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CASE REPORT

Cesarean Hysterectomy in Cases of Placenta Adhesiva Involving Urinary Bladder: Serial Cases Report

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Abstract

Background: Placenta adhesiva is an obstetrics complication with potentially high maternal and neonatal morbidity and mortality. Its incidence is increasing, but the management remains controversial. Antenatal diagnosis and method of delivery are the main issues. Many clinicians now prefer a conservative approach. While cesarean hysterectomy remains the method of choice in most cases, it still exposes women to torrential bleeding risk, with reported mean blood loss of 3.000-10.000 ml. We present four cases of placenta adhesiva with suspected urinary bladder involvement during antenatal care, which is managed with cesarean hysterectomy. Case Presentation: A 34 years old multigravida (G3P2A0) at 32-33 weeks gestational age (GA) and a-39 year's old multigravida (G4P3A0) came to the clinic complaining of painless vaginal bleeding. In another case, a 38 years old multigravida was also referred from a regional hospital diagnosed with G5P2A3 32-33 weeks GA + antepartum bleeding (total placenta praevia) suspected placenta adhesiva. And the last case was A 24 years old multigravida, with known low-lying placenta for 20 weeks of GA. Greyscale Ultrasonography (US) showed placental implantation at anterior uterine corpus covering entire internal uterine ostium (IUO), seen multiple lacunas crossing the vesicouterine serous border and placental protrusion into the urinary bladder. The cesarean hysterectomy was performed in all cases by placental identification, preoperative bleeding control, and careful tissue resection, as proposed in the triple-P procedure. The cases show a promising outcome following CS hysterectomy in cases of placenta adhesiva involving urinary bladder. Conclusion: We recommend a comprehensive team approach for decision making and management of patients suspected of placenta adhesiva with careful preparation to avoid complications.

Keywords: *Placenta Adhesiva, Caesarean Hysterectomy, Urinary Bladder.*

Introduction

Placenta adhesiva is a major obstetrics problem with potential fetal and maternal morbidities and mortalities [1]. The word accreta of placenta accreta is derived from Latin words: *ac* and *crescere,* which means outgrowth from adhesion or conjunction, to stick or adhered or to adhere to something [1]. The syndrome can further be classified based on the depth of trophoblastic invasion such as: 1) Placenta accreta, chorionic villi invade myometrial layer of the uterus; 2) Placenta increta, villi are invading the entire myometrial layer; and 3) Placenta percreta, chorionic villi penetrate the serous layer of the uterus, with or without extrauterine involvement [1, 2]. This abnormal placentation may involve entire lobes or only some parts of the placenta [1]. Once considered a rare case, its prevalence has been increasing during the last 50 years, the number of Cesarean Section (CS) increases [1-13]. Placenta adhesiva complicates 1:1.000 pregnancy, ranging from 0,04% to 0,9% [2, 10, 11]. The incidence increases along with higher previous CS; 0, 3% and 39-60%, in one and two or more previous CS, respectively [2]. Urinary bladder is the most common extrauterine organ involved [2]. Placenta adhesiva diagnosis is still a major challenge for most clinicians, which should be

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determined during the antenatal period [4, 6]. No prenatal diagnostic method could provide exact diagnosis; through imaging studies such as ultrasonography (US) and magnetic resonance imaging (MRI) have shown good sensitivity and specificity [6-15]. Decision-making regarding timing, mode, and place of delivery should be decided through a comprehensive team approach to avoid morbidity and mortality.

CS should be the method of choice in placenta adhesiva cases, with or without placenta praevia [16-17]. Optimal gestational age (GA) for delivery differs depending on various clinical settings [6]. Some authors suggest 36 weeks of GA, while others indicated 34 weeks with prior lung maturation test [1, 12].Elective CS at 38 weeks of GA has also been reported [17].Operative approach of placenta adhesiva remains the main controversy.

Hysterectomy is almost always required for placenta increta and percreta [1, 2].When urinary bladder involvement is suspected, preoperative cystoscopy should be conducted to rule out extrauterine invasion [2].Blood preparation is vital, considering potential blood loss reaching 2.000-5.000 ml, and even 10.000 ml in some cases [18].We present four cases of placenta adhesiva with suspected urinary bladder involvement from US examination known since the antenatal period. All cases had anterior placental implantation. We performed a high corporeal incision to deliver the baby, followed by a retrograde cesarean hysterectomy, with the various maternal outcome.

