



Placenta Increta: A Diagnostic Challenge for Clinicians and Crucial Role of a Pathologist

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Introduction

Normal pregnancy requires normal implantation and placenta, which are crucial for the normal development of the fetus. In normal implantation, three stages occur: apposition, interdigitation of microvilli, and interaction between trophoblast and uterine epithelium. For the normal establishment of utero-placental circulation, interstitial invasion and endovascular invasion are the important factors for normal pregnancy [1,2,3]. Abnormal invasion results in placental pathology, classified into three conditions, placenta accreta, placenta increta, and placenta percreta [3]. Placenta accreta, increta, and percreta are rare abnormalities of the placenta.

Abstract

Introduction: Placenta increta is a rare maldevelopment of the placenta that leads to fatal pregnancy-related complications. They are classified into three forms depending on the degree of the spectrum of abnormal placentation. The estimated incidence of placenta increta is 1 in 2500-7000, characterised by the absence of the entire or partial deciduas basalis and incomplete development of the nitabuch layer.

Case report: A 26-year-old female, gravid 6, para 2, was admitted to the obstetric emergency department with a full-term pregnancy and labour pains. Her routine investigations were within the normal range. The placenta was retained and profuse bleeding continued after the delivery of the baby. An emergency laparotomy was performed. The clinical diagnosis of placenta accreta was kept in mind. A histopathological examination revealed placenta increta.

Conclusion: The placenta increta can cause fatal complications if clinical suspicion of placental accreta/increta/percreta in high-risk women is not kept in mind. Histopathological analysis of the placenta confirms the clinical diagnosis. Hence, pathologists play a crucial role toward correct diagnosis of placental abnormalities.

Overall, the estimated incidence is 1-7/10,000 pregnancies [4]. These placental abnormalities are associated with pregnancy-related complications [5]. Placenta increta is a rare maldevelopment of the placenta with a prevalence of 1 in 2500-7000, characterised by the absence of the entire or partial deciduas basalis and incomplete development of the nitabuch's layer. Placenta increta may result in life-threatening complications like massive blood loss and uterine rupture [6]. Herein, we report a case of placenta increta diagnosed in a young female whom the clinician suspected was placenta accreta.

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Case report

A 26-year-old female, gravid 6, para 2, was admitted to the obstetric emergency department with a full-term pregnancy and labour pains. She revealed about three abortions in her detailed medical history. There were no records of previous pregnancies or abortions available. Ultrasonography report was normal. The total leucocyte count, red blood cell count, hematocrit, and platelets were within the normal range, except for the low hemoglobin (6.2 g/dL) value. Her blood pressure, pulse, and temperature were within normal limits.

Her obstetric examination was normal. She delivered a baby by normal delivery. The placenta was not expelled after the birth of the baby. Despite all the medication and manual procedures, the placenta was retained and profuse bleeding continued. The patient was transferred to the operating room and an emergency laparotomy was performed. Intraoperatively, the placenta was firmly adhered to the uterus wall, which made it impossible to detach. Therefore, hysterectomy was performed with the removal of the uterus and cervix along with the placenta. The clinical diagnosis of placenta accreta was kept in mind. The specimen was sent for histopathological confirmation of the clinical diagnosis.

On gross examination, the uterus measured 5.5x5x4.5cm. The combined thickness of the endometrium and myometrium measured 1.5 cm. A solitary nodule measuring 5.5x5x4.5cm was identified in the endometrium. On serial sectioning, the nodule appears to be invading the myometrium (**Figure 1a**). Hematoxylin and eosin (H&E) stained sections from the uterus showed placental tissue consisting of chorionic villi and trophoblastic tissue, invading deep into the myometrium along with areas of hemorrhage. The serosal surface was free from placental invasion. A histopathological diagnosis of placenta increta was made (**Figure 1b, c & d**). The postoperative course was uneventful. On follow-up, she recovered fully.

