EAS Journal of Radiology and Imaging Technology
Abbreviated Key Title: EAS J Radiol Imaging Technol
ISSN: 2663-1008 (Print) & ISSN: 2663-7340 (Online)
Published By East African Scholars Publisher, Kenya

OPEN ACCESS

Volume-8 | Issue-6 | Nov-Dec-2026 | DOI: https://doi.org/10.36349/easjrit.2026.v08i06.003

Original Research Article

Role of Ultrasonography in the Detection of Placenta Accreta Spectrum Disorders: A Cross- Sectional Observational Study in Hospital Based Population

Dr. Priyal Singh[1]*, Dr. Shephali S Pawar[2]

[1]Junior Resident, Department of Radiodiagnosis, B. J. Government Medical College & Sassoon General Hospital, Pune, (MH) India
[2]Professor and Head of Department, Department of Radiodiagnosis, B. J. Government Medical College & Sassoon General Hospital, Pune, (MH) India

Article History
Received: 07.09.2026
Accepted: 04.11.2026
Published: 09.11.2026

Journal homepage:
https://www.easpublisher.com

Quick Response Code

Abstract: ***Background:*** Placenta accreta spectrum (PAS) disorders are associated with significant maternal morbidity, making antenatal diagnosis essential for appropriate obstetric planning. Ultrasonography, including grayscale and colour Doppler assessment, is the primary imaging modality for evaluating pregnancies at risk. ***Aim:*** To evaluate the role of ultrasonography in detecting PAS disorders and assess the diagnostic performance of individual ultrasound markers and the Placenta Accreta Index (PAI). ***Methods:*** This hospital-based cross-sectional observational study was conducted in the Department of Radiodiagnosis over 18 months and included 40 pregnant women suspected of having PAS. Transabdominal and, where required, transvaginal grayscale and colour Doppler ultrasonography were performed. Ultrasound findings and PAI were recorded. Intraoperative findings and/or histopathology served as the reference standard. Diagnostic performance was assessed using sensitivity, specificity, predictive values, accuracy and receiver operating characteristic analysis. ***Results:*** PAS was confirmed in 34 (85.0%) participants and was not confirmed in six (15.0%). Among grayscale markers, myometrial thinning (82.4%), loss of the retroplacental clear zone (76.5%) and placental lacunae (67.6%) were frequent findings in confirmed PAS. Among Doppler markers, subplacental hypervascularity (67.6%), turbulent lacunar flow (64.7%) and bridging vessels (61.8%) were commonly observed. Overall ultrasonography demonstrated 94.12% sensitivity, 83.33% specificity, 96.97% positive predictive value, 71.43% negative predictive value and 92.50% accuracy. Mean PAI was significantly higher in confirmed PAS than in non-confirmed cases (4.43 ± 2.47 versus 1.50 ± 1.60; p=0.007). PAI also differed significantly across FIGO grades (p=0.002). For predicting PAS, PAI showed an area under the curve of 0.848. ***Conclusion:*** Grayscale and colour Doppler ultrasonography demonstrated high diagnostic accuracy for PAS. PAI was associated with both PAS presence and severity and may support antenatal risk stratification.

Keywords: Placenta accreta spectrum.

Copyright © 2026 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution **4.0 International License (CC BY-NC 4.0)** which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.

INTRODUCTION

Placenta Accreta Spectrum (PAS) refers to a group of disorders characterised by abnormal adherence of the placenta to the uterine wall or abnormal invasion of chorionic villi into the myometrium and, in severe cases, beyond the uterine serosa into adjacent organs. The spectrum includes placenta accreta, placenta increta and placenta percreta, representing increasing degrees of placental invasion. PAS is an important cause of severe maternal morbidity because attempted placental separation may result in massive obstetric haemorrhage, blood transfusion, injury to adjacent organs and peripartum hysterectomy. [1,2]

The incidence of PAS has increased over recent decades, partly in parallel with the increasing rate of caesarean deliveries. Previous caesarean section is one of the most important risk factors, particularly when associated with placenta previa. Other recognised risk

