

Case

A 62 year old male with hypertension and hyperlipidemia who twisted his right knee while on a ladder reaching for fruit

Felt an immediate pop with pain posteriorly and medially

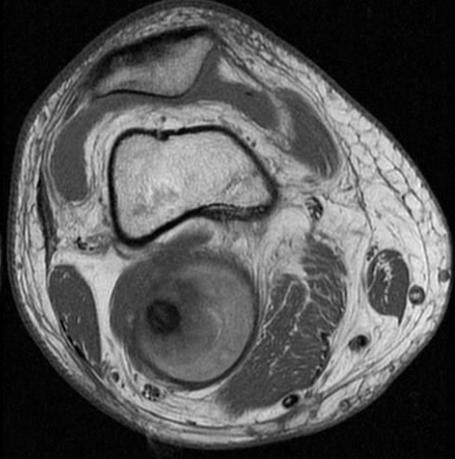
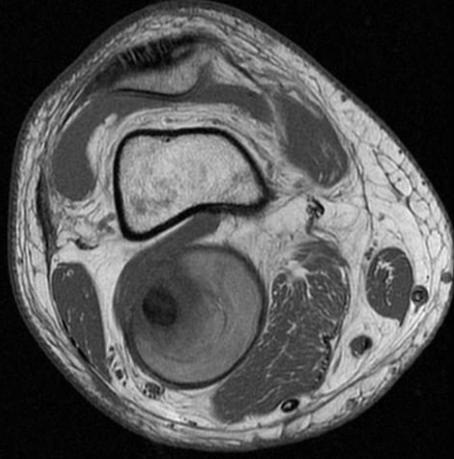
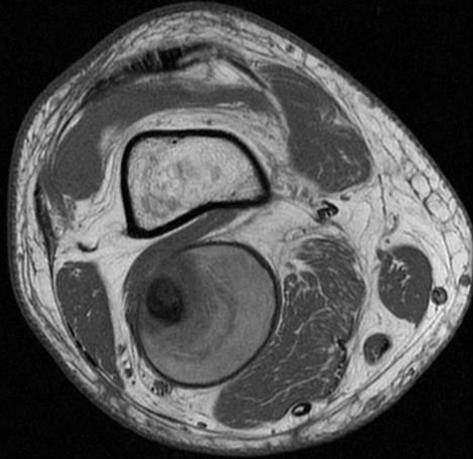
