



An Overview on Diagnosis & Management of Placenta Previa

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ABSTRACT

Placenta previa is defined as low placental implantation that covers the internal os of the cervix; either completely or partially. The condition sometimes is discovered incidentally in routine antenatal care screening, while some present with frank second or third trimester painless vaginal bleeding. The rate of placenta previa in Saudi Arabia is 4.1 per 1000 births, where all are managed by caesarian delivery. We aimed to review the literature looking for the updated placenta previa in terms of risk factors, clinical presentation, diagnosis, and management. PubMed database was used for articles selection, gathered papers had undergone a thorough review. The complexity of placenta previa manifests in optimizing the outcome of both the mother and the baby. Early detection of the problem results in better outcomes due to well-planned management and anticipation. The medical team should always involve the mother in the possible negative outcome and consider the possible complications as placenta previa sometimes coexist with other placental implantation abnormalities such as increta and percreta.

Keywords: Placenta previa, Second trimester, Third trimester, Bleeding, Low lying placenta, Caesarian section

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INTRODUCTION

Placenta previa is defined as a low-lying placenta that obscures the cervical internal opening "os". This condition is very important to be diagnosed prior to labor, as it will define the outline of the baby delivery which usually necessitates a caesarian section (Faiz & Ananth, 2003). In Saudi Arabia, the prevalence of placenta previa accounts for 4.1 per 1000 births, where 56.5% of women underwent emergency caesarian section while 43.5% had elective ones (Abduljabbar *et al.*, 2016). As this condition jeopardizes the well-being of both the mother and the baby, a well-understanding of it would help to early diagnose and properly manage the patient to achieve the best possible outcomes. This paper will shed light on the etiology, risk factors, diagnostic techniques, and management.

MATERIALS AND METHODS

PubMed database was used for the selection process of relevant articles, and the following keys used in the mesh ("Placenta previa"[Mesh]) AND ("Diagnosis"[Mesh] OR

"Management"[Mesh] OR "Risk factors"[Mesh])). For the inclusion criteria, the articles were selected based on including one of the following: placenta previa or placenta previa risk factors, evaluation, management, and diagnosis. Exclusion criteria were all other articles that did not meet the criteria by not having any of the inclusion criteria results' in their topic.

Review

Placenta previas were previously classified as complete, partial (incomplete), or marginal based on how much of the internal endocervical os the placenta covered. Transvaginal ultrasonography, on the other hand, provides for the exact localization of the placental edge and cervical os. As a result, the phrases "partial" and "marginal" have been removed from the terminology. Instead, all placentas that creep to the os (to some extent) are referred to as previas, whereas those that are close to but do not reach out for the os are referred to as low-lying (Reddy *et al.*, 2014).

Presentation and suggestive history

The risk factor for developing placenta previa has been investigated in researches in order to come up with independent factors that correlate to this disease. Positive history of placenta previa, caesarian section, suction, and

curettage are all related to increasing incidents of placenta previa. Other independent maternal factors like advanced maternal age, smoking, cocaine use, multiparity, and assisted reproductive techniques are also associated with this condition (Silver, 2015; Jing *et al.*, 2018; Martinelli *et al.*, 2018). The most common symptom is painless vaginal bleeding in the second or third trimester of pregnancy (Alghamdi *et al.*, 2020). Intercourse, vaginal exams, and childbirth can all produce bleeding, however, there are situations when there is no clear explanation. There may be minor to active bleeding on speculum inspection. If the cervix is dilated, the placenta can sometimes be seen using a speculum examination. To avoid large bleeding, a digital inspection should be avoided (Prabhu *et al.*, 2017).

Diagnosis

The diagnosis of placenta previa among other placental abnormalities usually occurs within the routine antenatal screening. The identification of the placenta site and implantation firstly captured by transabdominal routine ultrasonography, by setting a cut-off point of 4.2 cm between the placental edge and the internal os of the cervix will have 93.3% sensitivity, 76.7% specificity, and a 99.8% negative predictive value in diagnosing placenta previa (Quant *et al.*, 2014; Alouini *et al.*, 2020). When a clinical suspicion of placenta previa is made, the best following modality preferred is transvaginal ultrasonography where it gave more accurate results. The term placental migration is a misnomer, as the placental growth leans toward the areas with the most blood supply which is typically the fundus in a process called trophotropism. Moreover, the part located toward the cervix is usually atrophied. In the light of the placental "migration", most of the placenta previa diagnoses made at mid-pregnancy tend to naturally resolve as only 10-20% of these cases linger until the end of the pregnancy (Hertzberg *et al.*, 1992; Quant *et al.*, 2014).

