Letters to the Editor

[The Editor is not responsible for the views expressed by the correspondents]

Management of Oral Contraceptives Induced Cerebral Venous Thrombosis, Hemorrhagic Infarction Presenting with Left Hemiparesis and Isolated Left Upper Limb Simple Focal Seizures

Sir — A 31 years old female, class-2 obesity (108kg) presented with sudden onset of shaking left upper limb intermittently which is associated with weakness and numbness since 2 hours. One episode of similar shaking of left upper limb 12 hours back, which was there continuesly for 3minutes, subsided by itself and not associated weakness and numbness. Patient is known case Polycystic Ovarian Disease(PCOD) and having irregular menstrual cycles since 5 years was on life style and Metformin. History of excessive menstrual bleeding since 3 months and diagnosed to have dysfunctional uterine bleeding with PCOD and she is on Tab Desogestrel (150mcg) and Ethinyl Estradiol (20mcg) orally once day since 15days as suggested by her Gynecologist. Metformin was stopped 15days back. Not known case of hypertension, diabetes mellitus.

On examination patient was anxious, conscious and well oriented. Heart Rate(HR) 108/minute, Non invasive Blood Pressure(NIBP)-136/92 mmHg. Saturation (SpO_2)-98%, Respiratory Rate(RR)-22/minute. Neurological examination revealed left upper limb and lower limb weakness present, able to left with difficulty but not against resistance (motor power 4/5). Sensory examination was normal. Witnessed left upper limb focal seizures while examining her in emergency room, she was conscious, responding while she was having seizures which continued next 3 minutes then subsided. Patient was given levetiracetam 1g Intravenous(IV) infusion, stabilized. Case discussed with neurophysician and MRI brain with MR venogram was done. Imaging suggestive of right parietal hemorrhagic infarction and paucity of the flow signals across the right parietal convexity; CVT. Patient was shifted to Intensive Care Unit(ICU) and started on Enoxaparin 60mg subcutaneous- twice day(BD), Levetiracetam-500mg IV(BD), Mannitol 20mg IV thrice day(TID), Citicoline 500mg IV(BD), Dexamethasone 4mg IV(TID). Neurosurgeon opinion was sought- no neurosurgical intervention and advised to medical line of management.

Hemoglobin 7.5gm%, Total count 9720/Cmm, Platelet count 4.9lakhs, Blood urea 26mg/dl, Creatinine-0.7mg/dl, Serum Sodium 136mmol/l, Potassium 3.6mmol/l, Chloride 105mmol/l. Random blood sugar-131mg/dl, Liver Function Tests and coagulation profile was normal, arterial blood analysis showed mild metabolic acidosis. Electrocardiogram was showing normal sinus rhythm.

ICU-DAY_2, Patient was conscious, oriented and haemodynamically stable. Upper limb and lower limb motor weakness present. Patient had one episode of similar focal seizures; patient was given Fosphenytoin 1.5g IV infusion. Inj Levetiracetam increased to 1g(BD) and continued with Fosphenytoin 150mg IV(BD). Electroencephalogram normal, Echocardiography normal, bilateral lower limb venous doppler normal. Serum Homocysteine levels 32.4mcmol/L. Vitamin B12 levels 18pmol/L. Patient was transfused with one unit of packed cells and patient was started on Homecheck capsule (Folic Acid,Methylcobalamin,Pyridoxine) and Acitrom 2mg(OD) orally. Inj Renerve 1mg IV(OD) added.

ICU-DAY-3, Patient complained of severe headache. Fundoscopy was suggestive bilateral symmetrical mild papilledema. Suspected intracranial hypertension, Mannitol 20mg increased to four times day(QID), started on oral Glycerol 30ml(TID) and Analgesics(Tab-Granil). Physiotherapy for left upper limb and lower limb started. Repeat hemoglobin-9.5gm%.

