

ULTRASONOGRAPHIC DIAGNOSIS OF PLACENTA ACCRETA

Shaista Afzal, Imrana Masroor, Gulnaz Shafqat

Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan.

PJR October - December 2010; 20(4): 165-167

ABSTRACT

Placenta accreta is the abnormal adherence of placenta to myometrium due to defect in decidua basalis. This type of placenta could not remove manually after delivery and lead to severe hemorrhage that may result in emergency cesarean hysterectomy. Prenatal diagnosis of placenta accreta is important because it reduces the fetal and maternal morbidity and mortality as appropriate pre-operative and per operative procedures are possible. Grey scale ultrasonography along with color Doppler imaging proves to be the non invasive, real time, readily available modality with high sensitivity and high positive predictive value.

Keywords: Placenta accrete, Cesarean hysterectomy, Placenta previa

Introduction

Placenta accreta is a placental disorder in which there is direct contact between the placenta and the myometrium. Three variants of condition are recognized based on pathologic invasion of myometrium by chorionic villi. In most common form (70-80%) placenta is directly attached to the myometrium and is termed as placenta accreta. In approximately 17% of cases placenta extends deep into myometrium and is known as placenta increta. In remaining 5-7% of cases placenta extends through the entire wall of the uterus and termed percreta.

Risk factors for placental invasion are prior uterine instrumentation or surgery that would have disrupted the endometrial layer^{1,2} and increasing maternal age.⁴ Uterine scarring from previous cesarean section increases the prevalence of placenta previa from 0.26% with an unscarred uterus to 0.65% after one cesarean section and to as much as 10% after four cesarean sections.²

The frequency of placenta accreta in the presence of placenta previa increases from 24% after one cesarean section to 67% after four or more cesarean sections.³

The incidence of placenta accreta, which is correlated

with the cesarean section rate, has increased tenfold in the past fifty years, with frequency of approximately one per thousand deliveries.^{4,5}

Case Report

This is a case report of 31 years old non booked 36 weeks pregnant patient came through emergency with episode of heavy of vaginal bleeding. She had two previous cesarean sections because of fetopelvic disproportion. Her previous two ultrasounds was done outside our center showed, type four placenta previa. Ultrasound at our center performed with 3.5 MHz linear array transducer (Aloka Prosound 4000) at 36 weeks of gestation showed, single viable fetus of 35⁺ weeks of gestation with adequate liquor. Placenta was low lying completely covering internal os. On detailed scan of placenta non visualization of the retroplacental echolucent clear zone was noted with reduce myometrial thickness less than 1mm between the placenta and the bladder wall. Color Doppler imaging confirmed the diagnosis by showing the parallel running vessels at the outer margin of urinary bladder wall with low resistance placental flow. Placenta was labeled as type four previa with placenta increta.

Emergency cesarean section was performed because of profuse vaginal bleeding. On surgery it was found

Correspondence : Dr. Shaista Afzal
Department of Radiology,
Aga Khan University Hospital,
Stadium Road, P.O. Box 3500, Karachi 74800
Pakistan. Tel. No: 34930051 - Ext. 2020
Email: shaista.afzal@aku.edu

that placenta was inseparable from the myometrium and lie beneath the bladder wall. Cesarean section ended up on cesarean hysterectomy because of hemorrhage. Postoperatively mother was transfused 4 pints of packed cell in special care where she stayed for two days. Rest of the postoperative period was uneventful and was discharged on 7th postoperative day from the hospital with healthy baby. Histopathology report showed, chorionic villi traversing the myometrium without intervening deciduas basalis confirming the diagnosis of placenta increta.

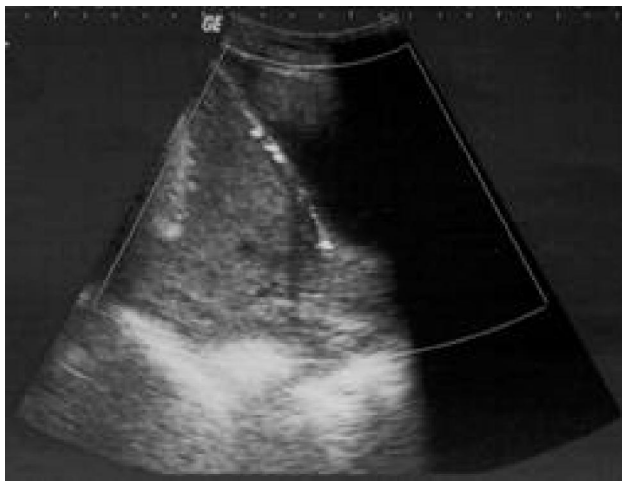


Figure A: Type 4 previa with loss of myometrial zone between the placenta and the posterior wall of the bladder.

