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Presented by the Department of OBGYN at Banner University Medical Center – Phoenix

Placenta Accreta Management Perseverance & Teamwork Transformed a Tertiary Center into a Center of Excellence

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Banner University Medical Center Phoenix (BUMCP) is known for specialized and highly collaborative care models. The *Arizona Perinatal Trust* bestowed speciality program accreditation in 2017 for the groundbreaking work with Placenta Accreta. It was the first specialty program of its kind to be designated as a *Placenta Accreta Spectrum Center of Excellence*.

Placenta Accreta Spectrum Disorder (PAS) encompasses the clinical spectrum that results from abnormal trophoblastic invasion of the placenta into the myometrium of the uterine wall and includes placenta accreta, increta, or percreta. The prevalence of PAS is increasing over the past few decades and more recently increased from 1 in every 533 deliveries in 2002 to 1 in every 272 deliveries in 2016¹. This increase is driven primarily by increased cesarean section rates.

Risk of PAS is highest when placenta previa is present at delivery for patients with a history of prior cesarean section. The commonly cited risk of placenta accreta when placenta previa is present at delivery is 3%, 11%, 40%, 61% and 67% for the first, second, third, fourth, and fifth or more cesarean section respectively². Ultrasound findings associated with placenta accreta spectrum are placental lacunae, loss of retroplacental hypoechoic zone, thinning of uteroplacental myometrium, hypervascularity of uterovesicle and retroplacental space, extension of placental tissue into the uterus and/or bladder, and placental bridging vessels.

Placenta accreta spectrum disorder is associated with significant maternal morbidity and mortality. Patients are at risk of massive hemorrhage leading to organ injury, cesarean hysterectomy, intraoperative injury, and need for critical

Welcome

The OBGyn Department at BUMCP strives to serve our community through public service, clinical care expertise, academic research and medical education. We hope you enjoy sharing in our activities through the *Women's Health Update* Newsletter.

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care resources. These requirements can deplete hospitals of valuable resources and time, which may impact the availability of these resources for other patients.

In 2011 Banner University Medical Center (previously Banner Good Samaritan Medical Center) set out to identify how patients could be managed with improved utilization of valuable resources. Dr C Kevin Huls MD, MS and other leaders formed a multidisciplinary team to develop a specialized protocol for managing patients with suspected PAS disorders. The team at BUMCP today consists of Maternal Fetal Medicine, Anesthesia, Urology, Interventional Radiology, Trauma Surgery, Gynecologic Oncology, and Neonatology.

A planned review was conducted after 18 months comparing 35 cases prior to January 2012 before the team implementation and 24 cases after. A significant reduction in intraoperative blood loss from 3619 ml to 2080 ml ($p < 0.043$) and length of ICU stay from 2.58 to 1.25 days ($p < 0.037$) were seen. This occurred despite a significant increase in the percentage of patients with placenta percreta from 11.8% to 33.3% ($p < 0.046$). Additionally, a trend demonstrating less blood products transfused 6.14 vs. 2.29 units ($p < 0.056$) was observed. The need for intensive care unit (ICU) admission following surgery also had a non-significant reduction from 54% to 42%³.

Placenta Accreta Management, continued

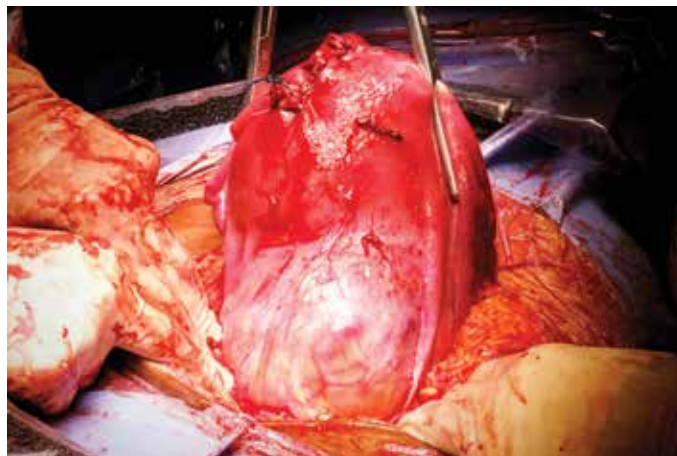
Women identified to be at increased risk of placenta accreta spectrum in the antepartum period are scheduled for delivery with the placenta accreta multi-disciplinary team. A summary of the data for the placenta accreta spectrum multi-disciplinary team over the last 4 years (2018-2021) is listed in **Table 1**. Not all women within the program have confirmed placenta accreta spectrum at the time of delivery.