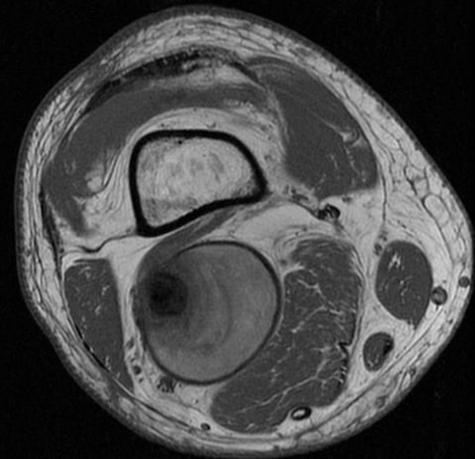
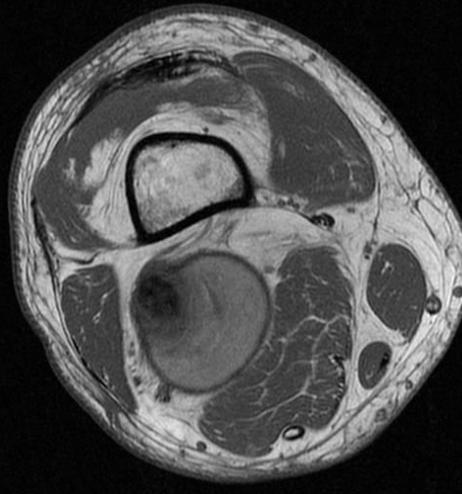
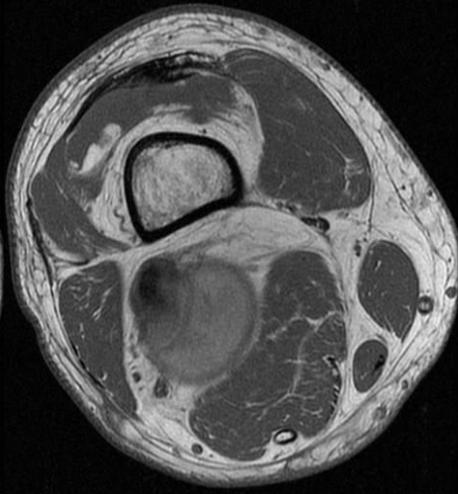
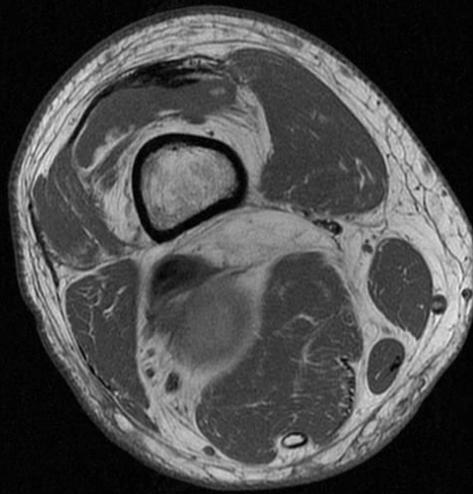
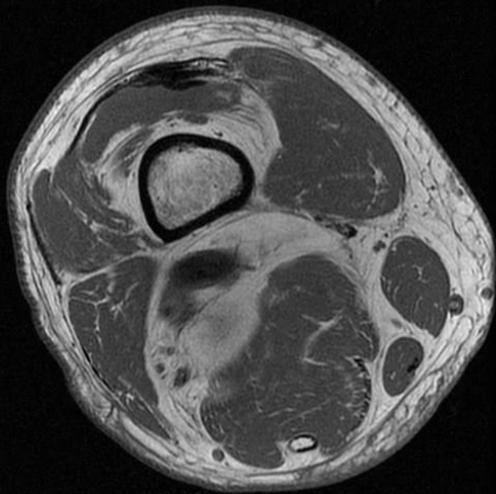
There was associated swelling over the knee that travelled down the leg

