



## Chapter 2

# IMAGING OF NON-FETAL EMERGENCIES DURING PREGNANCY AND POSTPARTUM PERIOD

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### **Imaging of Neurological Emergencies**

Acute neurological symptoms, during pregnancy and the postpartum period could be due to the onset of new neurological disorders or exacerbation of the pre-existing neurological condition.<sup>(1)</sup> Headache and neurological symptoms in pregnant women are mostly considered as pre-eclampsia or eclampsia, however, there are a variety of other pathologies such as acute ischemic stroke (AIS), intracerebral hemorrhage (ICH), subarachnoid hemorrhage (SCH), posterior reversible encephalopathy syndrome (PRES), or cerebral venous sinus thrombosis (CVT) that might cause the symptoms. As a result, precise diagnosis is essential for the management and appropriate treatment to reduce morbidity and mortality.

Headache is the most common symptom of neurological conditions, and, migraine and tension-type headache are the most common causes in pregnant and postpartum women.<sup>(2)</sup> However, if a headache that is associated with neurological symptoms, progressive, acute in onset, severe, different from previous ones, or refractory to the treatment should be evaluated by imaging of the brain and cerebral vascular system.<sup>(3)</sup>

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in pregnant women. On MRI, heterogeneous parenchyma, T2 hyperintensities related to edema and perinephric fluid, with diffusion restriction can be observed.<sup>(51)</sup>

The risk of ovarian torsion increases during pregnancy, but it is still a rare cause of abdominal pain.<sup>(52)</sup> It is often associated with an ovarian solid or cystic mass as a leading point. Ovarian enlargement (>4 cm), edema, peripheral follicles, twisted vascular root, tubal thickening, and fluid can also be seen on the US and MRI.<sup>(52)</sup> The detection of blood flow does not rule out torsion, which may be due to weak venous flow or partial obstruction. A twisted vascular pedicle is diagnostic of torsion but cannot be seen in all cases. In addition, on imaging, the ovarian mass can be detected if present. Leiomyomas are an uncommon cause of abdominal pain in pregnant patients because of hemorrhagic infarction due to pelvic blood volume alteration. On MRI, leiomyomas appear as well-circumscribed, mostly T1-T2 hypointense lesions of the uterine wall. However, cystic-necrotic degeneration, hemorrhage, or calcification, change the signal characteristics on both T1 and T2 weighted images, so the appearance can vary on a large scale.<sup>(53)</sup>

Trauma may be a cause of abdominal pain during pregnancy. The solid abdominal organs should be visualized for laceration by low-dose contrast-enhanced CT in pregnant women who experience serious trauma.<sup>(54)</sup> Placental abruption, premature separation of the placenta, is a severe complication of trauma, and large areas of hyperenhancement on contrast-enhanced CT are typical because placental enhancement is homogeneous until the second trimester and mildly heterogeneous in the third trimester.<sup>(55)</sup> The severity of abruption, fetal condition, and gestational age determine the treatment approach.

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