The placenta accreta multi-disciplinary team continues to see increasing number of cases each year, with nearly half of the cases ultimately confirmed as placenta percreta, the most serious form of the disorder. Despite the increase in case numbers and severity, maternal morbidity has down-trended with lower average and median estimated blood volumes each year, fewer transfusions, and less than 10% of cases requiring ICU admission in our facility. The average length of stay is down to 4 days, minimizing the time patients remain in the hospital.

The best method to reduce the risks for patients is by identifying patients with the disorder and planning delivery as a non-emergent scheduled surgery. Delivery is often scheduled at 34-36 weeks, although a substantial number will present unexpectedly with bleeding, preterm labor, or other obstetrical complications. Our program has seen an increase in deliveries that are emergent accounting for 25% of the cases. Unscheduled emergent cesarean hysterectomy is a major contributor to maternal morbidity in our own data.

The best way to address this is by early identification of patients with placenta previa and 1 or more prior cesareans, abnormal placental appearance on ultrasound, or other risk factors for PAS disorder and facilitate referral to our facility for evaluation and counseling.

Ultimately the *Placenta Accreta Spectrum Center of Excellence* is excited to continue serving the community at BUMCP and the state of Arizona as a whole, striving to further reduce morbidity and mortality and improve antenatal identification of placenta accreta spectrum cases.



Placenta Accreta Spectrum: Increta

	2018	2019	2020	2021 (Jan-July)
Number of cases within the program	25	33	37	15
Number of PAS	21	27	24	13
Number of percreta (%)	11/21 (52%)	13/27 (48%)	11/24 (46%)	6/13 (46%)
Average EBL (mL)	1860	1483	999	1075
Median EBL (mL)	1200	1100	613	900
Need for transfusion (%)	6/21 (29%)	5/27 (19%)	3/24 (13%)	2/13 (15%)
ICU admission (%)	6/21 (29%)	2/27 (7%)	1/24 (4%)	0
Average post-op length of stay	4.3 days	3.6 days	4 days	4 days
Emergent cases (%)	5/21 (24%)	6/27 (22%)	3/24 (13%)	3/13 (23%)

References

1. Alison G Cahill, Richard Beigi, R. Phillips Heine, Robert M Silver, Joseph R Wax *Obstetric Care Consensus No. 7. Placenta accreta spectrum.* [Obstet Gynecol 2018;132:e259e75](#)
2. Silver RM, Landon MB, Rouse DJ, et al. *Maternal morbidity associated with multiple repeat cesarean deliveries.* [Obstet Gynecol 2006;107:1226-32.](#)
3. Henderson S, Mercer L, Ingersoll M, Braescu AB, Clewell W, Detlefs C, Perlow J, Huls C. *Optimizing outcomes of cesarean hysterectomy for invasive placentation. Poster session IV operative obstetrics, clinical obstetrics, intrapartum, medical-surgical: Abstract 537-686: Am J Obstet Gynecol, Vol 201, Issue 210 (1), S317-S318, January 01, 2014.*

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Top Nutrients to Reduce Endometriosis Risk Factor

- **Omega 3 Fats**
(salmon, sardines, herring, trout, walnuts, chia, and flax seeds)
- **Iron-rich foods**
(dark leafy greens, beets)
- **Antioxidants** (colorful fruits and vegetables – oranges, berries, dark chocolate, spinach, and beets)
- **Soluble fiber**
(fruits, vegetables, legumes, and whole grains)

Currently providers caring for women with endometriosis continue to search and research for the best therapeutic modalities to minimize the impact of the disease and improve their quality of life. The inclusion of alternative medicine approaches and nutritional counseling and coaching have gained popularity in the past few years.

The inclusion of nutritional counseling is an integral component of comprehensive care for women afflicted by endometriosis. The topic has gained popularity and acceptance by interdisciplinary teams as the prevalence and early diagnosis of endometriosis have increased in recent years. This is of significant clinical importance as the primary goal of comprehensive endometriosis care is to decrease severity of symptoms and improve quality of life.

