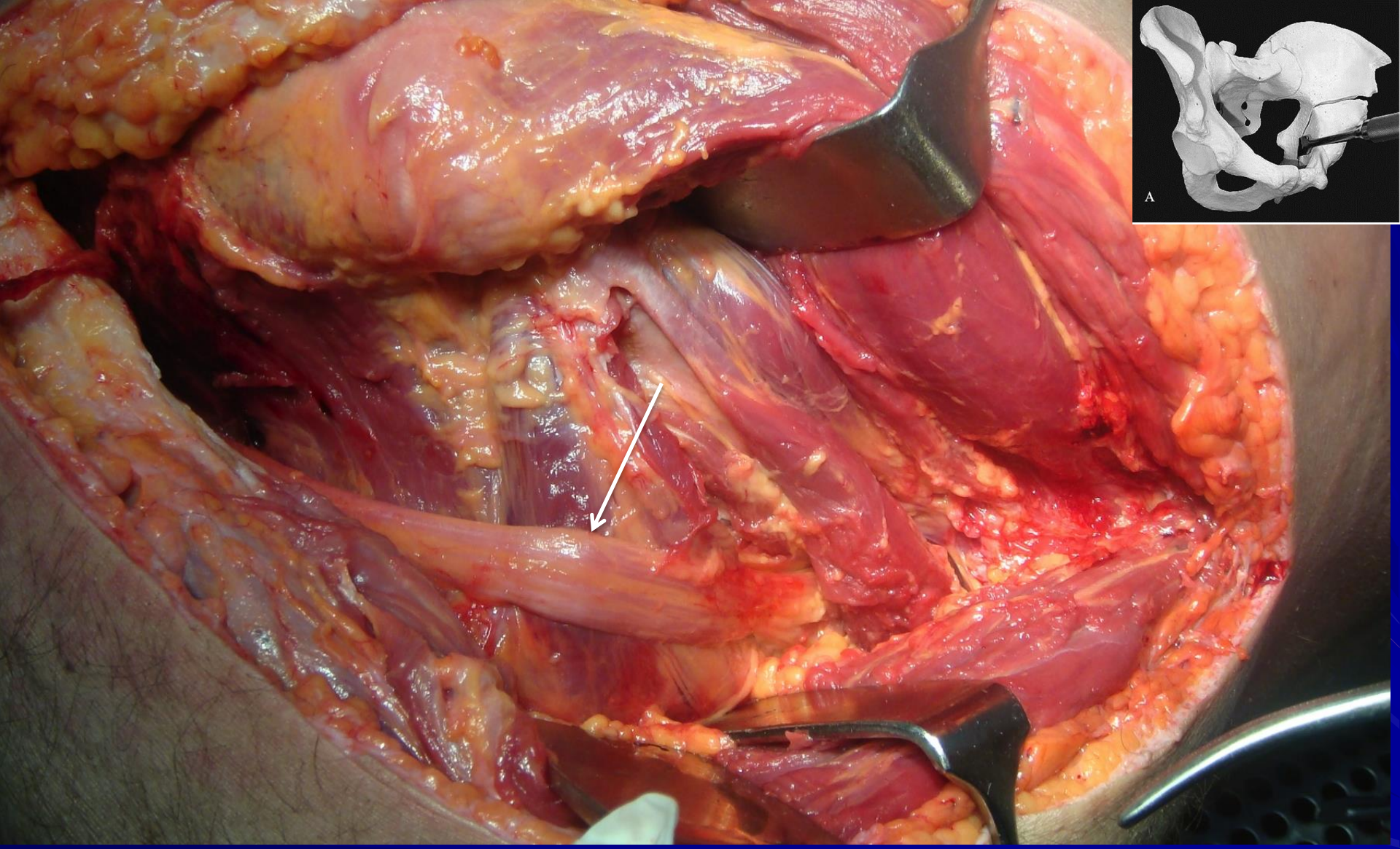




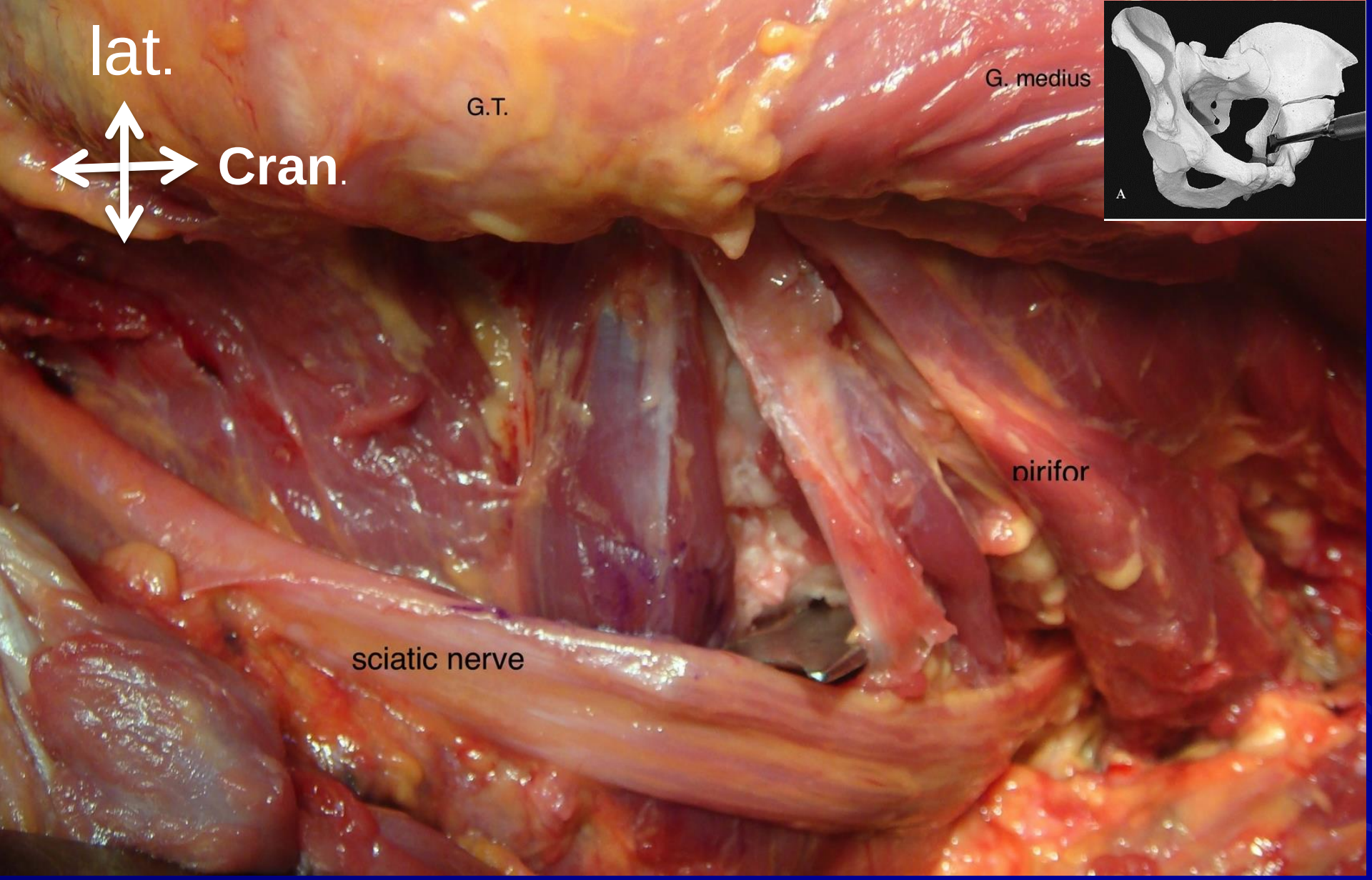

A



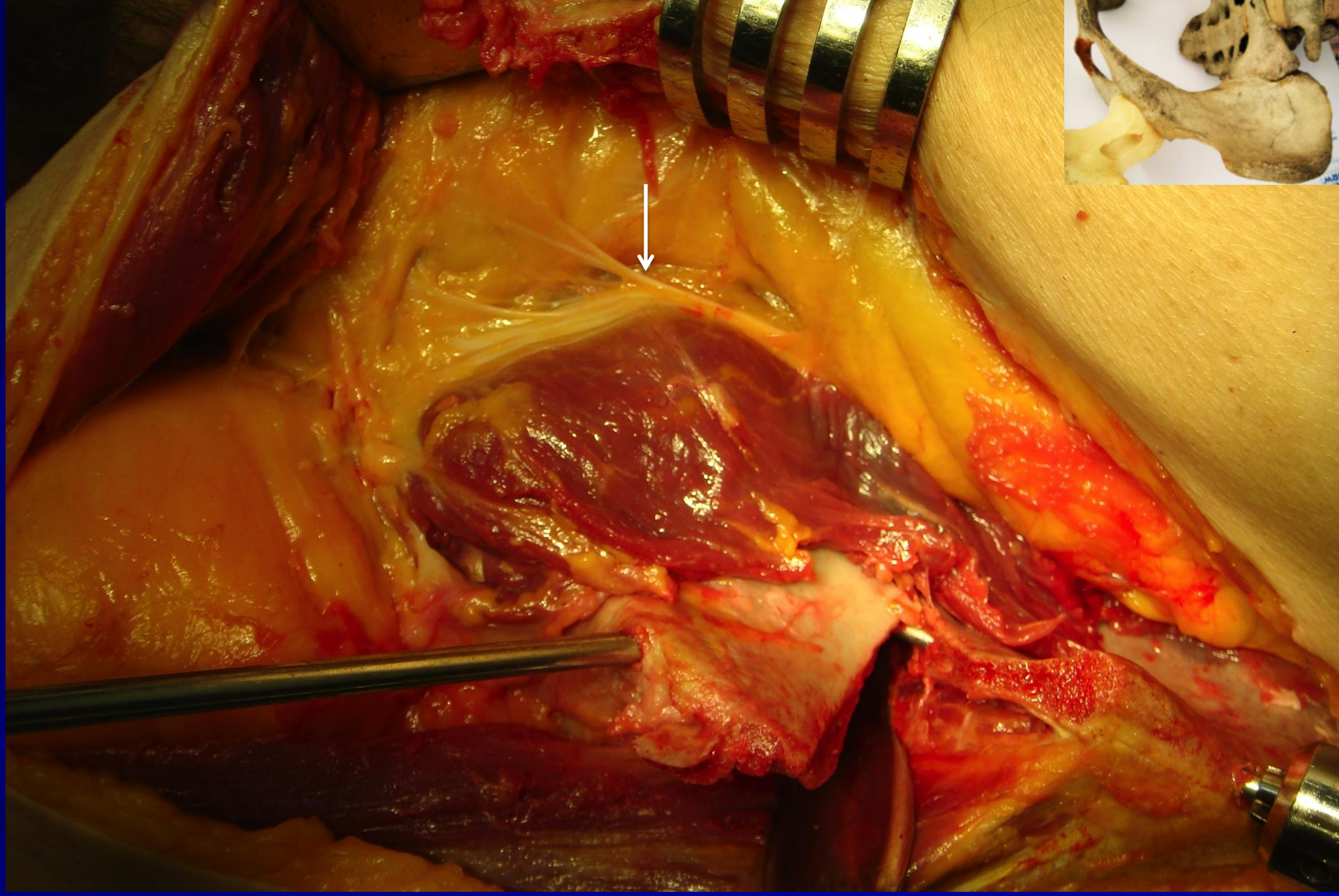
Posterior aspect of left hip

