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Sonographic Features in the Placenta Accreta Spectrum

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ABSTRACT

Background: Abnormally invasive placenta is defined as abnormal adhesion to the implantation site, it is a spectrum of abnormal placentation that leads to obstetric hemorrhage, knowledge of risk factors and ultrasound evaluation is what allows antenatal diagnosis allowing transfer to specialized centers, surgical planning, and modifying the maternal outcome, causing a decrease in maternal morbidity and mortality.

Objective: To describe the main ultrasound signs found in patients diagnosed with abnormally invasive placenta.

Methodology: Cross-sectional, descriptive, retrospective study, carried out through a bibliographic review in the databases of PubMed, Scholar.google.com, SciELO, MEDLINE, of articles published in English and Spanish between 1992 and 2020. The following methods were used. Keywords Mesh (Medical Subject Headings): placenta accreta; previous placenta; prenatal diagnosis; abnormally invasive placenta; placenta percreta; abnormally attached placenta. Inclusion criteria: case report-type articles that include pregnant patients with placenta accreta, associated risk factors and diagnostic evaluation sections, as well as a systematic review and meta-analysis on the prenatal diagnosis of placenta accreta, whose results were analyzed by analysis of frequency.

Results: From the reviewed studies, it was observed that 66.7% of the patients had cesarean section as the predominant uterine surgery, ultrasound findings such as the loss of the hypoechoic zone in 35.7% of the cases; the presence of placental lacunae in 28.6%; myometrial thinning in 16.7%; as well as disruption of the uterus-bladder interface in 7.1%, in 54.8% intraoperative diagnosis was made.

Conclusions: Placental accreta is an increasingly frequent pathology, the incessant search for alternatives to reduce maternal death, the ultrasound characterization of the most frequent signs help timely prenatal detection.

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Keywords: Placenta Accreta, Spectrum of Placenta Accreta, Invasive Placentation, Morbidly Invasive Placenta

Background

Abnormally invasive placenta or placenta accreta is defined as abnormal adherence to the implantation site, that is, to the basal or decidual plate, it is a spectrum of abnormal placentation, caused by a defective formation of the Nitabuch fibrinoid layer, described for the first time. Once by Irving and Hertig in 1937, whose manuscript included complete clinical and histopathological descriptions of 20 cases, where he demonstrated under a microscope, invasive chorionic villi through the uterine wall as interdigitations between fibers and muscle bundles, which indicated that there is a defective basal plate during implantation, Luke et al, in 1960 redefined the terminology to accreta, increta or percreta, according to the placental invasion in histological findings, although the term abnormally adhered placenta refers to the spectrum of anomaly in the insertion placental by abnormal vascularization as a result of an aberrant healing process or causing absence of the fibrinoid layer, characterized by hypoxia itself that triggers decidualization and excessive trophoblastic invasion due to pre-existing damage in the endometrium-myometrium interface [1, 2].

The echographic evaluation in accordance with the risk factors contributes significantly to prenatal diagnosis, which will allow transfer to specialized centers, essential for surgical planning, and thereby modify the maternal outcome, impacting on the reduction of maternal morbidity and mortality.

Methodology

Cross-sectional, descriptive study, carried out through a bibliographic review in the databases of PubMed, Scholar.google.com, SciELO, MEDLINE, of articles published in English and Spanish between 1992 and 2020. The following keywords Mesh (Medical Subject Headings): placenta accreta; previous placenta; prenatal diagnosis; abnormally invasive placenta; placenta percreta; abnormally attached placenta. Inclusion criteria: case report-type articles that include pregnant patients with placenta accreta, associated risk factors and diagnostic evaluation sections, as well as a systematic review and meta-analysis on the prenatal diagnosis of placenta accreta, whose results were analyzed by analysis of frequency. The initial search in the database provided 50 articles, however, only 42 articles were obtained that included reports on the information required in the inclusion criteria, articles that did not mention risk factors, ultrasound findings or how the procedure was performed were excluded. diagnosis of accreta, 11 systematic reviews and meta-analyses were analyzed with specific

evidence of the prevalence of the most frequent risk factors as well as the most prevalent ultrasound findings.

