Letters to Editor

Spontaneous subdural haemorrhage in an *in vitro* fertilisation conceived triplet pregnancy - A case study

Dear Editor,

The most frequent cause of cerebral haemorrhage during pregnancy is vascular abnormalities such as arteriovenous malformation (AVM) and intracranial aneurysm. Subdural haemorrhage (SDH) is said to be spontaneous when there is no apparent reason. This report describes a case of spontaneous SDH at 29 weeks of gestation in a triplet pregnancy conceived via *in vitro* fertilisation (IVF).

A 32-year-old IVF-conceived primigravida with triplet pregnancy at 29 weeks of gestation presented with abdominal pain, vomiting, seizure-like activity and disorientation for one day. She was on oral dydrogesterone 10 mg thrice daily and aspirin 150 mg once daily. There was no significant history preceding these complaints. At the presentation, her Glasgow Coma Score (GCS) was 11 (E3V2M6), and all the other vitals were within the normal range. The baseline investigations (including the coagulation profile) were also within normal limits. A non-contrast computer tomography (NCCT) head with an abdominal lead shield was done, and it revealed a right frontotemporoparietal (FTP) SDH (9 mm thickness) with mass effect [Figure 1]. Magnetic resonance angiography (MRA) was done to rule out aneurysm or AVM. An obstetric ultrasound revealed that all three foetuses were alive. A multidisciplinary discussion was done, and it was decided to do a caesarean section, followed by a decompressive craniectomy and haematoma evacuation, in the best interests of the mother and foetuses. Rapid sequence induction of anaesthesia was done with intravenous (IV) lignocaine 60 mg, propofol 120 mg and succinylcholine 100 mg. The trachea was intubated with a 7.0-mm endotracheal tube. The anaesthesia was maintained with oxygen, air and sevoflurane. The right internal jugular vein was cannulated, and an arterial line was placed in the left radial artery. During the caesarean section, all neuroprotective measures were implemented. Following delivery of all three foetuses and abdominal closure, a right FTP craniectomy was done. Thick SDH was evacuated, and lax duroplasty was done. The bone flap was placed in the anterior abdominal wall. The patient was shifted to the intensive care unit on mechanical ventilation with sedation. A repeat NCCT scan was done on the third postoperative day, which revealed a right temporoparietal venous infarct due to venous injury during craniotomy [Figure 2]. An elective tracheostomy was done on the fourth postoperative day. She was discharged on postoperative day 30 with GCS E4VTM6 with left hemiplegia. On follow-up, after three months, the patient had a Glasgow Outcome Scale of 4 (moderate disability). Six months later, she underwent an autologous cranioplasty. Currently, she can do her routine work independently. The first, second and third triplets weighed 962, 680 and 541 g, respectively. Only the first triplet could survive and was discharged with follow-up advice.

The intracranial bleeding in our patient cannot be attributed to a single cause. Increased oestrogen, progesterone and relaxin levels during pregnancy are associated with structural changes in the systemic vasculature.[1] This effect might be more pronounced in our patient since it was a triplet pregnancy.[2] Progesterone supplementation is an essential aspect of IVF pregnancy to support the luteal phase and create a more favourable environment for embryo implantation. Jick *et al.*[3] observed idiopathic ICH in non-pregnant women on oral contraceptives with differing progestagen components. Pregnancy following assisted reproduction (IVF) has higher concentrations of matrix metalloprotease-9 (MMP-9), which contributes to venous aneurysms and degeneration in the arterial wall.[4] Due to MMP-induced arterial degeneration, the vessels have a higher propensity for rupture during increased intraluminal pressure events like coughing, straining and defaecation. Low-dose aspirin is commonly used to increase the chances of live birth in assisted reproduction.[5] However, it is not without

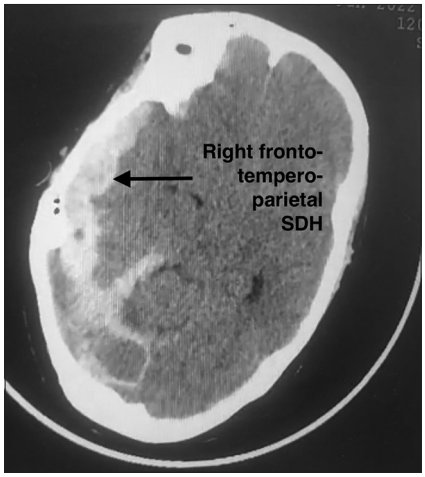

Figure 1: Large right frontotemporalparietal SDH. SDH = subdural haemorrhage

Figure 2: A large venous infarct

side effects, it may increase bleeding risk antenatally, postpartum, and even in newborn.[6]

The management of intracranial haemorrhage in pregnant patients is the same as in non-pregnant patients and includes resuscitation first, followed later by definitive intervention. In the third trimester of pregnancy, the preferred plan is caesarean delivery followed by SDH evacuation.

The most likely cause of the onset of spontaneous SDH in our patient appears to be aspirin and the complexity of the pregnancy (IVF and triplet). Thus, it is important to be aware of the risks of these issues. If complications arise, an improved prognosis could be attained with early detection and treatment.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient consented to her images and other clinical information to be reported in the journal. The patient understands that her name and initials will not be published and due efforts will be made to conceal her identity, but anonymity cannot be guaranteed.

Acknowledgement

The authors are grateful to obstetrician Dr. Kavita Khoiwal (Associate Professor, AIIMS Rishikesh) and neurosurgeon Dr. Nishant Goyal (Additional Professor, AIIMS Rishikesh).

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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Submitted: 29-Aug-2023
Revised: 26-Oct-2023
Accepted: 13-Dec-2023
Published: 22-Feb-2024

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Access this article online	
Quick response code	Website: https://journals.lww.com/ijaweb
	DOI: 10.4103/ija.ija_838_23

How to cite this article: Shekhar S, Kadian S, Payal YS, Gupta P. Spontaneous subdural haemorrhage in an *in vitro* fertilisation conceived triplet pregnancy – A case study. Indian J Anaesth 2024;68:303-4.