We know that endometriosis affects approximately 10% of the population, including 30-50% of infertile women and even 3-5% of post-menopausal women. The exact pathophysiology of endometriosis remains not completely understood. However, several parameters including inflammatory mediators, immunologic factors, oxidative stress and genetics are all considered as influential factors in the development of endometriosis.

Surgical and medical management remain the principal modalities to reduce disease burden and to reduce severity of symptoms. Currently, there are no pharmacologic agents capable of comprehensively eradicating ectopic endometrial implants. Therefore it is important to consider complementary therapeutic modalities beyond traditional medical and surgical approaches. Nutrition continues to gain significant traction not only as a modifiable risk factor but also as a possible complimentary treatment modality.

There is a growing body of evidence identifying nutrition as a potential modifiable risk factor in the development of endometriosis. A study by Darling et al describes the

consumption of thiamine, folic acid, vitamin C and Vitamin E derived from food sources as being inversely proportionate to the development of endometriosis. Harris et al described that in women with elevated serum levels of Vitamin D offer a decreased risk of development of endometriosis. Current dietary standards indicate that the inflammatory potential in certain foods exert an important role in regulating chronic inflammation in endometriosis.

Other studies suggest that high consumption of animal fats is linked to a higher incidence of endometriosis. In contrast, women who consume more green leafy vegetables and fresh fruits benefit from a protective effect in the development of the disease.

Endometriosis affects millions of women worldwide. As women's health care providers it is critical to be knowledgeable about the disease, making the diagnosis promptly, preventing progression of disease via means of medical, surgical and alternative therapeutic modalities such as nutritional counseling. Like any other complex disease process, endometriosis requires a multidisciplinary team approach involving a Gynecologist, pelvic floor Physical Therapist, Radiologist, and Nutritionist.

DARLING, A.M. et al. *A prospective cohort study of vitamins B, C, E and multivitamin intake and endometriosis.* [J Endometr, v5, n.1, p.17-26, 2013.](#)

HARRIS, H.R., et al. *Dairy-food, calcium, magnesium, and vitamin D intake and endometriosis: a prospective cohort study.* [Am J Epidemiol, v.177, n.5, p.420-430, 2013.](#)

PARAZZINI, F., et al. *Selected food intake and risk of endometriosis.* [Hum Reprod, v.19, n.8, p.1755-1759, 2004.](#)

SHIVAPPA, N., et al. *Association between dietary inflammatory index, and cause-specific mortality in the MONICA/KORA Augsburg Cohort Study.* [Eur J Public Health, 2017.](#)

TRABERT, B., et al. *Diet and risk of endometriosis in a population based case-control study.* [Br J Nutr, v.105, n.3, p.459-467, 2011.](#)

When considering surgery, your first thoughts may be an operating table, sterile instruments, and anesthesia equipment. However, any patient that has undergone surgical treatment knows that the process includes much more than what happens in the operating room. The Women's Health providers at Banner University also recognize that the time leading up to, and recovering from, surgery is a crucial part of the healing process. Minimally invasive surgery inherently offers advantages such as decreased risk of surgical site infections and venous thromboembolism as well as quicker recovery compared to laparotomy, or open, surgery. Additionally, there have been significant advancements in understanding how to further optimize perioperative care to enhance recovery after surgery. Along with our anesthesia colleagues and the rest of the clinical team, we work to improve our patients' experience and outcomes.

Enhanced recovery after surgery (ERAS) programs seek to combine evidence-based practices to minimize the stress of surgery and facilitate recovery. The American Association of Gynecologic Laparoscopists (AAGL) has endorsed the use of ERAS in patients undergoing minimally invasive gynecologic surgery and highlighted several key components to consider. Some of the recommendations may seem surprising to patients who have had surgery in the past, as they depart from the more restrictive practices used historically. Now, there is a focus on keeping the operative patient in a more physiologic state around the time of surgery. For example, instead of extended fasting before surgery, we may recommend a preoperative carbohydrate drink to provide energy and hydration.