***Corresponding Author:** Dr. Priyal Singh
Junior Resident, Department of Radiodiagnosis, B. J. Government Medical College & Sassoon General Hospital, Pune, (MH)India

factors include previous uterine surgery, dilatation and curettage, and assisted reproductive techniques. The risk increases with the number of previous caesarean deliveries, especially in women with placenta previa. Therefore, careful assessment of obstetric history and placental location is essential for identifying pregnancies at increased risk. [1,3]

Antenatal diagnosis of PAS is important because it allows appropriate counselling, referral to an experienced tertiary care centre and planned multidisciplinary management. Ultrasonography is the primary imaging modality for antenatal evaluation because it is widely available, non-invasive and provides real-time assessment of placental morphology and vascularity. The American College of Obstetricians and Gynecologists and the Society for Maternal-Fetal Medicine recommend ultrasound evaluation in women with relevant clinical risk factors. However, the absence of characteristic ultrasound findings does not exclude PAS, and clinical risk factors must be considered alongside imaging findings. [1,4]

Grayscale ultrasonography demonstrates characteristic morphological abnormalities at the uteroplacental interface. Important findings include loss or irregularity of the retroplacental clear zone, thinning of the myometrium, abnormal placental lacunae, placental bulge and irregularity or interruption of the bladder wall. Colour Doppler provides additional information regarding abnormal vascularity and helps demonstrate bridging vessels, subplacental hypervascularity, uterovesical interface hypervascularity and turbulent flow within placental lacunae. Standardised definitions of these ultrasound markers have been recommended to improve consistency in examination and reporting. [5,6]

Evidence from systematic reviews supports the diagnostic value of ultrasound in detecting PAS, although reported accuracy varies across studies and depends on the population examined, gestational age, sonographic criteria and operator expertise. A 2023 systematic review and meta-analysis by Maged *et al.,*, which included 54 studies and 5,307 pregnancies, reported pooled sensitivity and specificity of approximately 87.0% and 86.3%, respectively. The review also demonstrated that individual ultrasound markers differed in their diagnostic performance, emphasising the importance of assessing multiple findings rather than relying on a single sign. [7]

To improve risk assessment, the Placenta Accreta Index (PAI) was developed by Rac *et al.,* It combines clinical and sonographic parameters, including the number of previous caesarean deliveries, placental location, myometrial thickness, placental lacunae and bridging vessels. The index provides a structured approach to estimating the likelihood of placental invasion and can be evaluated using receiver operating characteristic analysis. [8]

Despite advances in antenatal imaging, the diagnosis and assessment of PAS remain challenging, particularly because of variations in ultrasound findings and the limited number of confirmed cases in many individual centres. The present study was therefore undertaken to evaluate the role of ultrasonography in detecting PAS in a hospital-based population, to assess the diagnostic contribution of grayscale and colour Doppler markers, and to examine the relationship of the Placenta Accreta Index with PAS confirmation and severity.

METHODOLOGY

The present study was conducted as a descriptive, cross-sectional observational study in the Department of Radiodiagnosis at a tertiary care teaching hospital over a period of 18 months. Pregnant women clinically suspected of or diagnosed with PAS on the basis of clinical risk factors and/or previous imaging findings were referred from the Obstetrics and Gynaecology department. A total of 40 eligible participants were enrolled using convenience sampling. Written informed consent was obtained from all participants, and the study was initiated after approval from the Institutional Ethics Committee. Women in whom adequate ultrasound visualisation could not be obtained or who declined or withdrew consent were excluded.

All participants underwent transabdominal and, where indicated, transvaginal ultrasonography using Philips Affiniti 70G and Samsung V5 ultrasound systems, supplemented by colour Doppler evaluation. Grayscale findings, Doppler vascular markers, clinical risk factors and the Placenta Accreta Index were recorded using a structured proforma. PAS confirmation and FIGO grading were established using intraoperative findings and/or histopathological examination. Data were analysed using IBM SPSS Statistics version 26. Categorical variables were compared using the Chi-square or Fisher's exact test, while the Mann–Whitney U and Kruskal–Wallis tests were used for continuous variables. Diagnostic accuracy indices and ROC curves were calculated; a p-value below 0.05 was considered statistically significant.