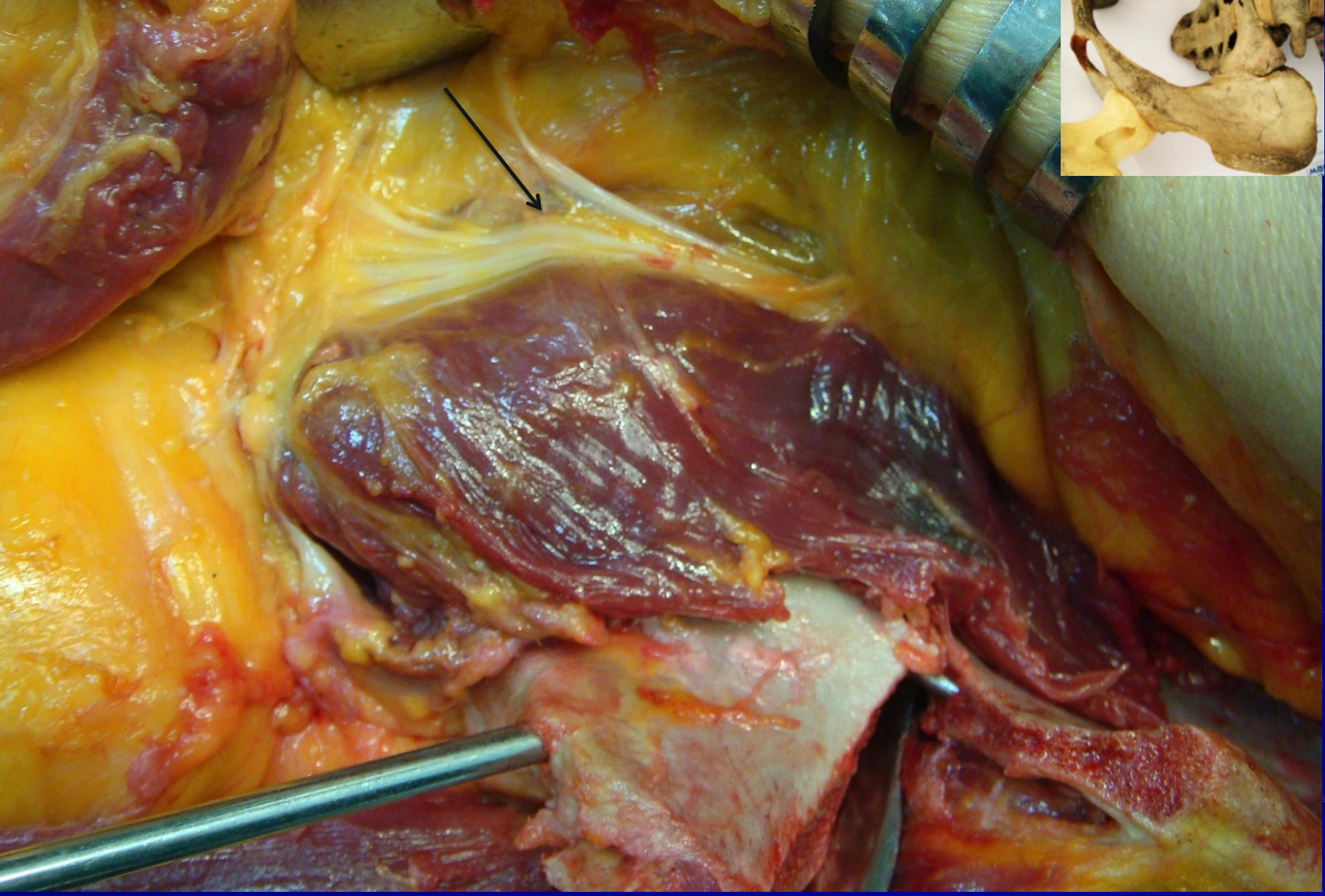


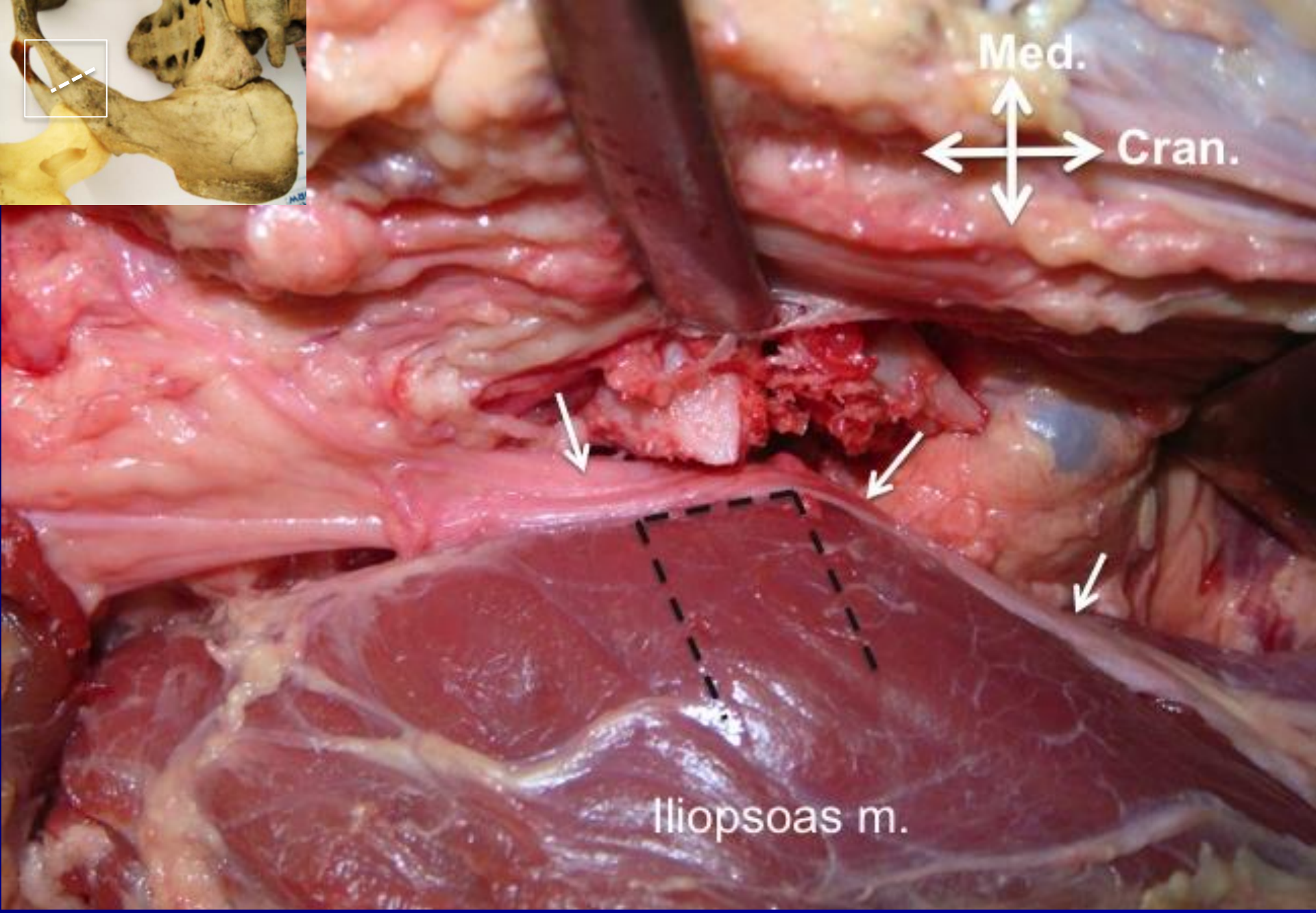
Posterior aspect of left hip

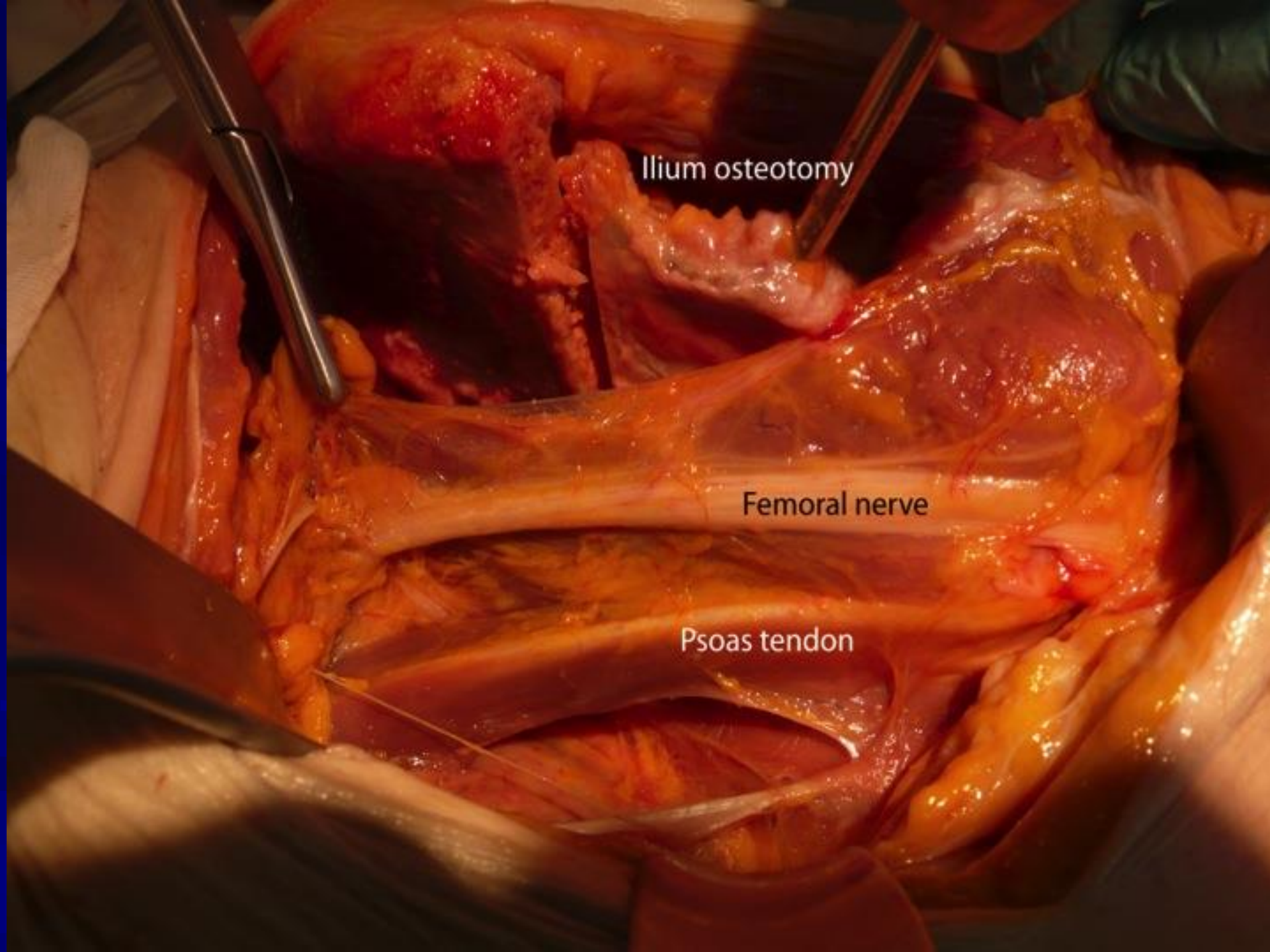

