Conservative Management of Placenta Accreta: Using Helium Plasma Focused Radiofrequency Energy

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Introduction

The incidence of placenta accreta has been steadily rising secondary to increased cesarean section rates and advancing maternal age. Morbidly adherent placentas are associated with significant maternal morbidity and mortality and often result in cesarean hysterectomy due to life-threatening hemorrhage.

The helium plasma device utilizes radiofrequency to ionize helium into a plasma beam capable of coagulating and fulgurating tissue with high precision and minimal thermal spread. This instrument is FDA approved for open and laparoscopic surgery but has not been evaluated in the treatment of placenta accreta during cesarean section. The purpose of this case was to apply conservative management by utilizing a helium plasma device to fulgurate placenta accreta.

Case Presentation

35-year-old gravida 3 para 2 female with two prior cesarean sections presented with a partial placenta accreta. T2 MRI weighted imaging revealed a focal area of placenta accreta in the right lateral placenta. Repeat cesarean section with low transverse uterine incision and uterine exteriorization was performed at 38 weeks and 6 days gestation.

The helium plasma radio frequency plasma device was utilized to fulgurate the placenta accreta at 40% power 4 L/min gas flow for 25 seconds, providing adequate hemostasis of retained tissue. Pathology revealed a placental disc weight of 391 g.

Quantitative blood loss was 450 cc. Preoperative hemoglobin was 13.6 g/dL and postoperative hemoglobin was 12.7 g/dL. The patient remained hemodynamically stable without postoperative complications.

Discussion

Obstetric hemorrhage and peripartum hysterectomy were avoided in our patient, allowing for future fertility. Safety of the helium plasma device in gynecologic surgeries has been documented and studies demonstrate a superior safety profile for this device in comparison to monopolar energy that has been previously utilized in the management of placenta accreta.

The precision of plasma energy allows for optimal depth of penetration with minimal injury to surrounding healthy tissue. This approach minimizes the need for blood transfusions or other invasive and morbid procedures.

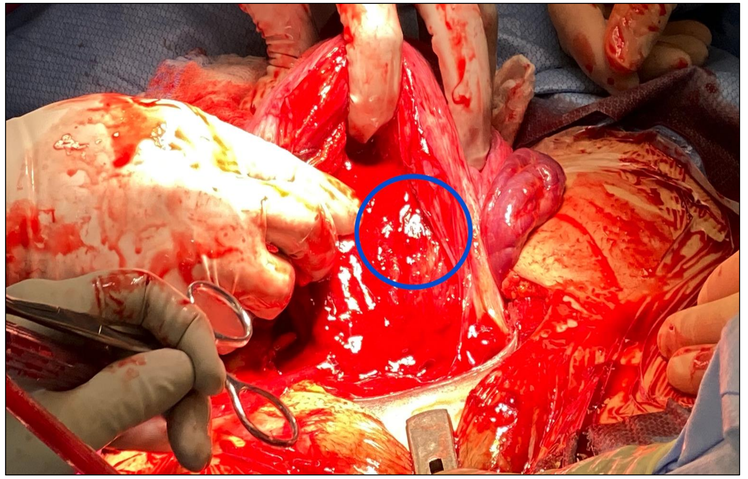


Figure 1: Visualization of the accreta

Conclusion

The helium plasma device is a uterine and fertility-sparing option for management of a focal placenta accreta. Further research is necessary to investigate the safety and surgical application of this tool in the treatment of abnormal placentation. This device provides a safe and novel option to potentially decrease maternal morbidity and mortality associated with morbidly adherent placenta.

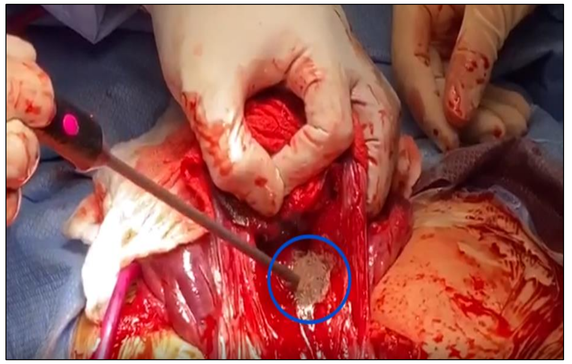


Figure 2: Fulguration of the accreta

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