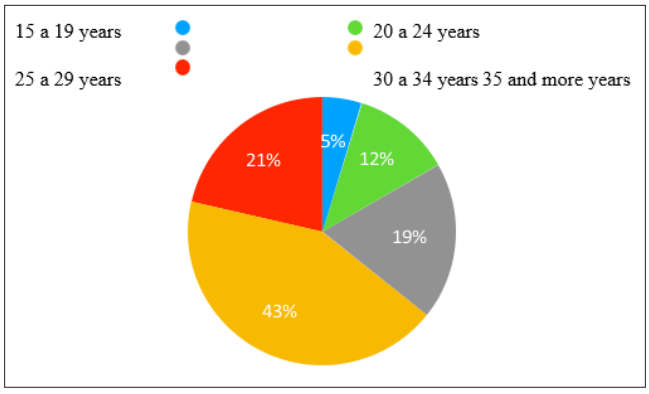
Results

50 articles were analyzed, of which 42 of them met the inclusion criteria, clinical cases of placenta accreta and 11 meta-analyses on prenatal diagnosis were analyzed. Among the risk factors studied, it was observed that 66.7% of the patients had cesarean section as predominant uterine surgery, followed by instrumented uterine curettage in 19%, myomectomy in 4.8%, of the patients 100% had placenta previa , 4.8% uterine myomatosis, assisted reproductive techniques in 9.5% of cases and were achieved through IVF. (Table 1)

Maternal age greater than 35 years was present in 21.4% of the patients, the mean age of the patients was 30.7 years; the most frequent age group in these patients was 30 to 34 years old in 42.9%, followed by 35 and over in 21.4% (Graph 1). Prenatal diagnosis was made in 40% of cases, the findings by ultrasound were the presence of loss of the hypoechoic zone in 35.7%, the presence of placental lacunae in 28.6%, myometrial thinning in 16.7%, as well as disruption of the uterus-bladder interface in 7.1% of patients. Only 2.4% reported with mullerian anomaly, bicornuate uterus and also reported positive serum marker for alpha feto protein. In 54.8%, a transoperative diagnosis was made. (Table 2)

Table 1: Risk Factors

Risk factor	N=42	%
Previous placenta	42	100
Caesarean section	28	66.7
Outter graduch instrumentation	8	19.0
FIV	4	9.5
Uterine myomatosis	2	4.8
Myomectomy	2	4.8
Alpha fetus protein positive	1	2.4
bicornuate uterus	1	2.4



Graph 1: Patients According to Age

Table 2: Ultrasound signs

Sonographic signs	N=42	%
Loss of hypoechoic area	15	35.7
placental lacunae	12	28.6
slimming miometrial <1mm	7	16.7
Disruption of the uterus-bladder interface	3	7.1

Discussion

Maternal death in our country is a public health problem, each year approximately 800 women die due to pregnancy, childbirth and the puerperium, of which 22.1% correspond to obstetric hemorrhage, and that prior to covid it was the first cause of maternal death In our country, placental accreta contributes to 33.9% of the maternal morbidity and mortality rate, the latter due to the increase in cesarean section, and which is reflected in the increase in the prevalence of placental accreta almost 10 times in the last 50 years. years, not taking into account risk factors, not requesting auxiliary diagnostic studies such as ultrasound in the deliberate search for placenta accreta, also contributes a fundamental percentage for the development of maternal morbidity and mortality [3,4].

Considering the above, we see that prenatal diagnosis is low, it is described that ultrasound has a sensitivity of 77 to 89% and a specificity of 96-99% for the detection of abnormally invasive placenta, however, in the reported series and comparing the literature, the loss of the hypoechoic zone occurred in 36% of cases versus 70%, myometrial thinning less than 1mm, 17% of patients versus 50%, even in the literature the presence of lacunae is reported as the most common sign placental, in our study it was 28%, the loss of the hypoechoic zone being more common. Currently the literature is enough with systematic reviews and meta-analysis of prenatal diagnosis by ultrasound, diagnostic support with the use of serum markers, even a screening at 11-13 weeks has been reported, in this study it was found that 58% Of the patients, the diagnosis was made during the transoperative period, therefore, the description of the most frequent findings found in the ultrasound will allow the obstetrician and/or the first contact physician to suspect the diagnosis as well as increase timely prenatal diagnosis. raising detection percentages and thereby reducing maternal morbidity and mortality [5].

Conclusion

Placental accreta is an increasingly frequent pathology, the incessant search for alternatives to reduce maternal death, the ultrasound characterization of the most frequent signs help timely prenatal detection [6-38].

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