

Atypical case of delayed emergence from anaesthesia.

V. Kalogianni ¹, F.Vlahos ², I. Giannakikou ³ || ¹. St. Georges Hospital NHS Foundation Trust, London, United Kingdom, ². University of Milano-Bicocca, Medicine, Milan, Italy, ³. Hygeia Hospital,Anesthesiology and Critical Care Medicine,Athens, Greece

Case Report

HPC: Female, 30s, G3P2 37/40 (PMH: Nil, NKDA)
2/7 history of general malaise, abdominal pain, nausea
On admission: proteinuria, hypertension, coagulopathy, AKI
Urgent C/S under GA for presumed preeclampsia

Hospital course:

Post-op: not rousable. Remained intubated. ICU admission.
Causes of non-emergence considered (*Table 1*)
Post-op results: transaminitis, cholestasis, high LDH, worsening kidney function and lactic acidosis (*Table 2*)
Diagnosis:*Acute Fatty Liver of Pregnancy (AFLP) with resulting multi-organ failure*

Follow up course:

Managed conservatively in the ICU
ICU discharge POD 14, hospital discharge POD 18 with recovered organ function

Lab results (units)			
pH	6.975	Direct Bilirubin (mg/dL)	2.3
Lactic acid (mmol/L)	7.5	Ammonia (µmol/L)	88.6
HCO3 (mEq/L)	7.3	Glucose (mg/dL)	125
AST (IU/L)	245	WCC (x10^9/L)	29.9
ALT (IU/L)	277	Urea (mg/dL)	63
Alk. Phosp. (IU/L)	232	Creatinine (mg/dL)	1.9
LDH (IU/l)	601	Uric acid (mg/dL)	10.1
INR	1.55	Na (mmol/L)	134
Total Bilirubin (mg/dL)	2.4	K (mmol/L)	4.9

Table 2: Post-op lab results

Causes of non-emergence from anaesthesia

Pharmacokinetic	Inappropriate dose (absolute or relative) Impaired transport/distribution Impaired metabolism (liver failure/hypothyroidism) Impaired elimination (renal failure) Duration of surgery Drug interactions
Pharmacodynamic causes	Genetic variations Hypothermia Drug interaction
Metabolic laterations	Hypoglycaemia Hyperglycaemia Hyponatraemia Hypernatraemia Acidosis
Neurological rare causes	Hypoperfusion/ischaemia Intracranial haemorrhage Thrombosis Central anticholinergic syndrome
Psychiatric rare causes	Conversion disorder

Table 1: causes of delayed recovery from anesthesia. (Cascella et al, 2020)

Swansea Criteria for the diagnosis of Acute Liver Failure in Pregnancy

* ≥ 6 of below features required for diagnosis

Clinical signs	Vomiting Abdominal pain Polydipsia/polyuria Encephalopathy
Laboratory results	Bilirubin >14µmol/L Hypoglycaemia <4mmol/L Urate >340 µmol/L Leukocytosis >11 × 10 ⁹ /L Transaminitis Ammonia >47µmol/L Creatinine >150µmol/L Coagulopathy (PT>14 sec, APTT >34sec)
Ultrasonography	Ascites Bright liver
Liver biopsy	Microvesicular steatosis

Table 3: Swansea Criteria for the Diagnosis of Acute Liver Failure in Pregnancy (Day M et al., 2012)

Discussion

AFLP: rare obstetric emergency

- Fatty infiltration of liver parenchyma
- Defects in free fatty acid metabolism
- 3rd trimester
- Clinical overlap with HELLP syndrome and pre-eclampsia
- Rapid deterioration
- High maternal and fetal mortality

Clinical findings:

Malaise, nausea, vomiting, polyuria, polydipsia, abdominal pain, jaundice, encephalopathy

Lab findings:

- Renal dysfunction
- Transaminitis
- Coagulopathy
- Increased uric acid
- Increased bilirubin
- Increased lactic acid

Diagnosis:

Gold standard: liver biopsy (*rarely performed*)
Clinical diagnosis: liver dysfunction after 20 weeks pregnancy with supporting clinical and lab findings
- Swansea Diagnostic criteria (Table 3)

Management:

Fetal delivery | Supportive care | Liver transplantation

References

Lim E et al. Liver diseases in pregnancy. Clin Med (Lond). 2021 Sep;21(5):e441-e445. doi: 10.7861/clinmed.2021-0497. PMID: 34507927; PMCID: PMC8439517.
Tan J et al. Swansea criteria score in acute fatty liver of pregnancy. Chin Med J (Engl). 2022 Apr 5;135(7):860-862. doi: 10.1097/CM9.0000000000001821. PMID: 35671185; PMCID: PMC9276417
Cascella M, et al.Delayed Emergence from Anesthesia:What we know and how we act. Local and regional anesthesia 2020,13: 195-206. Doe: 10.2147/LRA.S230728. PMID: 33177867
Dey M, et al.Acute Fatty liver of pregnancy. N Am J Med Sci. 2012 Nov;4(11):611-2. doi: 10.4103/1947-2714.103339. PMID: 23181240; PMCID: PMC3503387.

Learning Points

- Importance of also considering non-anaesthesia causes of delayed emergence from anesthesia.
- AFLP may be confused with or be concurrent with pre-eclampsia or HELLP syndrome