A case series: learning curve in managing placenta accreta spectrum at tertiary care centre

Authors

- 1) Amrita Chaurasia, Professor and Head, Department of Obs and Gynae, MLN Medical College Prayagraj, Uttar Pradesh, India.
- 2) Vandana Ojha, Assistant Professor, Department of Obs and Gynae, MLN Medical College, Prayagraj, Uttar Pradesh, India.
- 3) Dilip Chaurasia, Professor, Department of Surgery, MLN Medical College, Prayagraj, Uttar Pradesh India.
- 4) Shweta, Senior Resident, Department of Obs and Gynae, MLN Medical College, Prayagraj, Uttar Pradesh, India.
- 5) Yashi Srivastava, Senior Resident, Department of Obst and Gynae, MLN Medical College, Prayagraj, Uttar Pradesh, India.
- 6) Sonal Tripathi, Junior Resident, Department of Pathology, MLN Medical College, Prayagraj, Uttar Pradesh, India.

Corresponding Author: Dr. Vandana Ojha, Assistant Professor, Department of Obs and Gynae, MLN Medical College, Prayagraj, Uttar Pradesh, India; Email : vandanaojhapandey@gmail.com

Manuscript submitted – 24th November 2021 Peer review completed – 28th March 2022 Accepted for Epub – 10th April 2023

Distributed under Attribution-Non Commercial – Share Alike 4.0 International (CC BY-NC-SA 4.0)

Abstract:

Background: Placenta accreta spectrum is a life threatening condition of abnormal invasion and adherence of placental villi to the myometrium. PAS is associated with very high maternal morbidity and mortality and requires a multidisciplinary approach with all the expertise to reduce adverse outcomes. **Method:** Here, we are discussing our learning curve to manage the PAS cases over 3 years (July 2018 to June 2021) in a Government Medical college of Uttar Pradesh, where though we have all kind of expertise but little limited availability of modern procedures. We have discussed the cases, mode of diagnosis, management and procedure done, intraoperative complications faced, management of the complications and postoperative prognosis of the patients. **Result:** We managed the patients based on the principals and with our limitations. We learned from our mistakes in every case. We also had formulated a customized SOP guided by the ACOG and as per our facility and past experiences for PAS management in emergency as well as electively. **Conclusion:** Placenta accreta syndrome is increasing as the rate of casesarean section is increased, so reducing primary casesarean section will be a determining factor in reducing PAS incidence such a rapid rise in PAS calls for enhancing the skills to identify and manage it at all the levels of health care system.

Keywords: Placenta accreta spectrum, caesarean hysterectomy, classical incision, doppler ultrasound.

Placenta accreta spectrum is a life threatening condition of abnormal invasion and adherence of placental villi to the myometrium. Grading is done depending upon the degree of invasion. Gradelis just abnormal adherence to the surface of myometrium (placenta adherent or accreta). Grade 2 is incompletely invasive placenta (increta) and Grade 3 is completely invasive placenta (percreta) that invades through the uterine wall and may penetrate the surrounding pelvic tissues and vessels ¹. Localized uterine injuries; previous caesareans or overzealous uterine curettage may lead to defective decidualization during pregnancy causing abnormally adherent placenta ². Others postulated is overgrowth of invasive cytotrophoblasts and increased angiogenesis due to increased expression of EGFR, VEGF, PIGF and their receptors (VEGFR-1,2,3)². PAS is associated with very high maternal morbidity and

Chaurasia A, Ojha V, Chaurasia D, Shweta, Srivastava Y, Tripathi S. A case series: learning curve in managing placenta accreta spectrum at tertiary care centre. The New Indian Journal of OBGYN. 10th April 2023. Epub Ahead of Print.

mortality and requires a multidisciplinary approach to reduce adverse outcomes. Here we are discussing our learning curve to manage PAS cases over 3 years in a Government Medical college of Uttar Pradesh, where though we have all kind of expertise but little limited availability of modern procedures like MRI, vascular catheterizations and embolization etc.

Method

We are discussing our learning curve to manage the PAS cases over 3 years (July 2018 to June 2021) in a Government Medical college of Uttar Pradesh, where though we have all kind of expertise but little limited availability of modern procedures. We have discussed the cases, mode of diagnosis, management and procedure done, intraoperative complications faced, management of the complications and postoperative prognosis of the patients.