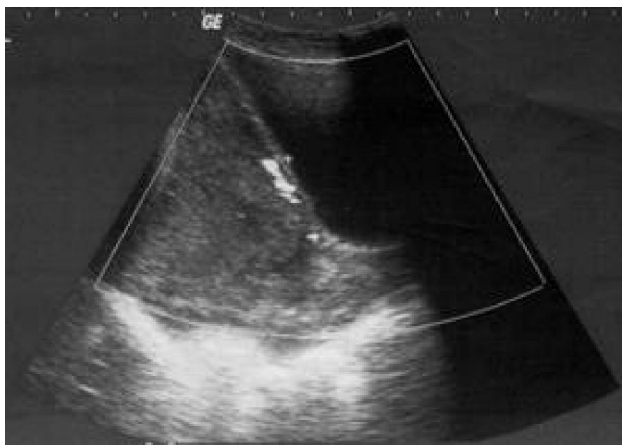


Figure A: On doppler imaging low resistance placental flow is identified beneath the bladder wall

Discussion

Placenta accrete is a placental abnormality that may result in substantial intrapartum morbidity and mortality.⁶ There is a need for reliable antenatal

diagnosis since placenta accreta encountered unexpectedly can lead to excessive blood loss, Sheehan syndrome, renal failure and other multiple complications. Cesarean hysterectomy is the end result because of excessive haemorrhage.^{7,8}

Thus placenta accreta and especially placenta percreta have been reported to result in mortality rate of 7%.⁷ Prenatal diagnosis is essential for appropriate counseling and surgical planning to be performed. Literature search revealed that diagnosis of placenta accrete is possible by ascertaining certain ultrasonographic feature on grey scale as well as on colour Doppler imaging. Sonographic features suggesting placenta accrete are placental lacunae which has the highest sensitivity of 93%.^{8,10}

Lacunae appear as rounded or tubular structures within the placenta usually but not always show turbulent flow within them.

Other associated features includes thinning of hypoechoic retroplacental myometrium less than 1mm, thinning or disruption of the hyperechoic uterine serosa with bladder interface and loss of clear space that is deciduas basalis between the myometrium and the placenta.^{10,11}

On colour Doppler imaging placental and arcuate vessels are visualized in the suspicious area of myometrium. Easily recognizable low pulsatile and low resistance flow in the intervillous space can reflect a connection between the myometrial arteries and placental tissues.^{8,9}

In our case on grey scale imaging type four placenta previa with thinning of hypoechoic retroplacental myometrium less than 1mm and loss of clear space between the myometrium and the placenta was noted. Colour Doppler was applied which showed low resistance placental flow in suspicious area on Doppler imaging.

The sensitivity and specificity of ultrasound in the diagnosis of Placenta Accreta is 86% and 71% respectively.⁸

Magnetic Resonance Imaging can also noninvasively detect placenta accreta. MRI features for placenta accreta are focal thinning of the myometrium and interruption of the junctional zone. On T2-weighted MR images, the mass is hyperintense or may be heterogeneous.^{9,10} But definitely this modality cannot be used for screening purpose and reserved for those patients in whom placentas which are difficult to evaluate with ultrasound.

Conclusion

Correct management of patients with placenta previa with additional placenta accrete increta or percreta is possible only with accurate antenatal diagnosis which is also a prerequisite for reduction of possible morbidity of both mother and child.

References

1. Middleton DW, Kurtz B A, Hertzberg B S. Placenta, Umbilical cord, and Cervix. In; Alfred B Kurtz, William D Middleton, Barbra S Hertzberg ed. Ultrasound The Requisite Mosby 2004 486-510.
2. Levine D, Hulka CA, Ludmir J, LIW, Edelman RO. Placenta accreta: evaluation with color Doppler US, power Doppler US, and MR imaging. Radiology 1997; **205**: 773-6.
3. Clark SL, Koonings PP, Phelan JP. Placenta Previa/accrete and prior cesarean section Obstet. Gynaecol 1985; **66**: 89-92.
4. Miller DA, Chollet JA, Gordwin TM. Clinical risk factor for placenta previa – Placenta Accreta. Am J Obstet Gynaecol 1997; **177**: 210-4.
5. Placenta Accreta ACOG Committee Opinion No 266 American College of Obstetricians and Gynaecologists. Int J Gynaecol Obstet 2002; **77**: 77-8.
6. Kayern G, Davy C, Goffiner F, Thomas C, Clermet D, Carbrol D. Conservative versus extirpative management in cases of Placenta accreta. Obstet Gynecol 2004; **104**: 531-6.
7. Antenatal diagnosis of Placenta Accreta: a review Ultrasound Obstet Gynaecol 2005; **26**: 89-96.
8. Comstock CH, Love JJ, Bronsten RA, Vettaraino I , Huang R, Lorenz R. Sonographic detection of Placenta Accreta in the second and third trimester of pregnancy Am J Obstet Gynaecol 2004; **190**: 1135-40.
9. De Mendonca LK. Sonographic diagnosis of Placenta Accreta Presentation of Six Cases J Ultrasound Med 1988; **7**: 211-5.
10. Twickler DM, Lucas MJ, Balis AB, Santos-Ramos R, Master L, Malone S, Roger B. Color flow mapping for myometrial invasion in women with a prior cesarean delivery J Matern Fetal Med 2000; **9**: 330-5.
11. Wong H S, Cheung Y K, Zuccollo J, Tait J, Pringle KC. Evaluation of Sonographic Diagnostic Criteria for Placenta Accreta. J Clin Ultrasound 2008; **36**:551-9.