Acute Pulmonary Oedema in a pregnant woman - ? Iatrogenic fluid overload ? Atypical Pre-eclampsia

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INTRODUCTION

• Acute Pulmonary Oedema in pregnancy is a rare but life-threatening condition with high maternal and perinatal morbidity and mortality.
• Estimated rates of acute pulmonary oedema in pregnancy vary from as low as 0.08% to as high as 0.5%.
• The wide ranges reported are due the poor reporting of maternal morbidity and lack of minimal reporting datasets of key outcomes in pregnancy and the postpartum period.
• Here we discuss a case of acute pulmonary edema in an antenatal woman with pregnancy complicated by chronic severe constipation.

HISTORY & EXAMINATION

• G4P2+1 admitted with premature rupture of membranes at 27 weeks.
• Known to have chronic constipation since childhood leading to megarectum and megacolon. Required manual bowel evacuation and proctowash on multiple occasions.
• First caesarean in 2015 – Obstructed labour.
• Second elective caesarean 2019 – grossly distorted anatomy secondary to abdominopelvic mass – megarectum and megacolon – T incision and injury to vagina.
• Speculum examination limited by impacted faeces in mega rectum completely obstructing the vagina.

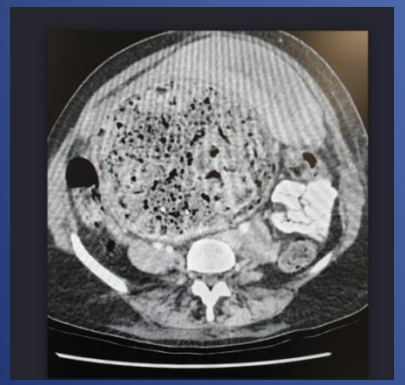

Fig 1 - CT Megarectum - postpartum

MANAGEMENT

• Our patient presented with PPROM at 27 + weeks and was being managed conservatively. She required bowel evacuation and wash out due to chronic constipation.
•There was a sudden deterioration on the night of her bowel evacuation with development of pulmonary edema and a fall in her hemoglobin to 69g/dl from 93gm/dl preoperatively.
• We investigated her keeping in mind the differential diagnosis of Pre-eclampsia, Pulmonary Embolism, Sepsis, Cardiac condition as the cause for pulmonary oedema.
• The above were excluded after normal PET bloods and sepsis markers, a normal echocardiogram and CTPA showing normal pulmonary vessels.
• Multidisciplinary input was sought and fluid overload from proctowash was thought to be the cause of pulmonary edema.
• Treated with diuretics. However, had increasing requirement for oxygen and respiratory support. Decision was to deliver for maternal indication.
• Patient had a classical caesarean under GA with no intra-operative complications.
• ITU care x 1 day and good post-op recovery.

DISCUSSION

• Pregnancy is accompanied by physiological adaptations making pregnant women more prone to developing pulmonary oedema.
• Pulmonary vascular resistance (PVR), like systemic vascular resistance (SVR) decreases significantly in normal pregnancy. The colloid osmotic pressure/pulmonary capillary wedge pressure gradient is reduced by about 30%, making pregnant women particularly susceptible to pulmonary oedema.
• Pulmonary oedema will be precipitated if there is either an increase in cardiac pre-load (such as infusion of fluids) or increased pulmonary capillary permeability (such as in pre-eclampsia) or both.
• In the present case, a large amount of fluid used for irrigation, on the background of physiological changes of pregnancy led to intravasation and third spacing of fluid.
• Most cases of acute pulmonary edema in pregnancy have been in association with Pre-eclampsia, sepsis or cardiac disease. Iatrogenic Pulmonary Oedema due to surgery during pregnancy is rare. There is a reported case of pulmonary oedema following a fetoscopic surgery in the literature.

CONCLUSION

• Hemodynamic alteration in pregnancy makes pregnant women more susceptible to pulmonary oedema while undergoing non obstetric procedures.
• Our case illustrates pulmonary edema complicating a low risk procedure of manual bowel evacuation with proctowash.
• Our experience with this patient highlights the importance of need for close liaison between obstetricians and other specialties in the management of pregnant women and astute monitoring and meticulous record of fluids during bowel washout.

REFRENCES

Chakravarthy K, Swetha T, Nirmalan PK, Alagandala A, Sodumu N. Protocol-based management of acute pulmonary edema in pregnancy in a low-resource center. J Obstet Anaesth Crit Care 2020;10:98-105.

Katz SG, Somerville KP, Welsh A. Maternal pulmonary oedema during foetoscopic surgery. Anaesth Intensive Care. 2015 Mar;43(2):249-51. doi: 10.1177/0310057X1504300217. PMID: 25735693.

Glass D.M., Zehrer T., Al-Khafaji A. (2020) Respiratory Diseases of Pregnancy. In: Hyzy R., McSparron J. (eds) Evidence-Based Critical Care. Springer, Cham. https://doi.org/10.1007/978-3-030-26710-0_99.