Case 1: 26 years, G3P2L2 previous 2 LSCS was referred at 24 weeks gestation with recurrent spotting PV and USG showing anterior low lying placenta with features of PAS. 32 weeks follow up scan showed evidences of further invasion into bladder as well. Elective classical caesarean section and caesarean hysterectomy was planned at 36 weeks after corticosteroid coverage. 2 units of blood and 2 more donars were arranged. Classical incision was given. During delivering the baby, the vertical classical incision extended downward tearing the placenta and started torrential haemorrhage. During hysterectomy and partial cystectomy with bladder repair for bladder invasion, the patient went in to shock in spite of rapid IV crystalloid at the rate of 1000-1500 ml/hour and simultaneous blood transfusion. Vasopressors were started and total 10 units of packed RBCs and 3 units of fresh frozen plasma were transfused to stabilize the patient. Although patient needed ventilatory support, she recovered in postoperative period. But she developed SSI and VVF as delayed complication.

Lesson learnt -1) Before operating extensively adherent placenta, at least 4-5 cross matched packed RBCs should be ready to be transfused in rapid succession if needed. Even if you have blood bank facility, cross matching may take time that may be detrimental as well as it is not necessary that particular blood group is available in the blood bank. 2) Uterine incision must be customized and anyhow it must not extend up to placenta and tear it.

Case 2: 28 years old G3P2L2 with previous 2 caesarean with PAS presented at 36 weeks. As learnt from the previous case we adopted transverse fundal incision to avoid placental tearing for elective upper segment caesarean section. Caesarean hysterectomy with intact placenta in situ could be done with minimal blood loss requiring only 2 PRBCs. The complication faced was entrapment and transaction of left ureter in third pair of clamp during hysterectomy as Lower segment was grossly expanded. Ureteric anastomosis with DJ stenting was done. Patient did well in the post operative period but developed UTI and pyelonephritis on day 5, identified by persistent low grade fever and renal angle tenderness. This led to increased morbidity, prolonged hospital stay and additional financial burden. Patient responded to treatment, her DJ-stent was removed after 6 weeks.

Lesson learnt - Be careful while putting lower clamps during caesarean hysterectomy or preoperative ureteric catheterization may be done to avoid ureteric entrapment in the clamps. As Lower segment is expanded putting ureters at risk of getting entrapped in to the clamp.

Case 3: 22 years old P3A1 postnatal patient with previous vaginal deliveries and 1 first trimester surgical MTP, delivered at home 4 weeks before came with secondary PPH. Ultrasonography and Doppler shows large echogenic soft tissue lesion 42×38×32 mm in the fundus and body of uterus with marked vascularity and increased myometrial vessels (figure 1). After all preparations, dilatation and evacuation of RPOC was planned, but attempt of evacuation led to torrential bleeding requiring urgent hysterectomy. Histopathology showed grade 2 placental invasion.

Lesson learnt - Previous C section and low lying placenta are not necessary for morbid placental adhesion as previous dilation and curettage can also lead to focally damaged endometrium and focal placental adhesion.



Figure 1: Doppler shows large echogenic soft tissue lesion in the fundus and body of uterus with marked vascularity and increased myometrial vessels.

Case 4: 29 years old G3 P2+0L1 32 weeks, previous 2 LSCS unbooked pregnancy, referred with APH since 12 hrs with moderate pallor and features of shock. USG done at 6 months at some peripheral centre showed placenta in upper segment. Emergency caesarean section was done and placenta was found to be low lying and adherent. Attempts to deliver placenta led to torrential bleeding, deteriorated her further. Caesarean hysterectomy was done as a life saving procedure. Patient did well in postoperative period. Histopathology showed myometrial invasion by chorionic villi and placenta accreta (figure 2).

Lesson learnt - Ultrasonographic report of an unknown peripheral centre must not be relied upon in cases of APH with risk factors for PAS. High clinical suspicion and ability to identify intraoperative features of adherent placenta is important because once morbid adherent placenta starts bleeding that requires a quick, experienced, mature decision to save woman's life.



Figure 2: Histopathology showed myometrial invasion by chorionic villi and placenta accreta

Case 5: 32 years, G2P1+0 previous LSCS came at 12 weeks with ultrasonography showing anterior placenta with few areas of loss of retroplacental hypoechoic zone but no lacunas. She got counseled by some practioner for termination fearing adherent placenta. We counseled her against termination and ensured her to terminate at any gestation age if she starts bleeding or at 35-36 weeks if things go favorable.

She showed frank ultrasonographic picture of PAS with several lacunae and serosal bulge of 7 cm diameter at 18 week anomaly scan (figure 3) but serosal bulge did not further invaded into the bladder. At complete 37 weeks classical C section with caesarean hysterectomy was done. Though she had features of adherent placenta since beginning, surprisingly she had no episode of spotting or bleeding PV.