lat.
Cran.
G.T.
G. medius
A
pirifor
sciatic nerve

Topography of nerves after reposition of the acetabulum

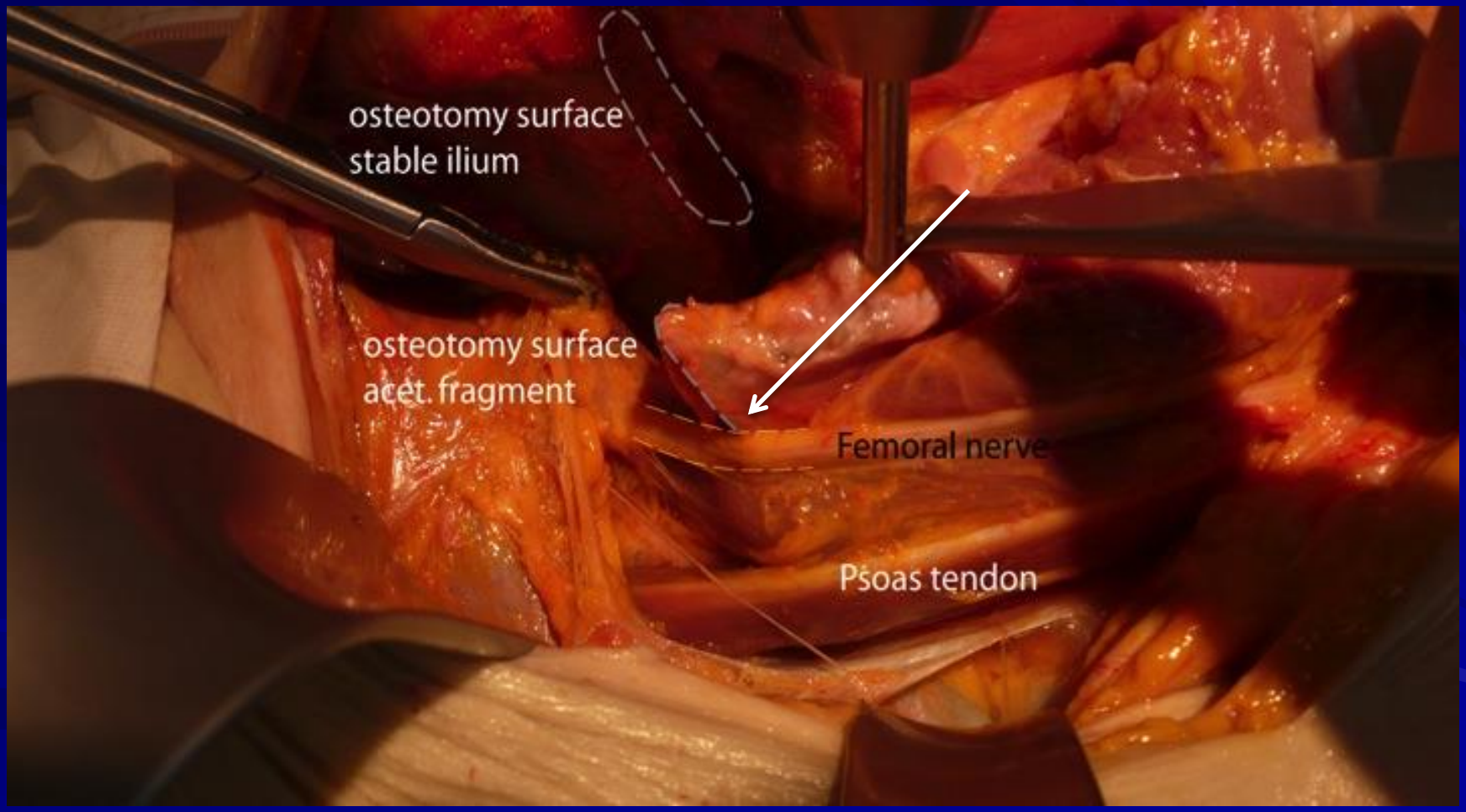