RESULT

Table 1: Comparison of Clinical Risk Factors Between PAS-Confirmed and PAS-Not-Confirmed Cases (n = 40)

Risk factors	PAS confirmed (n=34)	PAS not confirmed (n=6)	p-value
Previous caesarean section	32 (94.1%)	5 (83.3%)	0.394
≥2 previous caesarean sections	20 (58.8%)	1 (16.7%)	0.085
Placenta previa	30 (88.2%)	5 (83.3%)	1.000
Previous dilatation and curettage	5 (14.7%)	2 (33.3%)	0.279
Previous myomectomy	0 (0.0%)	0 (0.0%)	1.000
ART/IVF conception	0 (0.0%)	1 (16.7%)	0.150

Table 2: Comparison of Grayscale and Colour Doppler Ultrasonographic Findings Between PAS-Confirmed and PAS-Not-Confirmed Cases (n = 40)

Ultrasonographic findings	PAS confirmed (n=34)	PAS not confirmed (n=6)	p-value
A. Grayscale findings			
Loss of retroplacental clear zone	26 (76.5%)	1 (16.7%)	0.010
Myometrial thinning (less than 1 mm)	28 (82.4%)	1 (16.7%)	0.004
Placental lacunae	23 (67.6%)	1 (16.7%)	0.029
Placental bulge	9 (26.5%)	0 (0.0%)	0.306
Bladder wall irregularity	12 (35.3%)	0 (0.0%)	0.153
B. Colour Doppler findings			
Bridging vessels	21 (61.8%)	0 (0.0%)	0.007
Subplacental hypervascularity	23 (67.6%)	1 (16.7%)	0.029
Uterovesical interface hypervascularity	17 (50.0%)	0 (0.0%)	0.030
Turbulent lacunar flow	22 (64.7%)	1 (16.7%)	0.067

Table 3: Diagnostic Accuracy of Ultrasonography and Individual Sonographic Markers in the Detection of Placenta Accreta Spectrum

A. Overall diagnostic accuracy of ultrasonography

Diagnostic parameters	Value
True positive	32
False positive	1
True negative	5
False negative	2
Sensitivity	94.12%
Specificity	83.33%
Positive predictive value	96.97%
Negative predictive value	71.43%
Overall diagnostic accuracy	92.50%

B. Diagnostic performance of individual sonographic markers

Sonographic markers	Sensitivity (%)	Specificity (%)	PPV (%)	NPV (%)	Accuracy (%)
Loss of retroplacental clear zone	76.5	83.3	96.3	38.5	77.5
Myometrial thinning	82.4	83.3	96.6	45.5	82.5
Placental lacunae	67.6	83.3	95.8	31.2	70.0
Placental bulge	26.5	100.0	100.0	19.4	37.5
Bladder wall irregularity	35.3	100.0	100.0	21.4	45.0
Bridging vessels	61.8	100.0	100.0	31.6	67.5
Subplacental hypervascularity	67.6	83.3	95.8	31.2	70.0
Uterovesical interface hypervascularity	50.0	100.0	100.0	26.1	57.5
Turbulent lacunar flow	64.7	83.3	95.7	29.4	67.5

Table 4: Diagnostic Performance of Placenta Accreta Index for Prediction of PAS and Severity Stratification According to FIGO Grades

A. Comparison of PAI scores according to PAS confirmation

Parameter	PAS confirmed (n=34)	PAS not confirmed (n=6)
Mean PAI score ± SD	4.43 ± 2.47	1.50 ± 1.60
Median PAI score	5.0	1.0
Range	0.2–9.0	0.0–4.2

