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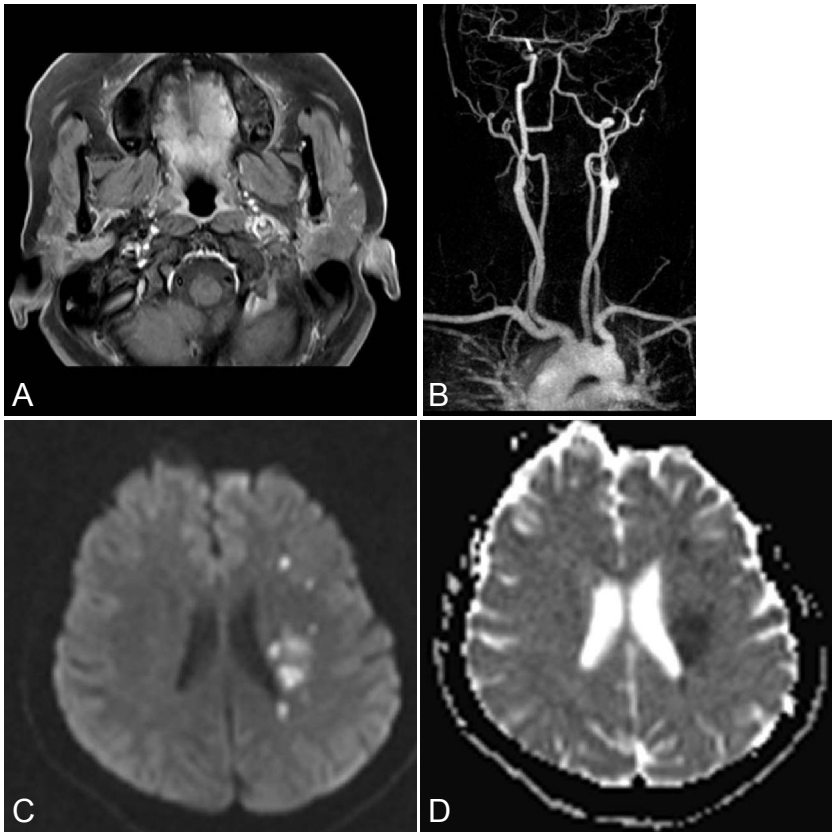
History

Young female with sudden onset of right sided weakness



Questions

Q1. What are the findings?

Q2. What is the diagnosis?

Q3. What should MR protocol include?

Q4. What are the common causes?

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QUIZ

Answers

1. A) axial T1 fat sat +C image showing cresentric intra mural hematoma in left internal cerebral artery causing luminal narrowing. B) MRA carotid shows diffuse narrowing of left internal carotid artery sparing bulb. C and D) DWI and ADC showing acute infarction in left cerebral hemisphere.
2. Left internal carotid artery dissection.
3. Axial T1 fat sat non contrast images, MRA cervical arteries with contrast, MRI brain with DWI.
4. Two types: (a) spontaneous, (b) traumatic.

Discussion

Carotid artery dissection (CAD) is the leading cause of ischemic stroke in patients younger than 45 years. CAD is defined as the presence of a mural haematoma in the wall of the artery which may or may not communicate with the arterial lumen via an intimal breach. Sub-intimal dissections affect the arterial lumen (stenosis, occlusion), sub-adventitial dissections enlarge the external diameter of the artery (pseudo-aneurysm).

The haematoma can form in any of its different segments: supra-bulbar, cervical, sub and intra-petrous, but always sparing the bulb.

Thus diagnosis is based on detection of a mural haematoma on ultrasound or on MR.

MRI is the reference examination, enabling identification of the mural haematoma (T1 slices with fat saturation), an assessment of the effects on the lumen (stenosis, occlusion, pseudo-aneurysm in MRA), and the diagnosis of any possible cerebral ischaemia (diffusion), making it superior to conventional angiography.

Treatment in the acute phase may include anti-platelet aggregation or an anticoagulant. Endovascular treatment combining angioplasty and possibly stent placement at the site of the dissection, may be proposed. The mean time taken for the arterial lumen to return to normal is around 3 months.

References

1. Hassen, W. Ben, Machet A, Edjlali-Goujon M, Legrand L, Ladoux A, , Mellerio C, et al. Imaging of cervical artery dissection. Diagnostic and Interventional Imaging 2014; **95:** 1151-61.