ICU-DAY-4, Patient was conscious, oriented. No more episodes of seizures, headache. Patient repeat INR was 2.5. Enoxaparin stopped, continued with tab Acitrom 2mg(OD), Fosphenytoin IV stopped added Tab Phenytoin 100mg(TID). Levetiracetam and Citicoline converted to oral medication and shifted to ward. Next day patient was discharged.

Discussion — Oral contraceptive has been widely known risk factor for Cerebral Venous Thrombosis.[1] Our patient was on oral contraceptives pills since 15days started for her dysfunctional bleeding and had paucity of flow in right parietal convexity suggestive of CVT. It was often seen in clinical reports that Venous Sinus Thrombosis leads acute infarcts or associated with hemorrhage after infarction.[2] Our patient had acute right parietal hemorrhagic infarction. It has been widely reported that Epilepsy is one of the common clinical manifestations of CVT[3,4].

Many articles and studies revealed CVT causing seizures but presence of isolated single limb focal seizures without altering higher mental functions and without postictal altered sensorium like in our case is rare and this focal seizures not responded to monotherapy, Levetiracetam and Phenytoin both were needed. Headache is the most common symptom and is present in 90% of cases; in 25% of patients, it is the only symptom reported[5]. This Headache Syndrome can range from a common Migraine to clear features of raised ICP,[6] where papilledema might also be visualized with Fundoscopy. Our patient had severe headache day 3 of admission, Fundoscopy showed mild symmetrical papilledema hence hiked on antiedema measures. Anticoagulation is a cornerstone of treatment, even in the presence of hemorrhage[4]. Our patient had hemorrhagic infarcts not actual intracranial hemorrhage hence started on anticoagulation early. Following the immediate management of CVT, long-term Vitamin K antagonists, such as Warfarin, with a target International Normalized Ratio (INR) of 2-3 should be used[4]. Our patient was started on oral Acitrom on day 2 of admission and repeat INR was 2.5 on day 4. Homocysteine levels increased in healthy women after they started using OCP[7], hyper-homocysteinemia and OCP use may interact in a synergistic manner in the pathogenesis of Venous thrombosis[8]. Hyper-homocysteinemia was an important correctable risk factor of CVST in patients from Northern India and majority of them had either low vitamin B12 level or *MTHFR* mutation[9]. Our patients homocysteine level was on higher side, Vitamin B_{12} level was low, we can assume OCP use and hyper-homocysteinemia, low

Vitamin B_{12} synergistically caused CVT.

Conclusion — OCP use, increased levels of homocysteine levels and lower vitamin B_{12} caused CVT with hemorrhagic infarction in our patient which associated isolated left upper limb focal seizures(rare clinical phenomena) and left hemiparesis responded well to anticoagulation and bi-anticonvulsant therapy.

References

1 Stegeman BH, de Bastos M, Rosendaal FR — Different combined oral contraceptives and the risk of venous thrombosis: systematic review and network meta-analysis. *BMJ* 2013; **347:** f5298. [PMC free article] [PubMed] [Google Scholar]

2 Zhou G, Li M, Zhu Y — Cerebral venous sinus thrombosis involving the straight sinus may result in infarction and/or hemorrhage. *Eur Neurol* 2016; **75:** 257-62.

3 Kumral E, Polat F, Uzunköprü C — The clinical spectrum of intracerebral hematoma, hemorrhagic infarct, non-hemorrhagic infarct, and non-lesional venous stroke in patients with cerebral sinus-venous thrombosis. *Eur J Neurol* 2012; **19:** 537-43. [PubMed] [Google Scholar]

4 Behrouzi R, Punter M — Diagnosis and management of cerebral venous thrombosis C 2018; **18(1):** 75-9. doi: 10.7861/clinmedicine.18-1-75

5 Saposnik G, Barinagarrementeria F, Brown RD — Diagnosis and management of cerebral venous thrombosis: a statement for healthcare professionals from the American Heart Association/American Stroke Association. *Stroke* 2011; **42:** 1158-92. [PubMed] [Google Scholar]