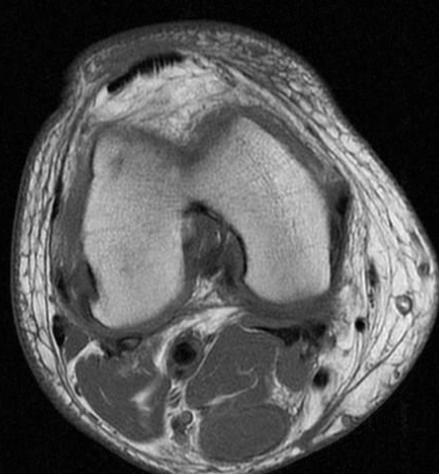
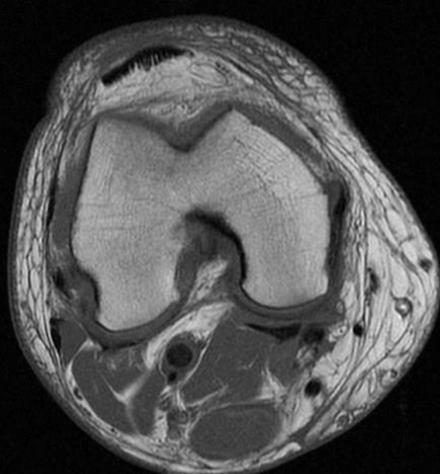
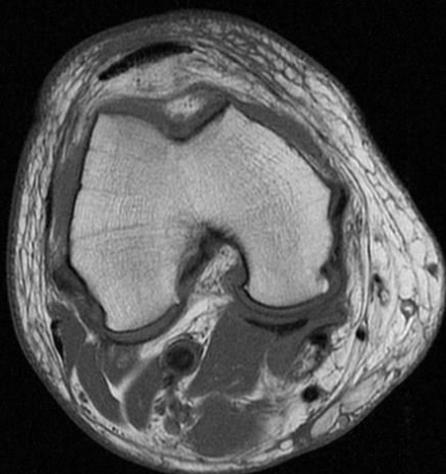
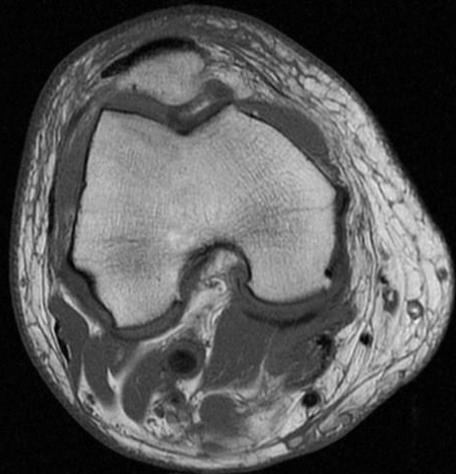
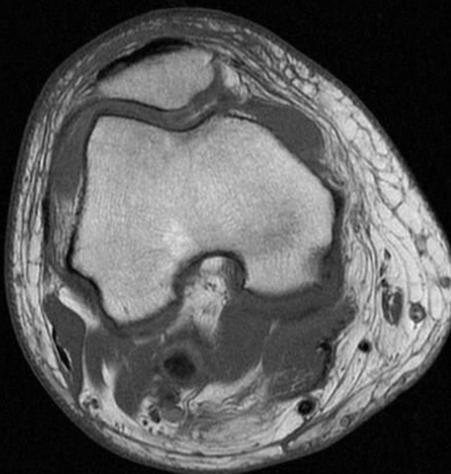
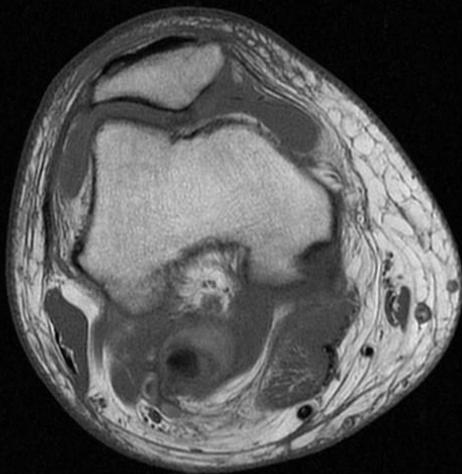
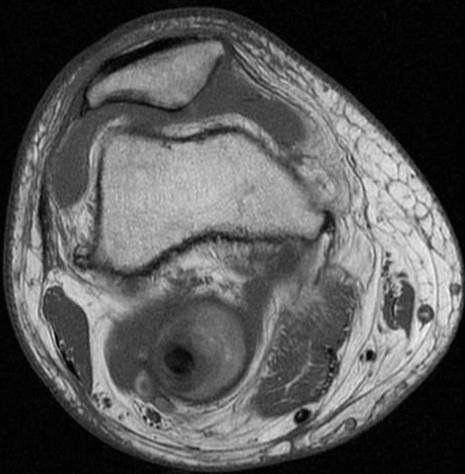
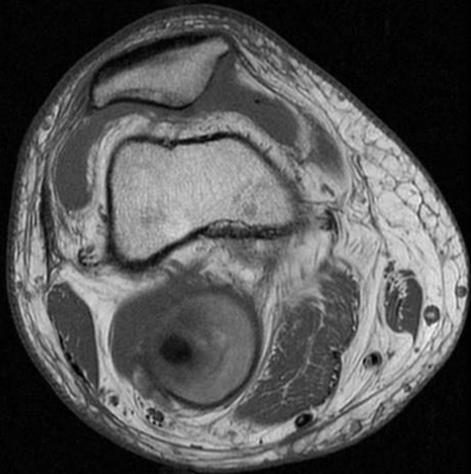
Office ultrasound showed a popliteal cyst that partially compressed the popliteal vein

Physical therapy did not improve pain, radiographs and MR were ordered

Radiograph





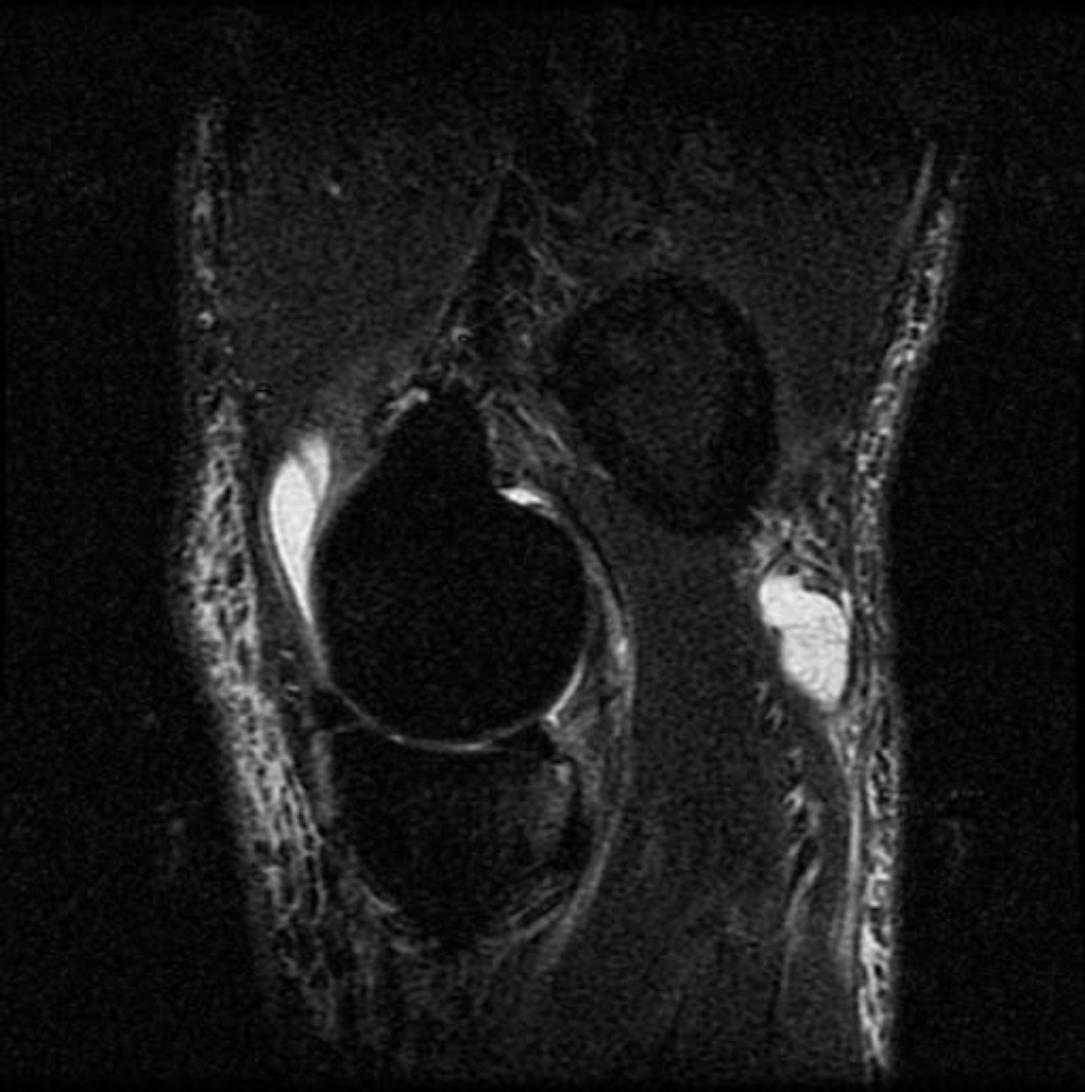


