An Unusual Infective Cause of Stroke

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Day 1:

A 25 year old Romanian man was brought to hospital in shock. He reported experiencing palpitations whilst walking then feeling lightheaded and thinking he was going to die before he collapsed.

Observations: BP 73/34, HR 110, T 34.6, RR 30, O₂ sats 88%

He had no significant past medical or family history.

Social history:

Smokes 20-25/day,
No alcohol or illicit drugs
Works as a bricklayer

Investigations

ECG: sinus rhythm, inferolateral ST depression
Bloods: **Hb 208, WCC 17.5, Neu 10.7, CRP 1.4**

Day 2: 05:30

Patient developed seizures on the ward → ?encephalitis or drug-induced seizures

CT Head: normal, **Bloods** WCC 19.3, Neu 24.3, CRP 40

CSF: 24.5cm opening pressure, Micro + biochem: NAD

Treated with ceftriaxone + aciclovir + Na valproate

Day 2 20:00

Patient found after further collapse. Had new neurology (left sided increased tone, weakness, left extensor plantar, left 6th nerve palsy and reduced GCS 11/15)

CT Head scans:

- 1) Taken within 24h of admission showing no abnormality
- 2) Repeat CT when new left-sided focal neurology developed showing a right frontotemporal infarct

MRI head :

Multiple bilateral infarcts suggesting embolic aetiology

Focal area of restricted diffusion in right lentiform nucleus. Low signal on haem sequence.

Days 3 & 4:

Transoesophageal echocardiogram:

Small patent foramen ovale
No thrombi or vegetation

CT aortogram

No aortic dissection
6.5cm septated lesion in right lobe of liver

Day 5: USS liver

Fallen lily appearance with collapsing internal walls.

Features in keeping with **hydatid cyst**

Further results

Micro:

Hydatid serology:
negative

Amoeba + cysticercosis -ve
HIV negative

Haematology +

Biochemistry

Raised ALT (163)
Eosinophilia
Negative vasculitic screen

Imaging:

Bubble echo: positive for small PFO. No intervention required

Impression:

Hydatid cyst rupture caused the original collapse. Cysts then embolised to the brain via the PFO

Other factors

LFT derangement: due to cyst +/- anti-epileptics
Hydatid serology negative as prior to seroconversion
ECG changes were transient and due to acidosis.

Treatment

Initial treatment: supportive then with antimicrobials for initially a central infection then aspiration pneumonia.

Aspirin 300mg + atorvastatin 40mg after infarct confirmed
Sodium valproate then levetiracetam for seizures

Albendazole, Praziquantel and dexamethasone for 2 weeks then albendazole monotherapy for 6 months

Results

By discharge this patient had residual mild left sided arm weakness and mild cognitive impairment resulting in disinhibited behaviour and reduced ability to learn.

Cerebral hydatidosis

(CDC.gov, 2012)

Most commonly caused by *Echinococcus granulosus*, it accounts for 1-2% of all cystic echinococcosis

It is endemic in the Mediterranean, Middle East, Australia and parts of South America. It can present with focal neurological deficits, headaches, hydrocephalus, papilloedema, altered mental status or seizures.

Secondary hydatid cysts occur due to rupture of primary cysts in other organs reaching the brain by embolisation. These are usually multiple & infertile and associated with anaphylactic symptoms.

Cerebral infarcts have been reported as occurring due to hypotension from cyst rupture causing reduced cerebral perfusion or as emboli from cardiac colonisation. **This is the first documented case of infarcts and hydatidosis due to embolisation via a PFO without cardiac colonisation.**

References:

Turgut, M., Turgut, A. and Dogra, V. (2014). *Hydatidosis of the Central Nervous System: Diagnosis and Treatment*. Berlin, Heidelberg: Springer Berlin Heidelberg, pp.261-277.

Cdc.gov. (2012). *CDC - Echinococcosis - Biology*. [online] Available at: <https://www.cdc.gov/parasites/echinococcosis/biology.html> [Accessed 13 Mar. 2018].

Venkatesh, M. (2018). *2001 WHO classification of hepatic hydatid cysts / Radiology Reference Article / Radiopaedia.org*. [online] Radiopaedia.org.