Figure 3: PAS with several lacunae and serosal bulge

Lesson learnt - Placental detailing must be an integral part in NT–NB scan at 11-13 weeks in the patients with previous C section. Secondly, termination must not be advised exclusively for the fear of future risk of PAS as no guideline recommends this and sometimes patient may not have even a single episode of bleed.

Case 6: 37 years old G5P3+1 with 2 LSCS, 1 VBAC and one D&E was referred to emergency from a private hospital where they opened the abdomen and closed after seeing increased vasculature over the uterus. It was a case of intraoperative diagnosis of placenta percreta. Lower segment was highly vascular with dilated tortuous vessels in vertical direction (figure 4). Patient was managed with classical C-section followed by caesarean hysterectomy.

Lesson learnt - Intra-operative diagnosis of placenta previa is must for every operating surgeon even the most junior one. Their lack of expertise calls for the presence of an expert obstetrician and other available multi-disciplinary team as well.



Figure 4: Lower segment was highly vascular with dilated tortuous vessels in vertical direction

Case 7: 31 years old G4P3L2 with 26 weeks pregnancy came to emergency department with APH and caesarean hysterectomy was planned and transverse fundal incision was given since it was a marginal low lying placenta. As the major part of placenta was in upper segment, Placenta was accidently cut during transverse fundal incision leading to torrential haemorrhage. Patient rapidly developed shock. With great difficulty we could save the patient with fast caesarean hysterectomy with simultaneous resuscitative measures. Patient was shifted to ICU and fortunately could be revived.

Lesson learnt - Proper mapping of even the upper margin of placenta is important in case of anterior marginal placenta previa where, upper margin could occupy the fundus that may be cut even during transverse fundal incision.

Now, we have formulated a customized SOP in our institution for PAS management in emergency as well as electively that is guided by ACOG recommendation and our past experiences and suits to our existing infrastructure. Our assistant professors and senior residents are now sufficient enough to manage PAS emergencies and we have also developed a closed team of faculties of anesthesia, urosurgery apart from obstetrician for PAS management.

Discussion

The first case series on placenta accrete was described by Irving et al in 1937. Owing to immensely increased caesarean section deliveries the incidence of PAS has risen from 0.8/1000 deliveries in the 1980s to 3/1000 deliveries in the past decade ³.

Ultrasonography is primary modality to diagnose PAS with sensitivities ranging from 53.4% to 74.4% and specificities from 70.8% to 94.8% depending upon the degree of expertise of radiologist ⁴. Sometimes complementary MRI may be needed in cases of inconclusive sonography.

Absence of ultrasonographic findings in cases with high clinical suspicion does not preclude the diagnosis of PAS particularly in regions where ultrasonographic expertise are limited and a major proportion of unbooked pregnant women lands directly in emergencies with absurd ultrasonographic reports done at peripheries by the technicians only ⁵.

If placenta accreta is suspected in routine ultrasonographies in pre-viable periods, MTP must not be advised for the sake of PAS related maternal risk reduction because abnormally adherent placenta at any gestation may lead torrential bleeds requiring hysterectomy as a life saving procedure that permanently ruins obstetrical carrier of the women. Continuing pregnancy with stringent antenatal care specially focused on anaemia prevention, radiological preoperative placenta detailing and multimodal management at a well equipped centre with 24x7 availability of senior obstetrician, interdisciplinary experts, trained medical staff and an easy access to blood bank significantly reduces morbidities and mortalities. Safest obstetrical approach is well planned caesarean hysterectomy at late preterm (35-36 weeks) or early term (37 weeks) involving multimodal team approach. General anaesthesia and vertical abdominal incision are usually preferred with classical C section followed by total hysterectomy with placenta insitu. Removal of lower uterine segment and cervix to stop the haemorrhage precludes supracervical hysterectomy. Inspite of all the preparation sometimes poorly predicted intraoperative massive blood loss may become a limiting factor, especially in rare blood groups and hence requires a careful vigilance ⁶.

Hysterectomy in PAS has higher risk of ureteric and bladder injury due to broadened lower segment putting ureters at risk to get entrapped in the lower clamps and placental invasion into the bladder, putting difficulty to push the bladder down. This mandates preoperative radiological assessment of degree of placental invasion into the surrounding structures and presence of urosurgeon or a gynaeoncologist in the surgical team. Preventive preoperative ureteric stenting is controversial and completely a prerogative of urosurgeon.