Mann–Whitney U test: p = 0.007

B. Comparison of PAI scores across FIGO grades

FIGO grade	Number of cases	Mean PAI score ± SD	Median
Grade 1 – Accreta	25	3.58 ± 2.08	4.2
Grade 2 – Increta	5	6.70 ± 2.59	8.0
Grade 3 – Percreta	4	6.88 ± 1.11	7.0

Kruskal–Wallis test: p = 0.002

C. ROC analysis of PAI for prediction of PAS

Diagnostic parameter	Value
Area under the curve (AUC)	0.848
95% confidence interval	0.664–0.987
Optimal cut-off value	1.50
Sensitivity	91.2%
Specificity	66.7%

D. ROC analysis of PAI for prediction of severe PAS (FIGO Grade 2 + 3 versus Grade 1)

Diagnostic parameter	Value
Area under the curve (AUC)	0.896
95% confidence interval	0.733–0.992
Optimal cut-off value	6.00
Sensitivity	77.8%
Specificity	88.0%
Grade 1 cases (non-severe)	25
Grade 2 + 3 cases (severe)	9

A total of 40 pregnant women suspected of having Placenta Accreta Spectrum (PAS) were included in the study. PAS was confirmed in 34 (85.0%) women, whereas 6 (15.0%) women did not have confirmation of PAS. Previous caesarean section was the most frequently observed risk factor, reported in 32 (94.1%) women with confirmed PAS and 5 (83.3%) women without confirmed PAS. A history of two or more previous caesarean sections was observed in 20 (58.8%) women with confirmed PAS compared with 1 (16.7%) woman without confirmed PAS. Placenta previa was present in 30 (88.2%) women with confirmed PAS and 5 (83.3%) women without confirmed PAS. Previous dilatation and curettage was reported in 5 (14.7%) and 2 (33.3%) women, respectively. None of the participants had a history of myomectomy. However, none of the evaluated clinical risk factors showed a statistically significant association with PAS confirmation ($p>0.05$).

Among grayscale ultrasonographic findings, myometrial thinning below 1 mm was the most frequently observed feature, present in 28 (82.4%) women with confirmed PAS, followed by loss of the retroplacental clear zone in 26 (76.5%) and placental lacunae in 23 (67.6%). These three findings demonstrated statistically significant associations with PAS confirmation, with p-values of 0.004, 0.010 and 0.029, respectively. Placental bulge and bladder wall irregularity were observed in 9 (26.5%) and 12 (35.3%) women with confirmed PAS, respectively; however, their associations were not statistically significant.

On colour Doppler evaluation, subplacental hypervascularity was the most frequent finding, observed in 23 (67.6%) women with confirmed PAS. Bridging vessels were identified in 21 (61.8%), turbulent lacunar flow in 22 (64.7%) and uterovesical interface hypervascularity in 17 (50.0%) women. Bridging vessels, subplacental hypervascularity and uterovesical interface hypervascularity showed statistically significant associations with PAS confirmation ($p=0.007$, $p=0.029$ and $p=0.030$, respectively). Turbulent lacunar flow did not demonstrate a statistically significant association ($p=0.067$).

The overall diagnostic performance of ultrasonography was favourable. Of the 34 confirmed PAS cases, 32 were correctly identified, while 2 were missed. Among the 6 women without confirmed PAS, 5 were correctly classified and 1 was falsely identified as positive. The sensitivity of ultrasonography was 94.12%, specificity was 83.33%, positive predictive value was 96.97% and negative predictive value was 71.43%. The overall diagnostic accuracy was 92.50%. Among individual grayscale markers, myometrial thinning demonstrated the highest sensitivity (82.4%) and diagnostic accuracy (82.5%), followed by loss of the retroplacental clear zone, with sensitivity of 76.5% and accuracy of 77.5%. Placental lacunae demonstrated a sensitivity of 67.6% and accuracy of 70.0%. Among colour Doppler markers, subplacental hypervascularity showed a sensitivity of 67.6% and accuracy of 70.0%, while bridging vessels demonstrated a sensitivity of 61.8% and accuracy of 67.5%.