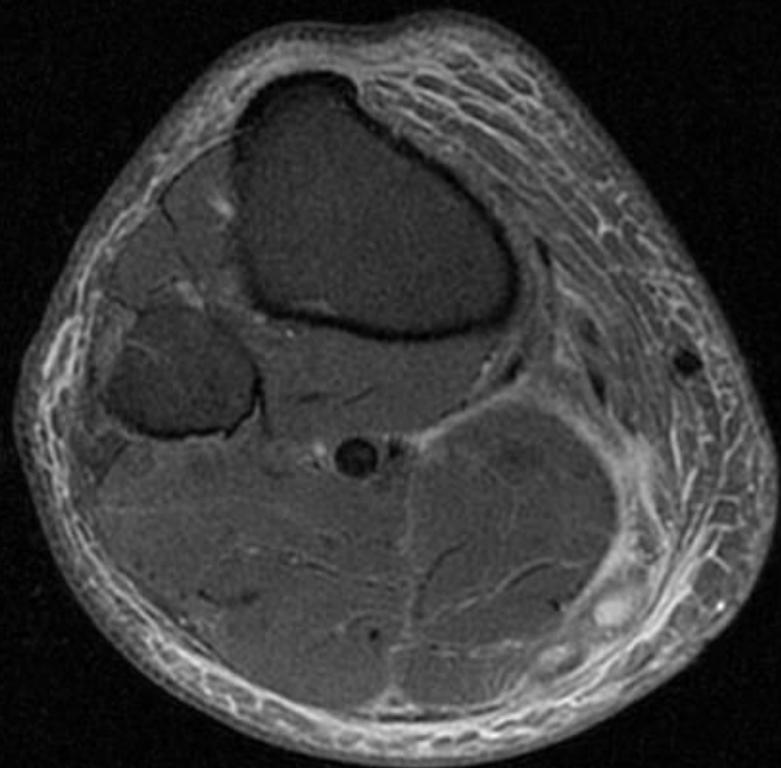
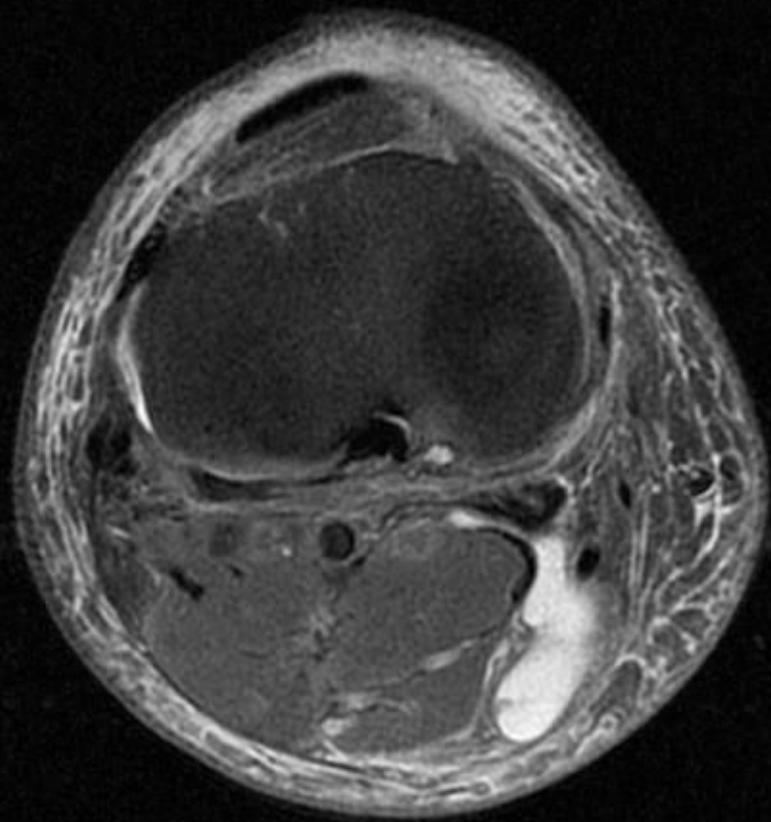
Coronal T1