Preoperative radiological localization of upper margin of placenta added with intraoperative inspection of uterus to discern the level of placenta is highly recommended to decide the uterine incision to completely avoid placental tearing while delivering the baby ⁷. A nontraditional transverse fundal uterine incision has also been described in literature to abolish the risk of placental tearing. We found this approach completely hassel free minimizing blood loss and hence the need for massive blood transfusion and had not been associated with any difficulty in delivering the babies. Breech extraction in cases of cephalic presentations and Patwardhan method in cases of breech presentations were adopted in this case series. A worth mentioning point here is that even a transverse fundal incision may tear a marginal low lying placenta previa with PAS, so strictly requires a properly mapped upper margin of placenta as well.

One of the limiting factors in PAS management is a fact that despite advances in imaging and greater understanding of risk factors, rates of preoperative diagnosis of placenta accreta remain low: 30–80% depending on the practice

setting ⁸ as well as a lot of unbooked cases landing directly in emergencies in labour. Therefore, even in uncomplicated cases with high clinical risk for PAS identification of intraoperative features of PAS in the form of presence of multiple irregular vascular channels over lower segment especially in vertical directions and by non separation of placenta with usual measures after delivery of fetus becomes a must know factor for all the obstetricians even the trainees as well. In these situations further approach depends upon the level of capabilities available. If both mother and baby are stable, the caesarean section should be delayed until the appropriate staff and resources have been assembled and adequate blood products are available else abdominal wound may be closed followed by urgent transfer to a specialist unit for delivery ⁵. And if it's diagnosed after delivery of the fetus and the centre is unable to perform hysterectomy, transfer should be considered with temporizing manoeuvres like packing the abdomen, tranexamic acid infusion, and transfusions with locally available products ⁵. Sometimes, deliberate attempt to manually remove undiagnosed adhered placenta starts torrential bleed leading to rapid development of unstable hemodynamic status. This calls for a quick and liberal decision for hysterectomy to save woman's life.

In women with strong desire for future fertility preservation a conservative approach of leaving the placenta in situ has been discussed in the literature, but not with good results. This has been shown to be associated with 18% chances of infection, 35% chances of bleeding and 7% chances of DIC. Therefore, conservative approach should be considered only when women are willing to accept the risks involved in this approach. Another conservative approach in patients with focal adherence of placenta has been described as focal uterine wall excision with reconstruction of the remaining uterine flaps having good results⁷.

Conclusion

Placenta accreta syndrome is increasing as the rate of caesarean section is increased, so reducing primary caesarean section will be a determining factor in reducing PAS incidence. Such a rapid rise in PAS calls for enhancing the skills to identify and manage it at all the levels of health care system. Though fully equipped multispecialty centre is always preferred for its management, the minimal team for its successful management do need presence of an expert radiologist, obstetrician, urosurgeon or gynaeoncologist or even a general surgeon, who is well versed with the pelvic anatomy.

References

1). Allen L, Jauniaux E, Hobson S, Papillon-Smith J, Belfort MA. FIGO consensus guidelines on placenta accreta spectrum disorders: Non conservative surgical management. Int J Gynecol Obstet. 2018; 140: 281-90.

2) Bartels HC, Postle JD, Downey P, Brennan DJ. Placenta Accreta Spectrum: A Review of Pathology, Molecular Biology, and Biomarkers. Disease Markers. 2018; 2018.

3) Higgins M, Monteith C, Foley M, O'Herlihy C. Real increasing incidence of hysterectomy for placenta accreta following previous caesarean section. European Journal of Obstetrics & Gynecology and Reproductive Biology. 2013; 171(1): 54-6.

4). Bowman ZS, Eller AG, Kennedy AM, Richard DS, Winter TCIII, Woodward OJ, et al. Interobserver variability of sonography for prediction of placenta accreta. J Ultrasound Med. 2014; 33: 2153-8.

5). ACOG; placenta accreta spectrum; Number 7 (Replaces Committee Opinion No. 529, July 2012. Reaffirmed 2021)

6). ACOG's Practice Bulletin No. 135, Second Trimester Abortion, for more information on medical and surgical considerations if termination is pursued. (ACOG 2021)

7). Tanimura K, Yamada H. Management of placenta accreta in pregnancy with placenta previa. Nov 5th 2018. DOI: 10.5772/intechen. 79185.

8). Bailit JL, Grobman WA, Rice MM, Reddy UM, Wapner RJ, Varner MW, Leveno et al. Morbidly adherent placenta treatments and outcomes. Obstet Gynecol. 2015 Mar; 125(3): 683-89.

Conflict of interest: None. Disclaimer: Nil.