The mean Placenta Accreta Index (PAI) score was significantly higher among women with confirmed PAS than among those without confirmed PAS (4.43 ±

2.47 versus 1.50 ± 1.60; p=0.007). Among the 34 confirmed cases, 25 (73.5%) were classified as FIGO Grade 1 accreta, 5 (14.7%) as Grade 2 increta and 4 (11.8%) as Grade 3 percreta. The mean PAI score increased across the FIGO grades, from 3.58 ± 2.08 in Grade 1 to 6.70 ± 2.59 in Grade 2 and 6.88 ± 1.11 in Grade 3. This difference was statistically significant (p=0.002). ROC analysis for predicting PAS demonstrated an area under the curve (AUC) of 0.8480 (95% CI: 0.6640–0.9865), with a reported optimal cut-off of 1.50, sensitivity of 91.2% and specificity of 66.7%. For predicting severe PAS (FIGO Grade 2 and Grade 3 combined), the AUC was 0.8956 (95% CI: 0.7329–0.9921), with an optimal cut-off of 6.00, sensitivity of 77.8% and specificity of 88.0%.

DISCUSSION

Placenta Accreta Spectrum is an important cause of maternal morbidity because of its association with severe obstetric haemorrhage, blood transfusion and the possible need for peripartum hysterectomy. Antenatal diagnosis plays an important role in identifying high-risk pregnancies and facilitating appropriate multidisciplinary management. The present study evaluated the role of grayscale and colour Doppler ultrasonography in detecting PAS and assessed the diagnostic contribution of the Placenta Accreta Index in a hospital-based population. [1,2]

In the present study, previous caesarean section was the most frequently observed risk factor, affecting 94.1% of women with confirmed PAS. Placenta previa was present in 88.2%, while 58.8% had a history of two or more previous caesarean sections. These findings demonstrate the predominance of previous uterine surgery and placenta previa among the women evaluated. Previous caesarean delivery, particularly when associated with placenta previa, is a well-established risk factor for PAS. The ACOG and SMFM consensus recommendations also emphasise the importance of previous caesarean delivery in the assessment of women at risk of abnormal placental implantation. [1,3] However, the differences in clinical risk factors between the two groups were not statistically significant in the present study. This may partly be related to the small number of women without confirmed PAS, which limited the ability to demonstrate statistically significant differences.

Among grayscale ultrasonographic findings, myometrial thinning below 1 mm was the most frequently observed feature, followed by loss of the retroplacental clear zone and placental lacunae. All three findings demonstrated statistically significant associations with PAS confirmation. Myometrial thinning and loss of the retroplacental clear zone reflect abnormalities at the normal uteroplacental interface and are important morphological indicators in the assessment of PAS. These findings are consistent with the standardised ultrasound assessment approach described in the literature, which includes evaluation of the retroplacental clear zone, myometrial thickness and placental lacunae. [4,5] Maged *et al.,* in their systematic review and meta-analysis, also identified these features as important sonographic markers for PAS detection.[6] The findings of the present study therefore support the diagnostic importance of systematically assessing these grayscale parameters.

Placental bulge and bladder wall irregularity were observed less frequently and did not show statistically significant associations with PAS. The relatively low frequency of these findings may be related to the distribution of disease severity in the present study, in which most confirmed cases were classified as Grade 1 accreta. However, the relationship between individual ultrasound features and the depth of placental invasion cannot be conclusively established from these observations. The assessment of multiple sonographic features remains important because no single ultrasound marker is sufficient to exclude or confirm PAS in every case. [3,5]

Colour Doppler evaluation provided additional information regarding abnormal vascularity at the uteroplacental and uterovesical interfaces. Subplacental hypervascularity was the most frequently observed Doppler feature, followed by turbulent lacunar flow and bridging vessels. Bridging vessels, subplacental hypervascularity and uterovesical interface hypervascularity demonstrated statistically significant associations with PAS confirmation. These vascular findings are important because abnormal vessels extending across the uterine serosa and increased vascularity at the placental bed may indicate abnormal placental adherence or invasion. Shainker *et al.,* emphasised the importance of standardised assessment of vascular markers, including bridging vessels and uterovesical interface abnormalities, in pregnancies at risk of PAS. [5] The findings of the present study further support the complementary role of colour Doppler alongside grayscale ultrasonography.