The collaboration between surgeon and patient begins prior to the day of surgery as we meet in the clinic to provide instructions for surgery preparation and day of surgery activities. Prehabilitation, the idea of optimizing nutrition, physical activity and mental health, has been identified as another method to contribute to patient recovery. By discussing common post operative concerns such as bladder and bowel function, pain control, nausea, diet and activity we can set expectations for recovery and help differentiate normal postoperative changes from concerning symptoms.

Enhanced Recovery After Surgery

- Preoperative education
- Maintain physiology: hydration, temperature, etc.
- Multimodal post-op pain control
- 'Prehabilitation' and optimization
- Intraoperative care, pain control, nausea prevention
- Early return to activity and diet

Pain control is another essential aspect of perioperative care that can be improved with ERAS programs. The dangers of the opioid epidemic are apparent, with approximately 6.8% of women prescribed an opioid medication for postoperative pain control developing persistent opioid use. This can lead to dependence, detrimental side effects, risk of overdose and death. Nevertheless, pain control is essential for patients undergoing surgery so we focus on a multi-modal strategy that limits opioid medication while managing pain and aiding recovery. This includes non-narcotic medications before, during and after surgery as well as careful surgical technique to minimize trauma, local anesthetic, abdominal binders, ice packs, medications to promote bowel function and more. When narcotic prescriptions are indicated, the amount prescribed is matched to the procedure performed.

As many minimally invasive gynecologic procedures allow for safe same day discharge, the enhanced recovery continues at home. We work closely with our anesthesia and nurse colleagues to prevent and treat nausea in the immediate postoperative period. Instead of recommending bed rest and limiting diet, there is now evidence that more liberal oral intake, chewing gum and immediate postoperative ambulation safely result in earlier return of bowel function, reduced length of stay, higher patient satisfaction and decreased risk of venous thromboembolism.



MIGS team celebrating another successful case.

We are committed to providing high quality, evidence based perioperative care and, although surgery is part of our regular practice, we realize that it is a significant event in the lives of our patients that extends far beyond our time in the operating room. As we continue to incorporate evidence-based recommendations for enhanced recovery after surgery, we also seek to contribute to the advancement of the field with ongoing research investigating additional ways to optimize perioperative care in the operating room and beyond.

Womack, A. S., Smith, R. B., Mourad, J., & Mahnert, N. D. (2020). *Perioperative pain management in minimally invasive gynecologic surgery*. *Current Opinion in Obstetrics & Gynecology*, 32(4), 277–284. <https://doi.org/10.1097/gco.0000000000000639>

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Upcoming Events and Announcements

The UA COM-P OBGYN Residency Program invites you to attend: Our 25th Annual Resident Research Day

When: Friday, October 8th at 7:30am

Where: Banner University Medical Center – Phoenix | 1111 E. McDowell Rd., Phoenix, AZ 85006
Oak Creek 2 & 3 (WIS Prenatal Classroom available for overflow)

Keynote Topic: Postpartum Contraception: Novel approaches to expand contraceptive access



Keynote Speaker | Lisa Hofler, MD, MPH, MBA

Lisa Hofler, MD, MPH, MBA is Clinical Vice Chair and chief of the division of Complex Family Planning at the University of New Mexico. She is also the Medical Director of the UNM Center for Reproductive Health and Associate Director of the University of New Mexico's Complex Family Planning Fellowship. She trained as an engineer at Georgia Tech before receiving an MD/MPH with a concentration in Epidemiology from Emory University. Dr. Hofler completed her residency at Harvard Medical School's Beth Israel Deaconess Medical Center and she earned an MBA during her Family Planning Fellowship at Emory.

Chief Residents presenting their research in women's healthcare:



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Chief Resident



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Chief Resident



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Please gather to honor and celebrate the life of

Dr. John Wesley Martin, III | Captain, Medical Corps, U.S. Navy Reserve (Ret.)

Monday, September 27, 2021

Full Military Honors

Ft. Logan National Cemetery
4400 W. Kenyon Ave.
Denver, CO 80263

10:15-10:30 a.m.

Meet at the staging area for a procession of family and friends

11:00 a.m.

Memorial Service

5:30 p.m.

Celebration of Life... with one last scotch for the captain

The Landmark

7600 Landmark Way
Greenwood Village, CO 80111

Please RSVP for the celebration by September 20, or send questions to Ty Martin:

Text: (480) 818-1534

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