CONTINUING EDUCATION PROGRAM: EDITORIAL

How to avoid the pitfalls of neurological imaging

The existence of diagnostic pitfalls can lead to errors with possibly serious consequences during the drafting of a radiology report. This can concern an error due to a deficiency (not recognizing a disease that could be progressive and often curable) or an error due to excessiveness (qualifying an anatomical variation as a pathological change). And we should not forget the pitfalls that can be related to the presence of artefacts, either, particularly in MRI. The "tips" that are known, in particular to organ specialists to avoid these pitfalls, are often only learned as the result of extensive experience with a specific disease. In this theme course, we asked renowned neuroradiologists to list the main pitfalls that they encounter in their daily practice and to give the methods (the tips) that they use to avoid falling into these traps. Many of them insist on the necessity of good knowledge of radio-anatomy of the region in question and especially the knowledge of possible variants, which is the basis of any quality interpretation that avoids the relatively simple pitfalls. This theme course, organized with the collaboration of the French Society for Neuroradiology (SFNR), was divided up into three 90-minute sessions. The first session concerned the pitfalls of cerebral pathology, the second the pitfalls of pituitary, cavernous sinus and orbital pathology, and finally the last session concerned the pitfalls of medullar and spinal pathology. It is impossible to sum up all of these articles in this editorial, and I only mention a few of the described pitfalls to encourage you to read all of this course. In case of suspected intracranial vascular disease, you will learn (among other described and defused pitfalls) how not to confuse a hypersignal related to flow artefacts with a meningeal haemorrhage, how not to confuse an intracerebral hematoma with an ischaemic accident and how to adjust the protocol to be carried out based on the pathology in question and particularly the clinical condition of the patient. In orbital pathology, even a simple fracture of the orbit can cause complex diagnostic problems (small bone fractures, presence of a bone fragment that can damage the optic nerve and require an immediate decompression procedure). In addition, many pitfalls in orbital pathology are related to the presence of material inserted during procedures by ophthalmologists. The appearance of ocular prostheses must be known in imaging. In addition, artefacts of dental origin can mimic an orbital pathology. Another common cause of artefacts is makeup. In the pathology of the cavernous sinus, most of the pitfalls are related to the existence of many possible anatomical variations in this region. In medullar and spinal pathology, this course will teach you (among other things) how not to confuse CSF flow artefacts with a medullar arterial-venous malformation, how not to confuse normal contrast material uptake by the spinal ganglion with a schwannoma, and not to consider the visualization of the veins of the conus medullaris and the lumbar spinal veins following injection of contrast material as always pathological. Finally you will learn to suggest the diagnosis of dural fistula with perimedullar venous drainage or trans-dural medullar hernia. In spinal pathology, you will learn the possible variations of the vertebral signal on the MRI and how to diagnose a physiological change of a pathological effect.
I would like to thank all of the presenters and all of the authors of these articles, each a renowned specialist in neuroradiology, and who not only accepted to take part in this course during the JFR (French Radiological Society Congress), but who also accepted to write these articles that represent a considerable addition to the current practice of neuroradiology.

Disclosure of interest

The author has not supplied his declaration of conflict of interest.