The overall diagnostic performance of ultrasonography in the present study was favourable, with sensitivity of 94.12%, specificity of 83.33% and diagnostic accuracy of 92.50%. The positive predictive value was 96.97%, indicating that most women with a positive ultrasound examination had confirmation of PAS in this selected study population. The negative predictive value was 71.43%, suggesting that a negative examination did not completely exclude PAS. Maged *et al.,* reported pooled sensitivity and specificity of approximately 87.0% and 86.3%, respectively, in their systematic review and meta-analysis.[6] The findings of the present study are broadly comparable with these estimates. Differences in diagnostic performance may be related to patient selection, disease prevalence, ultrasound expertise and the diagnostic criteria used. The high proportion of confirmed PAS cases in the present

study should also be considered when interpreting predictive values.

Among individual sonographic markers, myometrial thinning demonstrated the highest sensitivity and diagnostic accuracy, followed by loss of the retroplacental clear zone. These findings indicate that assessment of the myometrial interface and retroplacental zone may provide useful diagnostic information. However, some individual markers demonstrated high reported specificity despite relatively low sensitivity. This suggests that their presence may be diagnostically useful, but their absence cannot reliably exclude PAS. The specificity estimates should also be interpreted cautiously because only six women were included in the PAS-not-confirmed group.

The mean PAI score was significantly higher among women with confirmed PAS than among those without confirmed PAS. Furthermore, the mean PAI score increased progressively across the FIGO grades, with higher values observed in Grade 2 and Grade 3 disease compared with Grade 1. Rac *et al.,* developed the Placenta Accreta Index by combining clinical and sonographic parameters, including previous caesarean deliveries, placental location, myometrial thickness, placental lacunae and bridging vessels.[7] The findings of the present study support the potential usefulness of this composite score as an adjunct to conventional ultrasound assessment. The significant difference in PAI scores across FIGO grades also suggests that higher scores may be associated with more advanced placental invasion.

ROC analysis demonstrated an AUC of 0.8480 for predicting PAS, indicating good discriminatory ability in the present study population. For predicting severe PAS, the AUC was 0.8956, suggesting good discrimination between Grade 1 and Grade 2 or Grade 3 disease. The reported optimal cut-offs were 1.50 for PAS prediction and 6.00 for severe PAS prediction. These findings indicate that PAI may have a role in both identifying women at risk of PAS and assessing the likelihood of more severe disease. The original study by Rac *et al.,* also demonstrated the diagnostic usefulness of the PAI in women at risk of placental invasion. [7] Nevertheless, the cut-off values obtained in the present study should be considered exploratory because of the limited sample size, particularly the small number of women with severe PAS.

Overall, the present study demonstrates that systematic grayscale and colour Doppler evaluation, combined with clinical risk assessment and PAI scoring, can provide useful information for antenatal detection and risk stratification of PAS. The findings also highlight the importance of interpreting individual sonographic markers as part of an integrated assessment rather than relying on a single feature. The relatively small sample size and limited number of PAS-negative and severe PAS cases are important limitations and indicate the need for larger prospective studies to validate the diagnostic performance and predictive cut-offs observed in this study.

CONCLUSION

Ultrasonography demonstrated high diagnostic accuracy in detecting placenta accreta spectrum disorders, with a sensitivity of 94.12% and accuracy of 92.5%. The Placenta Accreta Index was significantly associated with PAS presence and severity, highlighting the value of combined grayscale and colour Doppler assessment for antenatal diagnosis and risk stratification.