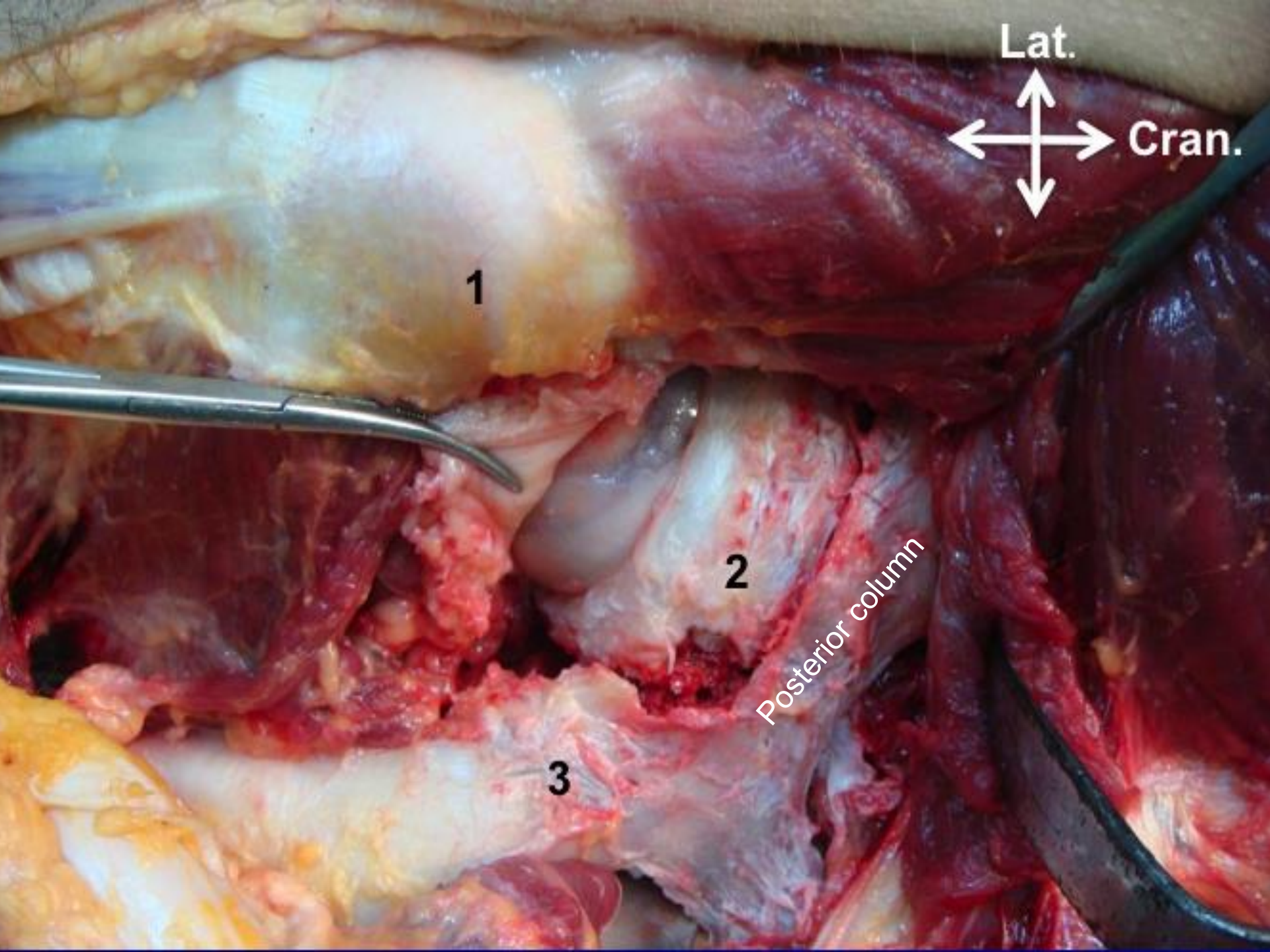


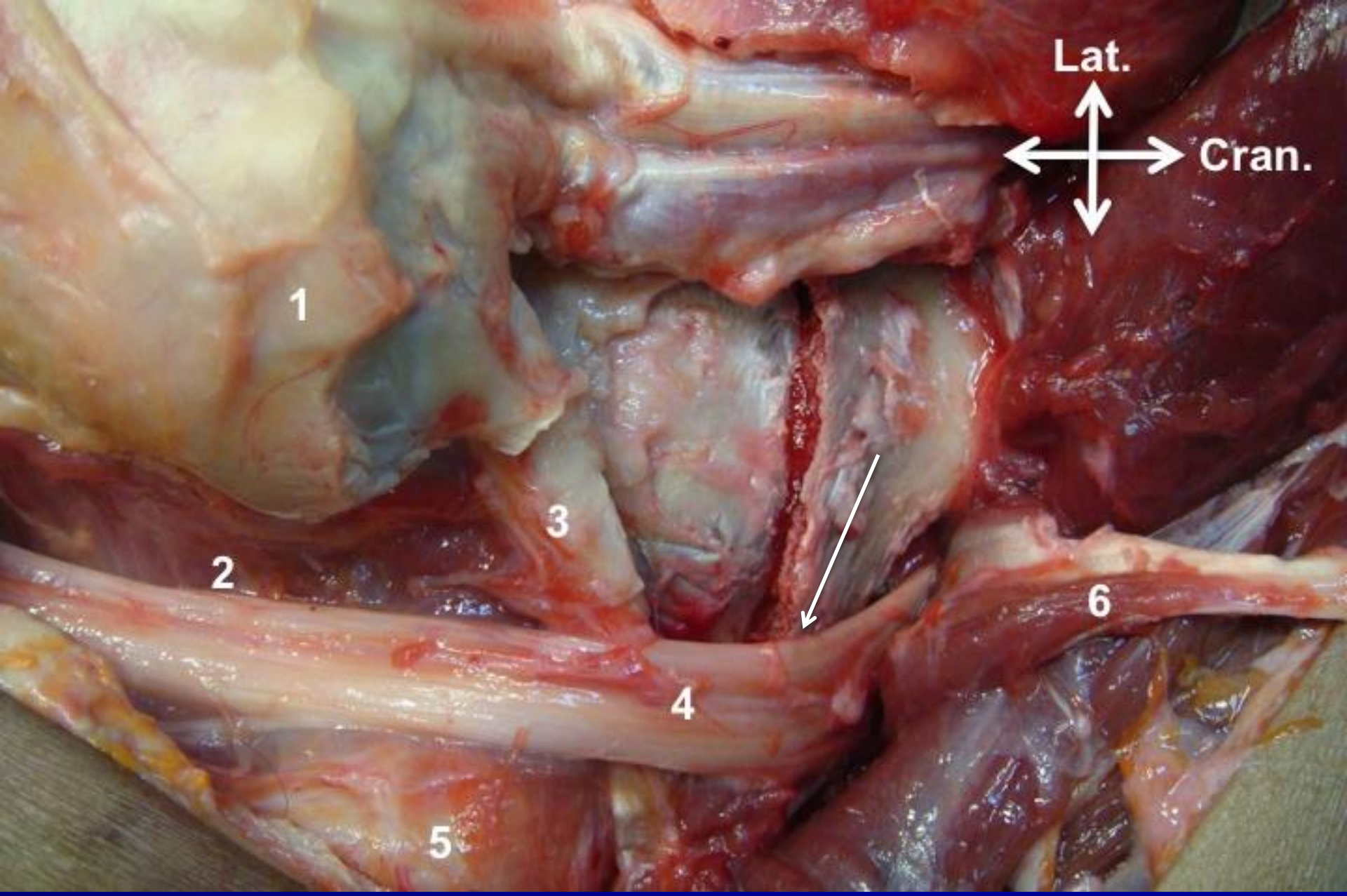

Med.
Cran.
Iliopsoas m.


Ilium osteotomy
Femoral nerve
Psoas tendon

The left hip viewed from Rt. side




Lat.
Cran.
1
2
3
Posterior column



Left hip posterir aspect after reposition of the acetabulum

Summery and conclusions

- LFCN injury is less likely following iliofemoral approach if associated with osteotomy of the ASIS
- Femoral nerve is likely to be damaged after reposition of the acetabulum and less likely during osteotomy.

Summery and conclusions

- Obturator nerve is more likely to be injured during pubic osteotomy.
- Sciatic nerve is prone to damage during the first and last steps of osteotomy but Less likely after reposition of the acetabulum

Thank you