Sagittal PD







Diagnosis

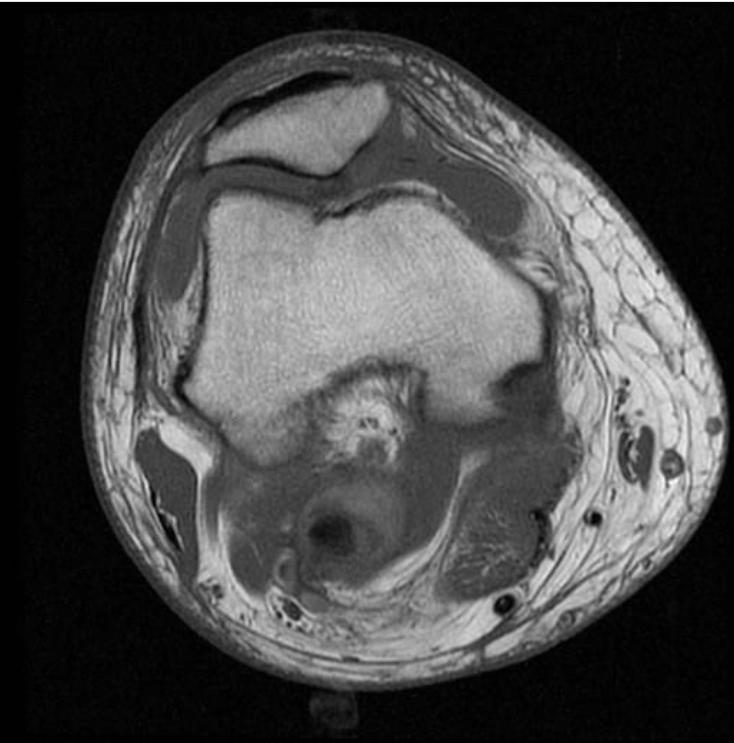
Popliteal artery aneurysm/pseudoaneurysm with an accessory third head of the lateral gastrocnemius

and

Partially ruptured popliteal cyst

Gastrocnemius Normal Anatomy

The gastrocnemius typically has two heads, **medial** (*larger and originates at superior and posterior MFC*) and **lateral** (*smaller and originates at posterior and lateral LFC*)



