 Intraventricular and subarachnoid fat

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Patient: 82 years, female

Clinical History:

An 82 year old woman with lipid globules identified in the subarachnoid and intraventricular spaces.

Imaging Findings:

We report an interesting case of an 82 year old woman who presented to our hospital with symptoms of a rapid heart rate. This lady's relevant history included rheumatoid arthritis for the past 20 years. She developed slurring of speech and mild right sided facial weakness two days post admission. A CT unenhanced head scan was requested to confirm the clinical suspicion of a cerebrovascular event. The CT was negative for an acute cerebrovascular event. However, multiple small locules of low density foci were noted in the subarachnoid space including the ventricles with attenuation values compatible with lipid. Incidentally, a lumbar spine x-ray revealed an unstable anterior wedge compression fracture of L3 vertebral body and fracture of the pars interarticularis at the L5/S1 level.

Discussion:

The aetiology of this condition is dissemination of fat globules into the subarachnoid space from spontaneous rupture of a fat-containing lesion such as a dermoid or seeding from an intra-spinal fat containing tumour. Fat globules are known to disperse into the subarachnoid space after trauma of the spine [1]. The lipid in the subarachnoid space can induce inflammation leading to aseptic meningitis or symptoms of meningism [2]. Another mimic of lipid globules includes Lipiodol contrast, an iodinated radio-opaque contrast poppy seed oil used in myelography is seen to be present in the subarachnoid space years later [3]. Intracranial subarachnoid dissemination of fat material may occur as a spontaneous rupture or as a part of postsurgical course after surgical removal of dermoid and epidermoid tumors [1&4]. The inflammatory reaction, postulated to be caused by the lipid breakdown products can lead on to obstructive hydrocephalus and irritation of the neurovascular structures [4-7]. Unstable osteoporotic fractures of the lumbar vertebral bodies were noted in our patient. No further imaging of the brain or spine was available to confirm or refute the presence of an intraspinal or intracranial fat containing lesion. The transient ischemic symptoms which prompted the CT examination in the first instance could have been secondary to the irritant effect of the subarachnoid lipid.

Other imaging modalities including MRI can used to detect the presence of fat drops which may adhere to the surrounding structures or migrate with the cerebrospinal fluid space. Intracranial disseminated fat particles can remain silent without radiological or clinical evidence [8]. As the long term outcome of disseminated subarachnoid and intraventricular fat remains uncertain, MRI studies and clinical examinations are recommended to avoid life threatening complications. It is important to exclude an intraspinous aetiology when intraventricular or subarachnoid fat is identified without a definite intracranial source [7-8].

Multiple fat globules within the subarachnoid space including the ventricles are an unusual finding. Spontaneous
rupture and dissemination from intracranial or intraspinal fat containing tumours are established causes. A recent spinal injury should be considered as a possible cause as in this patient.

**Differential Diagnosis List:** Intraventricular and subarachnoid fat is an extremely uncommon finding.

**Final Diagnosis:** Intraventricular and subarachnoid fat is an extremely uncommon finding.

**References:**


**Description:** This lateral lumbar spine x-ray demonstrates an unstable anterior wedge compression fracture of L3 vertebral body and fracture of the pars interarticularis at the L5/S1 level. **Origin:**
Description: Images 1-5 demonstrate multiple small locules of low density foci in the subarachnoid space and intraventricular space with hounsfield values of -22 to -98. There was no evidence of haemorrhage or acute brain pathology. Origin:
Figure 3

Description: Origin:
Figure 4

Description: Origin:
Figure 5

Description: Origin: