

## Ultrasound-guided SUCCESS approach in emergency cesarean delivery

To the Editor,

We herein recommend a systematic evaluation and treatment protocol using point-of-care ultrasound (PoCUS) in the cesarean delivery setting. PoCUS has been developed and effectively used to manage obstetric anesthesia.<sup>[1]</sup> In emergency cesarean delivery, in particular, PoCUS can be crucial due to the paucity of preoperative assessments; however, to our knowledge, the PoCUS protocol in this particular setting has not been described.

We propose the ultrasound-guided “SUCCESS” approach [Figure 1]. Spinal anesthesia is the gold standard for cases without any contraindications or the need for immediate delivery. First, we should use a low-frequency convex transducer and evaluate the spine (S) structure as spinal anesthesia is sometimes difficult in patients undergoing emergency surgery. Second, even if spinal anesthesia seems feasible, we should be prepared for emergency transition to general anesthesia. PoCUS enables the assessment of the risk of needing general anesthesia by evaluating the upper abdomen (U) (gastric contents), cricothyroid membrane, (C) and cardiac function (C). PoCUS can assess the presence of gastric contents,<sup>[2]</sup> predict airway difficulty, and identify the cricothyroid membrane during the induction of anesthesia.<sup>[3,4]</sup> The assessment of known cardiac disease or exclusion of peripartum cardiomyopathy can also be included under “C”. We should use convex, linear, and phased array probes and select the best

<b>S</b> pine	spinal anesthesia
<b>U</b> pper abdomen (gastric contents)	pre-induction
<b>C</b> TM (cricothyroid membrane)	
<b>C</b> ardiac function	
<b>E</b> ndotracheal intubation	induction
<b>S</b> elick’s maneuver (cricoid pressure)	
<b>S</b> ecuring arterial and venous access	post-induction

Figure 1: The ultrasound-guided SUCCESS approach

anesthetic method by these evaluations. If general anesthesia is induced using rapid sequence intubation, we can then perform ultrasound-guided endotracheal intubation (E) and Selick’s maneuver (S) to reliably occlude the esophagus.<sup>[5]</sup> Finally, in cases of massive bleeding, we should secure (S) arterial and peripheral venous access under ultrasound guidance.

In summary, we introduced the ultrasound-guided SUCCESS approach. Ultrasound equipment with multiple probes should be kept beside during an emergency cesarean delivery. By implementing “visualized” anesthesia, we can avoid preventable complications and facilitate smooth and safe anesthesia.

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### Conflicts of interest

There are no conflicts of interest.

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