With a history of previous caesarian sections, ruling out the presence of invading placental tissue into the uterus is preferred. The attachment of the placenta beyond the usual limit of the myometrium is known as placenta accreta. The invasion of the placenta into the myometrium is called placenta increta, while the invasion into the uterine serosa and other adjacent organs is called placenta percreta (Baldwin *et al.*, 2018). In those cases some selected cases might undergo further magnetic resonance imaging (MRI), and proper consultation of the sequelae is a must, especially massive hemorrhage and the need for urgent hysterectomy (Eller *et al.*, 2009).

Management

The mainstay management of diagnosed cases of placenta previa is the caesarian section. The timing differs according to the stability and exhibited symptoms by the patient and her fetus. According to the American College of Obstetricians and Gynecologists (ACOG) recommendations that regardless of gestational age, patients with severe or persistent vaginal bleeding should be delivered through cesarean section at once. If the bleeding stops, expectant management is considered if the pregnancy is less than 36 weeks. Cesarean delivery is advised if the pregnancy is at or beyond 36 weeks (Gyamfi-Bannerman *et al.*, 2019). Magnesium sulfate and corticosteroid for fetal neuroprotection and lung maturity should be considered if the patient is less than 34 weeks of gestation along with bed rest

and sexual abstinence are usually recommended despite the lack of evidence (Silver, 2015).

The exact caesarian delivery in the case of placenta previa requires further delicacy and precision to be taken by the operator. If the suspension of placenta accrete is low, the surgeon can proceed with the regular lower segment uterine incision. It is important that the surgeon applies a light hand when they cut through the layers as incising through the placenta might result in unwanted excessive bleeding. Once the placenta is separated, immediate clamping of the umbilical cord should be done to avoid further bleeding. A high vertical approach is used in some cases where placenta accrete is occurring, if the mother completed her family and not planning to get pregnant again, or if the fetus is in a transverse lie. Nevertheless, urgent ultrasonography is usually carried before the surgery to determine the borders of the placenta initially (Jauniaux *et al.*, 2018).

CONCLUSION

Placenta previa is one of the conditions that require very delicate management and vigilant type of patient care. Due to its multiple independent risk factors, its occurrence is evident in primary and tertiary health care facilities. The early detection of placenta previa prepares the treating team and the mother and helps them to anticipate the worse and avoid it before it happens. Placenta previa management's target is ensuring the safety of both mother and fetus while weighing the advantages and the disadvantages of both. Caesarian section is the definite management and the preferred delivery option in those cases; it can be elective if the patient is stable or immediate if any exacerbation is warranted.

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REFERENCES

- Abduljabbar, H. S., Bahkali, N. M., Al-Basri, S. F., Al Hachim, E., Shoudary, I. H., Dause, W. R., Mira, M. Y., & Khojah, M. (2016). Placenta previa: A 13 years experience at a tertiary care center in Western Saudi Arabia. *Saudi Medical Journal*, 37(7), 762-766. doi:10.15537/smj.2016.7.13259
- Alghamdi, A. A. S., Alhazmi, A. A., Nasser, M. H., Alkhamis, M. M., Alghanmi, M. A., Osaili, E. A., Ghawwas, F. J., Alasmari, N. S. H., & Bawazier, A. A. (2020). Evaluation of Cytomegalovirus Infection Diagnosis and Management during Pregnancy. *Journal of Biochemical Technology*, 11(4), 52-55.
- Alouini, S., Megier, P., Fauconnier, A., Huchon, C., Fievet, A., Ramos, A., Megier, C., & Valéry, A. (2020). Diagnosis and management of placenta previa and low placental implantation. *The Journal of Maternal-Fetal & Neonatal Medicine*, 33(19), 3221-3226. doi:10.1080/14767058.2019.1570118

