Powerful and reliable tool in post-partum cardiac arrest

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Introduction

The maternity suite is the only place in the hospital where patients come to the hospital willingly, to experience their bundle of joy for the first time. It is relatively the happiest spot in the hospital but stress levels can sky rocket if things go wrong in an otherwise straightforward physiological process.

We share our experience with one such scenario where Focused Ultra Sound in Intensive Care (FUSIC) aided in prompt diagnosis and guided appropriate treatment.[1]

Main Body

A fit & well **postpartum female**, 2 days post her normal vaginal delivery following an uneventful antenatal period, remained in the hospital as she experienced issues with feeding her baby.

She developed sudden onset intermittent mild chest discomfort which subsided without therapy. A few hours later, she was found collapsed in the corridor by the midwives.

Cardiopulmonary Resuscitation (CPR) was commenced, which showed an initial rhythm of ventricular fibrillation. She was intubated during CPR and Return of Spontaneous Circulation (ROSC) was achieved in 10 mins.

Post ROSC there was persistent hemodynamic instability which required metaraminol infusion & crystalloid boluses to maintain her blood pressure along with high oxygen requirements.

FUSIC guided us by rapidly ruling out the relevant reversible causes of arrest. Our initial strong differentials of pulmonary embolism, amniotic fluid embolism & peripartum cardiomyopathy[2] were ruled out along with hypovolemia, coronary thrombosis, cardiac tamponade and tension pneumothorax.

Post FUSIC, heart failure treatment was initiated with diuretics and additional positive end expiratory pressure (PEEP) post adequate sedation. Nor-adrenaline was initiated via a central venous access, crystalloid infusion was limited & antibiotics were initiated for left sided aspiration pneumonia in addition to routine critical care.

CT thorax confirmed aspiration pneumonia and no evidence of pulmonary embolism.
Subsequent formal echocardiography by the cardiologist confirmed our FUSIC findings of heart failure which was supported by serial rise in troponins (360 > 466) & raised NT-pro B – type Natriuretic Peptide (800) despite normal electrocardiograms.

Patient was extubated the following day & later shifted to the coronary care unit.

She underwent an angiography which was normal and was discharged home a week post ICU admission.

An implantable cardioverter defibrillator was inserted at a later date for her cardiac arrhythmias.

Conclusions

FUSIC aids intensivists in rapid diagnosis & treatment in challenging scenarios like post-partum cardiac arrest.

It is a powerful tool in our arsenal and an extension of our assessment in delivering holistic patient care.

FUSIC Findings

Figure 1. Apical septal dyskinesia

FUSIC Heart - Ejection fraction of 45% on eyeballing with preserved left ventricular function and mild apical-septal dyskinesia possibly post CPR.

No dilatation of right atrium or right ventricle.
Distensible inferior vena cava.
No pericardial effusion.

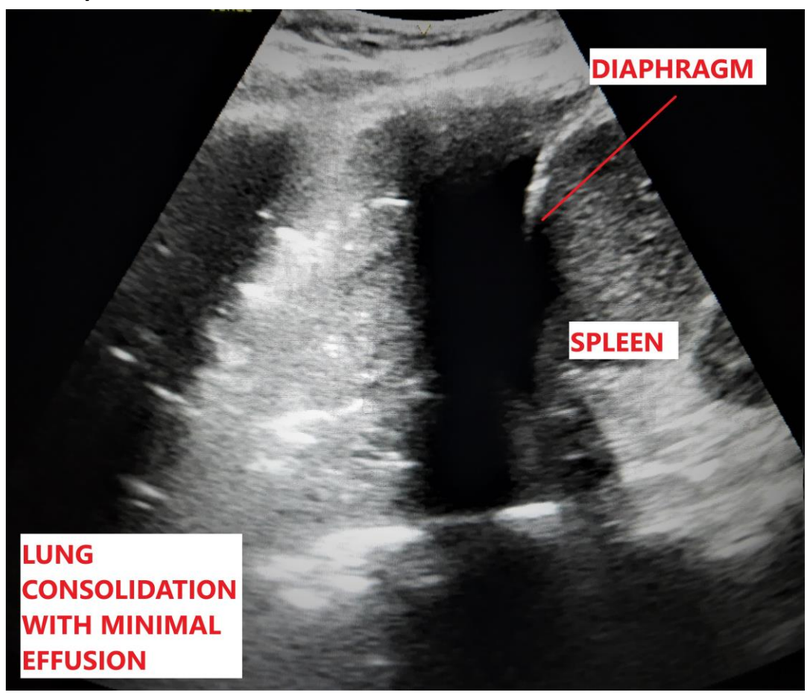

Figure 2. Left Posterior-lateral alveolar or pleural syndrome (PLAPS) point

FUSIC LUNG - Bilateral florid B-lines with starry night sky consolidation of the left basal lung.

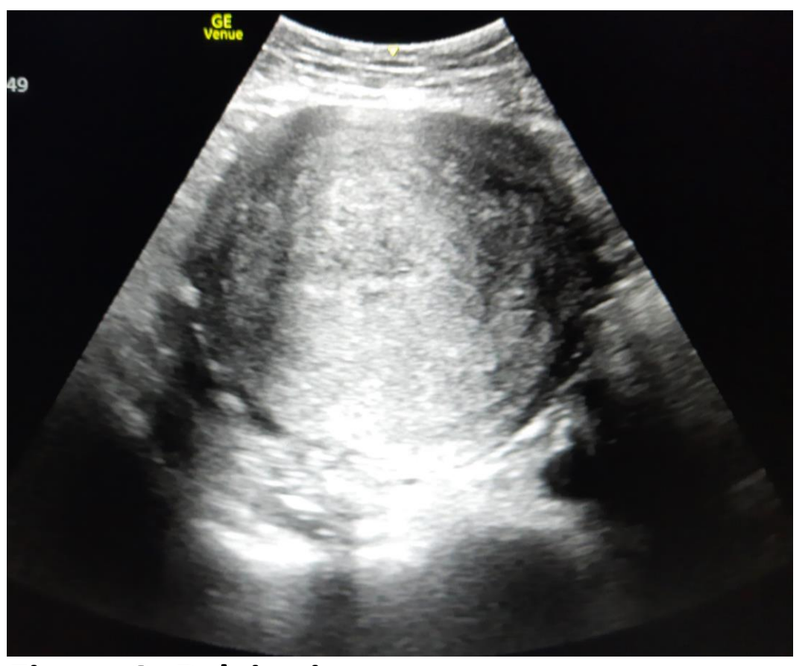

Figure 3. Pelvic view

FUSIC ABDOMEN & DVT ultrasound:
Postpartum uterus with no ascites/ collection.
Bilateral femoral and popliteal veins showed no evidence of thrombus.

Scan QR code for complete set of videos and images →

References

1) Lichtenstein, D., van Hooland, S., Elbers, P. W. G., & Malbrain, M. L. (2014). Ten good reasons to practice ultrasound in critical care. *Anaesthesiology Intensive Therapy*, *46*(5), 323-335.
2) Honigberg M C, Givertz M M. Peripartum cardiomyopathy BMJ 2019; 364:k5287.

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