

Letter to Editor

Cerebral Venous Thrombosis Induced by Intravaginal Estrogen Ring: A Lingering Adverse Reaction on Hemostasis

Cerebral venous thrombosis (CVT) is a life-threatening neurological condition with alarming morbidity and mortality. Several risk factors have been incriminated in the cause of CVT; of which the estrogen-containing oral contraceptive pills are considered the most important culprit in the healthy young female population.^[1] The estrogen-containing oral contraceptive pills have been, for many decades, the most commonly used contraceptive method worldwide. Recently, however, the intravaginal contraceptive ring has been introduced as a more convenient contraceptive method. Intravaginal ring, which is monthly applied, is a hormonal contraceptive that slowly releases etonogestrel and ethinyl estradiol.^[2] Few cases of CVT have been already reported in healthy women using the intravaginal estrogen ring.^[3,4] All of these CVT cases have occurred while the ring is in place. In this report, however, we describe a healthy young female who developed CVT despite the removal of the intravaginal estrogen ring a few months prior to the onset of symptoms.

A 31-year-old female presented to the emergency department because of a new onset headache, which had been progressively worsening and not relieved by simple analgesic. She never suffered from migraine or any other type of headache. Additionally, she was not maintained on any medication except for the monthly insertion of the intravaginal estrogen ring. However, she stopped this practice 3 months prior to the onset of her current symptoms. The neurological examination was normal except for mild bilateral papilledema. Increase intracranial pressure was suspected, so the patient underwent magnetic resonance imaging (MRI) scan of the brain and magnetic resonance venography (MRV) scan of the brain showed sagittal sinus thrombosis. A thorough hypercoagulability panel was requested but came back normal. The sagittal sinus thrombosis was attributed to thrombophilia from the prior use of estrogen containing intravaginal ring. Anticoagulation was promptly started and the patient was advised to avoid the use of any estrogen-containing birth control method; whether pills or vaginal rings. Anticoagulation was continued for a total of six months when a repeat MRI and MRV of the brain showed complete resolution of the sagittal sinus thrombosis.

Estrogen-containing oral contraceptive pill, which remains the most commonly utilized contraceptive method worldwide, is an established risk factor for CVT.^[1] Recently, estrogen-containing intravaginal

ring has emerged as a more convenient method of contraception. The ring is applied once a month and it releases etonogestrel and ethinylestradiol at an average amount of 120 µg and 15 µg, respectively for 24 hours, for 3 weeks. The half-life, after the ring removal, is approximately 29 hours.^[2] When compared to oral contraceptive pills, it has been shown to exert a similar effect on hemostasis.^[5] In fact, since its recent introduction to the market, it has been already implicated in inducing few CVT cases.^[3,4] All the reported cases, however, occurred while the ring was in use. Our case is unique because our patient developed CVT a few months after the removal of the ring. This might imply a much prolonged thrombophilic effect that is beyond the reported ring half-life of 29 hours. Therefore, healthcare professionals must be conscious to consider CVT when encountering a patient with headache and a history of prior use of estrogen-containing ring. Women of child-bearing age must be also informed of the prolonged risk of thrombosis associated with the prior use of estrogen ring. More importantly, physicians must exercise caution in allowing for a longer washout period before introducing another estrogen containing compound or any other thrombophilic agent.

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Conflicts of interest

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