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Case report

Migraine-like headache in cerebral venous sinus thrombosis

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ABSTRACT

A 20-year-old female, university student presented with severe, throbbing, unilateral headache, nausea and vomiting that started 2 days ago. The pain was aggravated with physical activity and she had photophobia. She had been taking contraceptive pills due to polycystic ovary for 3 months. Cranial computed tomography was uninformative and she was considered to have the first attack of migraine. She did not benefit from triptan treatment and as the duration of pain exceeded 72 h further imaging was done. Cranial MRI and MR venography revealed a central filling defect and lack of flow in the left sigmoid sinus caused by venous sinus thrombosis. In search for precipitating factors besides the use of contraceptive pills, plasma protein C activity was found to be depressed (42%, normal 70–140%), homocystein was minimally elevated (12.7 μmol/L, normal 0–12 μmol/L) and anti-cardiolipin IgM antibody was close to the upper limit.

1. Introduction

Cerebral venous sinus thrombosis (CVT) is a disease with highly variable clinical spectrum. Although any brain symptom such as focal deficits, seizures and altered consciousness could be seen in CVT, headache is usually the most common [1–3]. The headache associated with CVT is usually diffuse, progressive and persistent. Very few cases were presented in the literature with migraine-like throbbing and unilateral headache or with visual symptoms resembling migraine aura [4,5]. Hence, we like to discuss another atypical case of CVT presented with migraine-like headache.

2. Case report

A 20-year-old female, university student presented with severe (9/10), throbbing headache localised to the left frontal region that started 2 days ago. She had nausea and had vomited once before. The pain was aggravated with physical activity and she was disturbed by the light. She had experienced some benefit from non-steroidal anti-inflammatory drugs but the pain restarted again. She had been taking contraceptive pills due to polycystic ovary for 3 months and iron supplement due to anaemia for 1 month. The patient also had positive family history for migraine. General physical and neurological examination was completely normal. Routine

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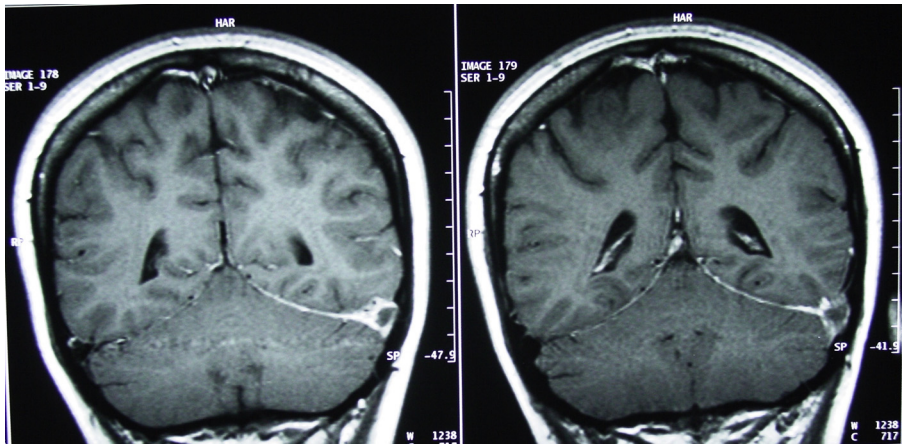

Fig. 1 – Cranial magnetic resonance imaging (MRI). Coronal T1 weighted image. Thrombus density caused central filling defect within left sigmoid sinus.

blood tests were within normal limits except for the presence of iron deficiency anaemia. Cranial computed tomography was uninformative. The patient was considered to have the first attack of migraine and triptan was prescribed. The following day the patient came to control still suffering from same type of headache. She could not benefit from triptan treatment and as the duration of pain exceeded 72 h further imaging was done. Cranial MRI and MR venography revealed a central filling defect (Fig. 1) and lack of flow in the left sigmoid sinus (Fig. 2) caused by venous sinus thrombosis. Arterial MR-angiography was normal. Thus the patient was put on anticoagulant therapy. No infarct was observed on the follow up imaging. In search for precipitating factors besides the use of contraceptive pills, plasma protein C activity was found to be depressed (42%, normal 70–140%), homocystein was minimally elevated (12.7 μmol/L, normal 0–12 μmol/L) and anti-cardiolipin IgM antibody was close to the upper limit.