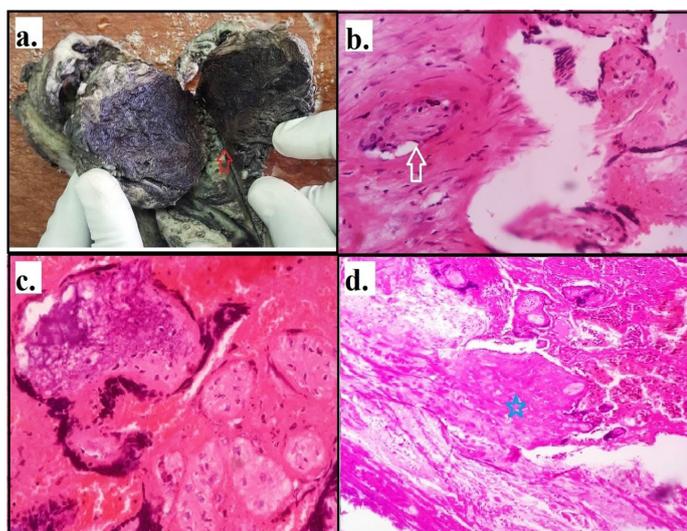


Figure 1: (a) Gross specimen show firm attachment of placenta to the uterus wall (red arrow). (b). H&E sections show placental tissue consist of chorionic villi (white arrow) invading deep into myometrium with spraying of muscle fibers. (c). magnified view of chorionic villi with hemorrhagic area (40X). (d). Decidual tissue (blue star) along with muscle wall and chorionic villi and areas of hemorrhage.

Discussion

Normal utero-placental circulation is essential for an uneventful pregnancy. Any alteration in the implantation or placenta results in severe maldevelopment and fatal complications. In a normal placenta, cytotrophoblast invades the endometrium and the inner third of the myometrium, a process known as interstitial invasion, and cytotrophoblast invades the maternal uterine vessel, a process known as endovascular invasion [2,3]. If invasion is uncontrolled or abnormal, it leads to abnormal placentation depending on the degree of the spectrum of abnormal placentation.

Three forms of abnormal placentation are described in the literature, placenta accreta, placenta increta, and placenta percreta. Placenta accreta occurs when placental tissue invades the myometrium's decidual surface; placenta increta occurs when placental villi invade deep myometium; and placenta percreta occurs when chorionic villi penetrate the uterine serosa [5].

According to a national case-control study using the UK obstetric surveillance system conducted in the UK, the incidence of abnormal placental is around 1.7/10,000 pregnancies. This incidence is higher among women with a history of at least one caesarean section and placenta previa. There is a great difference in the incidence among women without previous caesarean or placenta previa and women with a previous history of caesarean or placenta previa. The estimated incidence is around 0.3-0.6% in women without previous history and 9-108% in women with previous history. Risk factors for an abnormal placenta include age > 35 years, multiparity, history of caesarean section, placenta previa, hypertension, smoking, IVF pregnancy, other uterine surgery, and previous uterine rupture [4].

In our patient, an abortion history was present. However, details of previous procedures or caesarean section history were not available. Another study conducted on peripartum hysterectomy specimens in India over an eight-year period showed similar results, where placenta increta (38.8% incidence) was the second most common placenta pathology after placenta accreta (55.5% incidence). Placenta percreta was the least common but most fatal entity with the highest maternal mortality and morbidity, resulting in serious complications such as ruinous blood loss, acute respiratory distress syndrome, renal failure, sheehans syndrome, and death. These abnormalities were more commonly associated with multiparous females than with uniparous women. Other abnormal placentation complications are dissemination, intravascular coagulation, and damage to the bladder or ureter [7]. Placental abnormalities lead to an increase in the incidence of caesarean hysterectomy [8]. Another study done by Miller et al. concluded with similar results [9].

However, placental abnormalities should be diagnosed as early as possible to plan appropriate surgery and prevent a fatal outcome [10]. An alternative management for uncontrollable postpartum haemorrhage is uterine artery embolization, which permits the preservation of fertility and a reduction in hysterectomy rates. Hee Suk Chae et al, described two cases of placenta increta in which the placenta was left in situ, uterine artery embolization was performed, and a delayed uterine exploration and curettage was successfully performed. Follow-up ultrasonography showed complete uterine involution with a linear endometrial cavity [11]. The constellation of clinical manifestations, medical history, and radiological investigations is critical for prenatal diagnosis. To confirm the clinical diagnosis, histopathological examination is mandatory [10].

Conclusion

Once upon a time, abnormal placentation such as placenta accreta, placenta increta, and placenta percreta were rare entities. Nowadays, an increase in caesarean surgery results in a high incidence of this pathology. Among these, placenta accreta is the most common, and placenta increta is the second most common lesion. They can result in fatal complications if clinical suspicion of placental accreta/increta/percreta in high-risk women is not kept in mind. Histopathological examination is the gold standard that confirms the clinical suspicion of placental abnormalities. Hence, pathologists play an important role. Placental specimens are mandatory for clinicians to send for the confirmation of clinical diagnosis.

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