6 Alberti A, Venti M, Biagini S — Headache and cerebral vein and sinus thrombosis. *Front Neurol Neurosci* 2008; **23:** 89-95. [PubMed] [Google Scholar]

7 Fallah S, Nouroozi V, Seifi M, Samadikuchaksaraei A, Aghdashi EM — Influence of oral contraceptive pills on homocysteine and nitric oxide levels: as risk factors for cardiovascular disease. *J Clin Lab Anal* 2012; **26(2):** 120-3. doi:10.1002/jcla.21492

8 Chan HH, Douketis JD, Nowaczyk MJ — Acute renal vein thrombosis, oral contraceptive use, and hyperhomocysteinemia. *Mayo Clin Proc* 2001; **76(2):** 212-4. doi: 10.4065/76.2.212. PMID: 11213312.

9 Kalita J, Singh VK, Misra UK — A study of hyperhomocysteinemia in cerebral venous sinus thrombosis. *Indian J Med Res* 2020; **152:** 584-94.

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Infectious waste from a COVID-19 Laboratory

Sir — On March 11, 2020, the WHO declared COVID-19 as a pandemic that changed the Global Health scenario. Person-to-person spread of SARS-CoV-2 occurs mainly via respiratory droplets. COVID-19 can also occur if a person touches a surface contaminated with SARS-CoV-2 and then the hands come into direct contact with mucous membranes such as the eyes, nose, or mouth. A meta-analysis described the incubation period of SARS-CoV-2 ranging from 2-17 days in human to human transmission. The survival period of SARS-CoV2 is important in formulating policies in proper health care waste management. The virus remains viable for 3 hours in aerosols, upto 72 hours in plastics and stainless steel or could survive on inanimate surfaces, ie, metal, glass, or plastic, for a period of 9 days. Therefore improper disposal of infectious waste from a laboratory can increase the spread of the virus in the community.

India has implemented comprehensive legislative Biomedical Waste (BMW) management guidelines in 2016 and amendments were added thereafter. Healthcare waste comprises the waste generated by healthcare facilities, medical laboratories and biomedical research facilities. As a provider of COVID-19 testing facilities, the laboratory deals with infectious healthcare waste like contaminated body fluids, PPE, gowns, masks, shower caps, shoe covers, goggles, face shields, etc. The other waste that has increased significantly are the waste generated from using test kits and General Healthcare waste which is non hazardous. All the laboratory waste were pre-treated and discarded in proper manner in order to prevent the spread of the virus.

There were dedicated waste collection areas in the sample labeling room, sample extraction room, PCR room, PCR donning area. Double layered bar coded yellow bags are used in the laboratory to ensure that there were no leaks. These bags are tied tightly with duct tape and sprayed with 1% sodium hypochlorite solution. The Biomedical wastes are finally stored temporarily in a designated room from where it is collected daily by authorized staff of the Common Biomedical Waste Treatment and Disposal Facility (CBMWTF). The designated room is sprayed daily with sodium hypochlorite solution. Therefore, adequate infrastructure and real time supervision will help in implementing proper waste management in a stringent manner.

Separate record is maintained for the waste generated by the COVID laboratory. Prior to COVID testing, the infectious waste generated in the department was negligible. During the last 15 months of COVID testing, there was a drastic increase in COVID wastes from approximately 100 to 1200kgs/month with an average 457kgs per month. During the first wave, the waste was high (1028kgs) during the months of August/September 2020 and in the second wave, it was high (1965kgs) in May and June 2021.

At present the department has performed approximately 2,15,000 tests. Therefore bigger laboratories which perform double the number of tests will be churning out a huge amount of infectious waste. Therefore, it is crucial to document the amount of waste generated in order for the Health authorities to take special measures to deal with the increased BMW. They can formulate appropriate policies for adequate infrastructure and human resources to handle the BMW.

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