3. Discussion

Migraine is a common disorder characterised by recurrent headache attacks of unilateral location, pulsating quality and moderate to severe intensity that is aggravated by physical activity. This case has many features resembling migraine particularly the character of pain and accompanying photophobia, nausea and vomiting. Cerebral venous sinus thrombosis (CVT) is an important clinical entity with a diverse spectrum of clinical presentation. Most commonly focal deficits with or without seizures are observed [1–3]. The second usual presentation is isolated intracranial hypertension with papilledema and sixth-nerve palsy [1–3]. However CVT could present with any brain sign or symptom [1]. The mode of onset is highly variable but usually subacute [1]. Rarely headache could be the only presenting symptom that

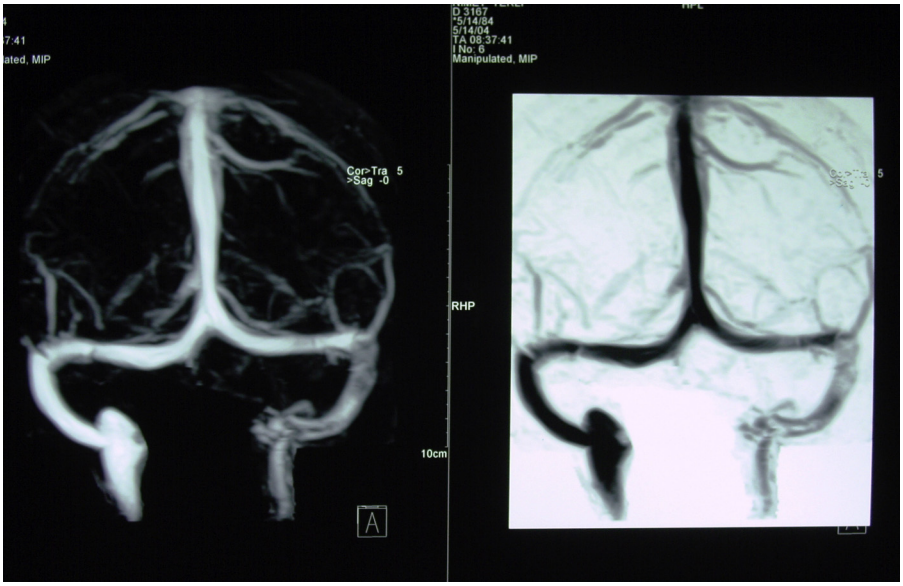

Fig. 2 – Cranial MR venography. Impedance of flow and visualisation of thrombus in the left sigmoid sinus.

could be misleading particularly if it has typical characteristics related to certain headache disorders like our case. Especially in presence of certain risk factors such as contraceptive pills, a high index of suspicion is necessary for diagnosis in atypical cases. In our case the use of contraceptive pills was considered as the most remarkable predisposing factor. Additional abnormalities were also detected concerning plasma protein C activity, homocystein level and anti-cardiolipin IgM antibody. Computed tomography might be helpful but it is directly informative in only minority of the patients. Other than the typical signs like the empty delta sign indirect findings like parenchymal abnormalities are more common [1,6]. Combined MRI and venous MR angiography (MR venography) is currently the best diagnostic procedure [1,6]. The absence of flow on venous MR angiography is diagnostic.

Migraine-like headache in CVT was mentioned in few reports previously. Newman et al. [4] described 2 cases of CVT presented with migrainous-type visual disturbances. Slooter et al. [5] reported an atypical case with rapidly recurrent attacks of throbbing, unilateral headache and aura-like sensory symptoms. The headache lasted 4 h and 3 recurrent spells were noted in 5 days before another diagnosis was suspected. Our case represents another atypical presentation for SVT with acute, unilateral, throbbing pain; however contrary to the other case the pain was persistent and lasted for more than 72 h. Recently a similar case of CVT was reported by Anand et al. [7] Their patient was a young woman with a history of migraine attacks who was brought to the emergency department complaining about severe headache of a different form, described as the most severe of her life. Unlike our case she had focal neurologic deficits. Migraine is a common diagnosis in patients presenting with headache. Any change in pattern of the headache especially that is severe and persistent should alert the physician for important disorders such as subarachnoid haemorrhage (SAH) and CVT. One should also recall the so called thunderclap (severe and explosive form of) headache suggested as a migraine variant and referred as a warning sign of neurological emergencies including SAH and CVT [8].

Rarely other disorders such as bacterial meningitis, intraventricular tumours and hereditary syndromes like the Stomorken's syndrome, might also present with migraine-like headache [9–11]. However these diseases have specific features that aid the diagnosis.

In conclusion acute, migraine-like headache that is unresponsive to treatment, severe and different in character and exceeds 72 h should raise the suspicion of CVT especially in presence of risk factors such as the use of contraceptive pills.

Conflict of interest

None declared.

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Ethics

The work described in this article has been carried out in accordance with The Code of Ethics of the World Medical Association (Declaration of Helsinki) for experiments involving humans; Uniform Requirements for manuscripts submitted to Biomedical journals.

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