- Baldwin, H. J., Patterson, J. A., Nippita, T. A., Torvaldsen, S., Ibiebele, I., Simpson, J. M., & Ford, J. B. (2018). Antecedents of abnormally invasive placenta in primiparous women: risk associated with gynecologic procedures. *Obstetrics & Gynecology*, 131(2), 227-233. doi:10.1097/AOG.0000000000002434
- Eller, A. G., Porter, T. F., Soisson, P., & Silver, R. M. (2009). Optimal management strategies for placenta accreta. *BJOG: An International Journal of Obstetrics & Gynaecology*, 116(5), 648-654. doi:10.1111/j.1471-0528.2008.02037.x
- Faiz, A. S., & Ananth, C. V. (2003). Etiology and risk factors for placenta previa: an overview and meta-analysis of observational studies. *The Journal of Maternal-Fetal & Neonatal Medicine*, 13(3), 175-190. doi:10.1080/jmf.13.3.175.190
- Gyamfi-Bannerman, C., Gantt, A. B., & Miller, R. S. (2019). ACOG Committee Opinion No 764: medically indicated late-preterm and early-term deliveries. *Obstet Gynecol*, 133(2), e151-e155. doi:10.1097/AOG.0000000000003083
- Hertzberg, B. S., Bowie, J. D., Carroll, B. A., Kliewer, M. A., & Weber, T. M. (1992). Diagnosis of placenta previa during the third trimester: role of transperineal sonography. *AJR. American Journal of Roentgenology*, 159(1), 83-87. doi:10.2214/ajr.159.1.1609727
- Jauniaux, E. R. M., Alfirevic, Z., Bhide, A. G., Belfort, M. A., Burton, G. J., Collins, S. L., Dornan, S., Jurkovic, D., Kayem, G., Silver, R., et al. (2018). Placenta Praevia and Placenta Accreta: Diagnosis and Management: Green-top Guideline No. 27a. *BJOG*, 126(1), e1-e48. doi:10.1111/1471-0528.15306
- Jing, L., Wei, G., Mengfan, S., & Yanyan, H. (2018). Effect of site of placentation on pregnancy outcomes in patients with placenta previa. *PloS one*, 13(7), e0200252. doi:10.1371/journal.pone.0200252
- Martinelli, K. G., Garcia, É. M., Santos Neto, E. T. D., & Gama, S. G. N. D. (2018). Advanced maternal age and its association with placenta praevia and placental abruption: a meta-analysis. *Cadernos de Saude Publica*, 34(2), e00206116. doi:10.1590/0102-311X00206116
- Prabhu, M., Eckert, L. O., Belfort, M., Babarinsa, I., Ananth, C. V., Silver, R. M., Stringer, E., Meller, L., King, J., Hayman, R., et al. (2017). Antenatal bleeding: Case definition and guidelines for data collection, analysis, and presentation of immunization safety data. *Vaccine*, 35(48Part A), 6529-6537. doi:10.1016/j.vaccine.2017.01.081
- Quant, H. S., Friedman, A. M., Wang, E., Parry, S., & Schwartz, N. (2014). Transabdominal ultrasonography as a screening test for second-trimester placenta previa. *Obstetrics & Gynecology*, 123(3), 628-633. doi:10.1097/AOG.0000000000000129
- Reddy, U. M., Abuhamad, A. Z., Levine, D., & Saade, G. R. (2014). Fetal imaging: executive summary of a joint Eunice Kennedy Shriver National Institute of Child Health and Human Development, Society for Maternal-Fetal Medicine, American Institute of Ultrasound in Medicine, American College of Obstetricians and Gynecologists, American College of Radiology, Society for Pediatric Radiology, and Society of Radiologists in Ultrasound Fetal Imaging Workshop. *Journal of Ultrasound in Medicine*, 33(5), 745-757. doi:10.7863/ultra.33.5.745
- Silver, R. M. (2015). Abnormal placentation: placenta previa, vasa previa, and placenta accreta. *Obstetrics & Gynecology*, 126(3), 654-668. doi:10.1097/AOG.0000000000001005