REFERENCES

1. American College of Obstetricians and Gynecologists; Society for Maternal-Fetal Medicine. Obstetric Care Consensus No. 7: Placenta accreta spectrum. Obstet Gynecol. 2018;132(6):e259–e275. doi:10.1097/AOG.0000000000002983.
2. Jauniaux E, Ayres-de-Campos D; FIGO Placenta Accreta Diagnosis and Management Expert Consensus Panel. FIGO consensus guidelines on placenta accreta spectrum disorders: Introduction. Int J Gynaecol Obstet. 2018;140(3):261–264. doi:10.1002/ijgo.12406.
3. Jauniaux E, Chantraine F, Silver RM, Langhoff-Roos J; FIGO Placenta Accreta Diagnosis and Management Expert Consensus Panel. FIGO consensus guidelines on placenta accreta spectrum disorders: Epidemiology. Int J Gynaecol Obstet. 2018;140(3):265–273. doi:10.1002/ijgo.12407.
4. Jauniaux E, Bhide A, Kennedy A, Woodward P, Hubinont C, Collins S; FIGO Placenta Accreta Diagnosis and Management Expert Consensus Panel. FIGO consensus guidelines on placenta accreta spectrum disorders: Prenatal diagnosis and screening. Int J Gynaecol Obstet. 2018;140(3):274–280. doi:10.1002/ijgo.12408.
5. Shainker SA, Silver RM, *et al.,* Special Report of the Society for Maternal-Fetal Medicine Placenta Accreta Spectrum Ultrasound Marker Task Force: Consensus on definition of markers and approach to the ultrasound examination in pregnancies at risk for placenta accreta spectrum. Am J Obstet Gynecol. 2021;224(1):B2–B14. doi:10.1016/j.ajog.2020.09.001.
6. Jauniaux E, D'Antonio F, Bhide A, Prefumo F, Silver RM, Hussein AM, *et al.,* Modified Delphi study of ultrasound signs associated with placenta accreta spectrum. Ultrasound Obstet Gynecol. 2023;61(4):518–525. doi:10.1002/uog.26155.
7. Maged AM, El-Mazny A, Kamal N, Mahmoud SI, Fouad M, El-Nassery N, *et al.,* Diagnostic accuracy of ultrasound in the diagnosis of placenta accreta spectrum: Systematic review and meta-analysis. BMC Pregnancy Childbirth. 2023;23(1):354. doi:10.1186/s12884-023-05675-6.

8. Rac MWF, Dashe JS, Wells CE, Moschos E, McIntire DD, Twickler DM. Ultrasound predictors of placental invasion: The Placenta Accreta Index. Am J Obstet Gynecol. 2015;212(3):343.e1–343.e7. doi:10.1016/j.ajog.2014.10.022.
9. Jauniaux E, Hussein AM, Fox KA, Collins SL. New evidence-based diagnostic and management strategies for placenta accreta spectrum disorders. Best Pract Res Clin Obstet Gynaecol. 2019;61:75–88. doi:10.1016/j.bpobgyn.2019.04.006.
10. Warshak CR, Eskander R, Hull AD, Scioscia AL, Mattrey RF, Benirschke K, *et al.,* Accuracy of ultrasonography and magnetic resonance imaging in the diagnosis of placenta accreta. Obstet Gynecol. 2006;108(3 Pt 1):573–581. doi:10.1097/01.AOG.0000233155.62906.6d.
11. Bowman ZS, Eller AG, Kennedy AM, Richards DS, Winter TC 3rd, Woodward PJ, *et al.,* Accuracy of ultrasound for the prediction of placenta accreta. Am J Obstet Gynecol. 2014;211(2):177.e1–177.e7. doi:10.1016/j.ajog.2014.03.029.

Cite This Article: Singh, P., & Pawar, S. S. (2026). Role of Ultrasonography in the Detection of Placenta Accreta Spectrum Disorders: A Cross- Sectional Observational Study in Hospital Based Population. *EAS J Radiol Imaging Technol, 8*(6), 167-173. https://doi.org/10.36349/easjrit.2026.v08i06.003