Gastrocnemius Normal Anatomy

Medial



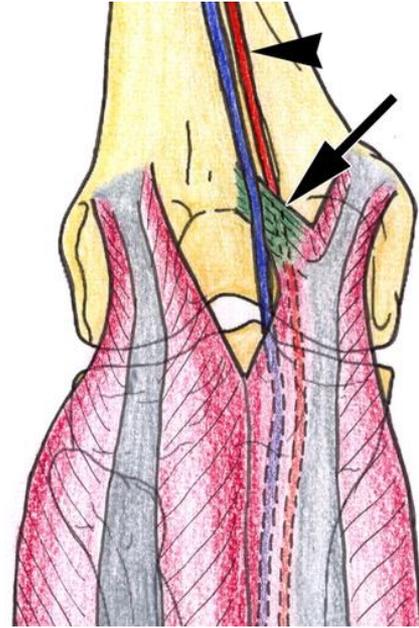
Lateral



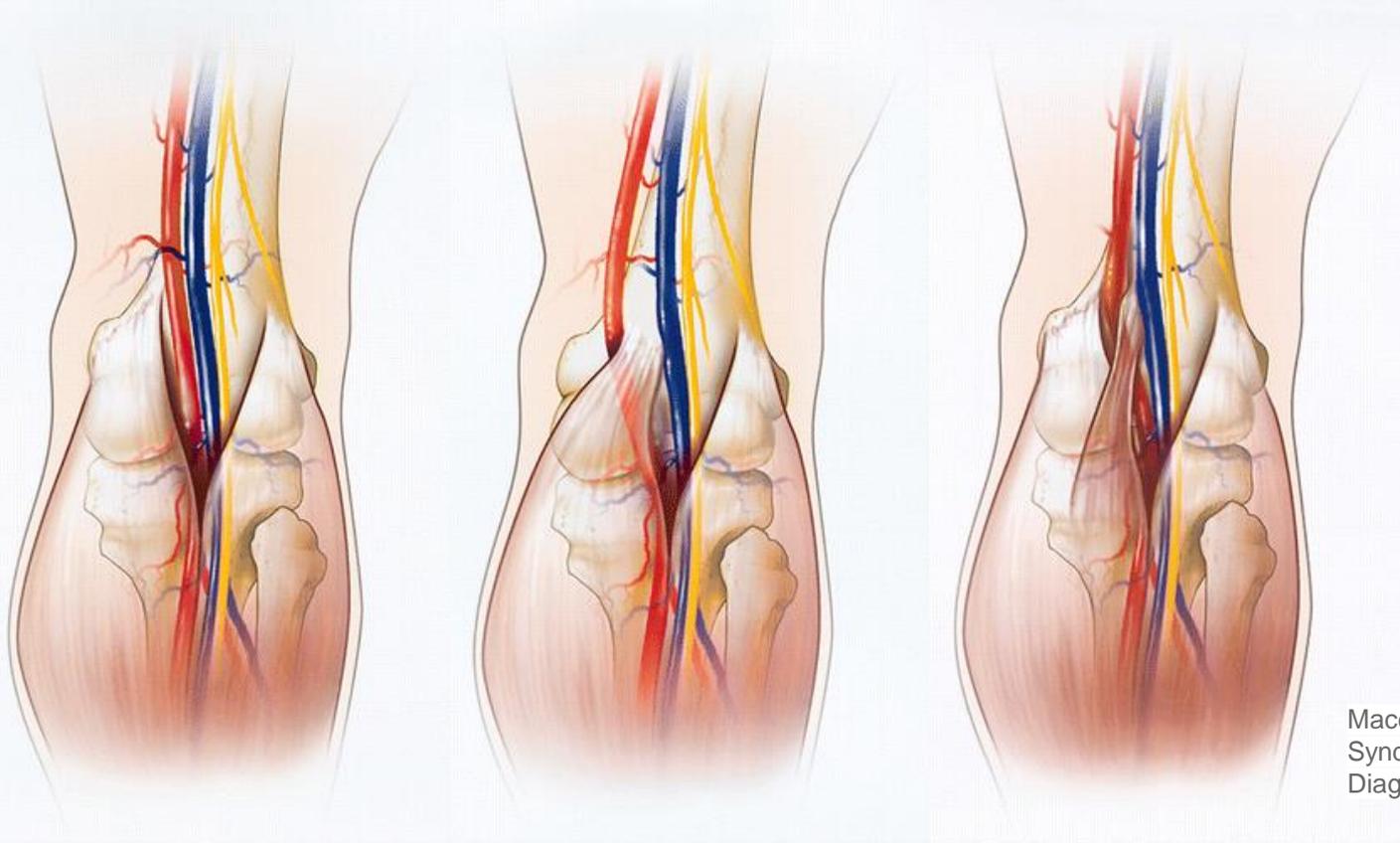
Gastrocnemius Anomalies

Accessory third head of the gastrocnemius: *Caput tertium gastrocnemius*, first described in 1813 by Kelch (1) then further detailed by Frey (2)

- can insert on medial or lateral gastrocnemius head
- medial accessory third head originates at intercondylar notch and courses between popliteal vessels
- lateral accessory third head originates at distal posterior femur and courses anterolateral to popliteal vessels



Popliteal Artery Entrapment Syndrome



Macedo et al. Popliteal Artery Entrapment Syndrome: Role of Imaging in the Diagnosis. AJR 2003;181: 1259-1265

Caput tertium gastrocnemius

- incidence about 2% (3)

