Prenatal diagnosis of an isolated thrombus in fetal IVC

Momina Zulfeen 1,2, Tatiana Freire-Lizama,3 Mike Berry3

DESCRIPTION
A healthy 27-year-old primigravida of middle eastern ethnicity presented for prenatal care after arriving in Canada in the early second trimester. Anatomy scan at 20 weeks was normal, and gestational diabetes was diagnosed on routine screening. Glycaemic control was poor, requiring significant doses of insulin.

On growth and well-being scan at 37 weeks gestation, a tubular echogenic lesion (figure 1 and video 1) was identified in the inferior vena cava (IVC). There was no polyhydramnios, and fetal growth was appropriate for gestational age. No ascites or hydropic features were noted. Ductus venosus waveform appeared normal, with no evidence of heart failure. Based on the appearance and echogenicity, the lesion was felt to be a vascular thrombus, but it appeared to be isolated to the fetal IVC, without evidence of hepatic or renal involvement. Viral serologies were negative for cytomegalovirus and toxoplasmosis.

In consultation with neonatology, the patient was consented for induction of labour, given a term gestation, poor glycaemic control, and a suspected fetal vascular thrombus. Labour progressed normally and resulted in spontaneous delivery of a live infant with normal Apgars. Postnatally, neonatal hypoglycaemic required intravenous fluids and observation. Neonatal ultrasound confirmed an IVC thrombus. D-dimers were elevated. Workup was negative for thrombophilia, and platelets remained within normal limits. The newborn was managed conservatively due to the concurrent presence of a small intracranial haemorrhage. Over the next 2 weeks, ultrasound identified progression of the thrombus to the hepatic vein and right renal vein. Follow-up ultrasounds, however, showed recanalisation and complete resolution of hepatic and renal vein thrombosis (RVT). There was a persistent IVC calcified thrombus. At 8 months of age, the child remains asymptomatic with good interval renal growth.

Most cases of intra-abdominal venous thrombosis are diagnosed shortly after birth. Prenatal diagnosis of thrombosis is rare. Case reports are confined to RVT, some with involvement of the IVC.1 Mean gestational age at diagnosis is 32 weeks, with reported 63% mortality.2 IVC thrombus was reported only in severe cases, representing later stages of disease, with obstructive consequences such as cardiac failure. To our knowledge, an isolated IVC thrombus with postnatal progression to RVT postnatally has never been described in the literature.

Foetal thrombosis can be idiopathic; however, fetal hypercoagulable states have been described in association with acquired conditions such as fetal hypoxia and maternal diabetes, or congenital thrombophilia. It is noteworthy that 5 out of 25 cases reported occurred in the setting of maternal diabetes.2 Reported management varies, with conservative management described for unilateral

Patient’s perspective
Our patient expressed her concerns over lack of prognostic information at the time of diagnosis. For our patient, receiving care in a foreign country added to this anxiety.

The couple eventually reflected on the whole experience as ‘well supported and satisfying’ and were happy with the outcome. Our patient hopes “this case report will further our information on this condition and help moms like (her)”.

Footnotes:
1ObGyn, University of Toronto, Toronto, Ontario, Canada
2ObGyn, Kasturba Medical College Manipal, Manipal, Karnataka, India
3Maternal Fetal Medicine, University of Toronto, Toronto, Ontario, Canada

Correspondence to Dr Momina Zulfeen; mominazulfeen@gmail.com

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Figure 1 In oblique sagittal view along the long axis of inferior vena cava (IVC), an elongated echogenic lesion of 3 × 0.8 cm (orange arrow) is seen in the IVC, consistent with intravascular thrombus.

Reference:
RVT, and expedited delivery indicated for bilateral RVT or IVC thrombus, evidence of fetal distress and hydrops.\textsuperscript{1,3}

Our presentation brings to light a unique case of isolated prenatal IVC thrombosis associated with maternal diabetes. The occurrence of IVC thrombus in the absence of RVT could suggest a stronger correlation between fetal hypercoagulability and maternal diabetes. As screening for fetal thrombosis is not part of routine ultrasound follow-up, this possibility may be considered in women with poor glycaemic control.

Twitter Momina Zulfeen @dr_zulf
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Learning points

► Prenatal diagnosis of fetal thrombosis is rare; in most cases, no identifiable cause is found. Maternal diabetes appears to be a risk factor.
► Rarely, a fetal inferior vena cava (IVC) thrombus can present in the absence of fetal renal vein thrombosis (RVT) or hepatic vein thrombosis, and can progress postnataally. In cases where the newborn is stable, conservative management may be successful.
► Diagnosis of fetal IVC thrombus or bilateral RVT thrombus should prompt discussion with neonatology, close fetal surveillance and consideration of expedited delivery.

REFERENCES