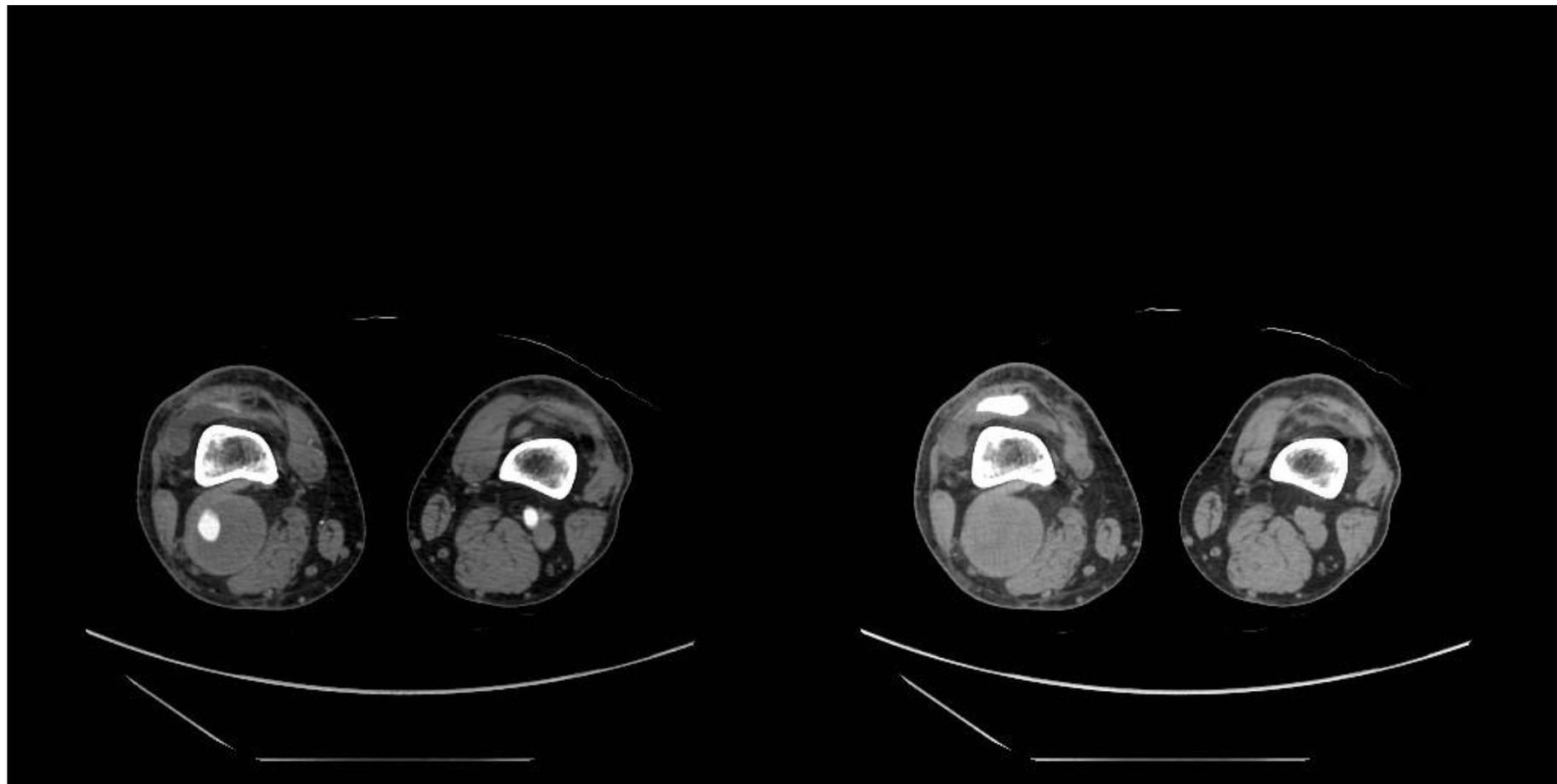
 - 20/21 were lateral gastrocnemius accessory slips

 - 1/20 bilateral

- usually asymptomatic, although PAES can occur with accessory medial head

- very few reports of accessory lateral head causing vascular entrapment (4,5,6)

CTA





Gastrocnemius Anomalies

Important to be aware of since they are not rare

Most are asymptomatic, but they can be associated with vascular entrapment

If an aneurysm is treated without treating the underlying anomaly, treatment may fail

References

1. Kelch WG. Abweichung des Biceps Femoris. Beitrage zur pathologischen Anatomie. Berlin: C Salfeld 1813. P.8. s 42, art 36.
2. Frey H. Musculus gastrocnemius tertius. Gegenbaurs Morph Jahrb 1919; 50: 517–530
3. Koplas MC, Groof P, Piraino D, Recht M. Third head of the gastrocnemius: an MR imaging study based on 1,039 consecutive knee examinations. Skeletal Radiol. 2009 Apr;38(4):349-54.
4. Liu PT, Moyer AC, Huettle EA, Fowl RJ, Stone WM. Popliteal vascular entrapment syndrome caused by a rare anomalous slip of the lateral head of the gastrocnemius muscle. Skeletal Radiol 2005; 34: 359–363.

References

5. Kim HK, Shin MJ, Kim SM, Lee SH, Hong HJ. Popliteal artery entrapment syndrome: morphological classification utilizing MR imaging. *Skeletal Radiol* 2006; 35: 648–658
6. Oztoprak I, Gumus C, Egilmez H, Manduz S, Oztoprak B, Emrecaan B. Multidetector computed tomographic angiography findings of a rare case of popliteal artery entrapment syndrome. *Ann Vasc Surg* 2008; 22: 130–133