Case I

A 34 years old multigravida (G3P2A0) came to the clinic at 32-33 weeks GA, complaining of painless vaginal bleeding. Two previous pregnancies were delivered by CS at term. No history of medical illness or comorbidities was identified. Her general condition was good, stable hemodynamic, without uterine contraction or bloody show. The fetal heartbeat (FHB) was good. Greyscale US assessment showed the placental implantation at anterior uterine corpus covering entire internal uterine ostium (IUO), seen multiple lacunas crossing vesicouterine serous border and placental protrusion into the urinary bladder. Colour doppler showed increased vesicouterine serous layer vascularization and blood flow turbulence on placental lacunas. The patient was diagnosed with total placenta praevia with suspected placenta percreta invading the urinary bladder.

In the hospital, bedrest was suggested for the patient, and two-dose of 12 mg dexamethasone was administered (24 hours interval) for lung maturation. On the 5th day of treatment, she experienced profuse spontaneous vaginal bleeding, which warranted emergency CS. The corporeal uterine incision was done and 2.000 grams female with 4-6-8 Apgar Score (AS) was delivered.

We found that the placenta was firmly attached to the anterior wall of the uterus during operation, invading the serous layer and bladder wall. The supravaginal cesarean hysterectomy was done at the level ±3 cm below the lower border of the uterine incision (Porro Procedure). A urologist did a postoperative evaluation and no bladder leakage was found. The total blood loss recorded in this patient was ±4000 cc.

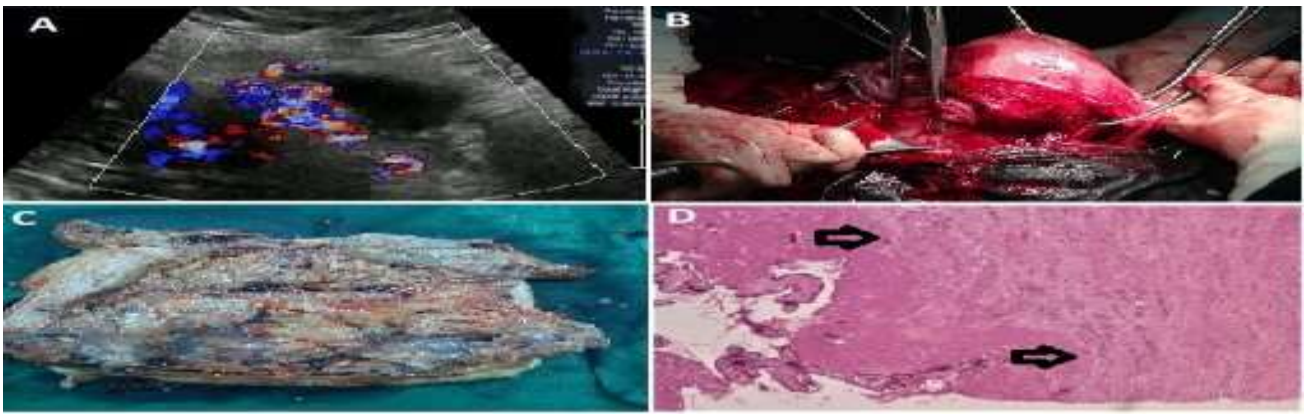

Figure 1: CASE I: A) the US showed multiple lacunas with vascular pattern crossing the vesicouterine border, proven with color doppler; B) During operation found placenta implantation on the anterior corpus, invading serous layer; C) Gross specimen examination showed placental infiltration to serous uterine layer; D) Histopathologic specimen confirms deep placental invasion (Arrow)

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During post-operative stabilization, vaginal bleeding was observed, and re-laparotomy was decided to amputate the remaining lower uterine segment (LUS). The active bleeding was seen from the placental bed during the operation. We amputated the remaining LUS and uterine cervix by carefully dissecting the bladder, evacuating placental tissue as much as possible.

The operation was successfully done, with a total ±500 cc blood loss. During entire procedures, she received a massive transfusion of 3.000 ml packed red cells (PRC), 800 ml fresh frozen plasma (FFP), and 800 ml thrombocyte concentrate (TC). She also received 2500 ml and 2500 ml intravenous crystalloid and colloid, respectively. She was then admitted to the intensive care unit (ICU) for two days and was discharged in good condition six days after the operation. The gross placental examination concluded placenta percreta.

Case II

A 39 years old multigravida (G4P3A0) complained of painless vaginal bleeding. She had CS for her second and third pregnancies (5 years ago). No history of medical illness or co-morbidity. US examination found twin intrauterine pregnancy, appropriate for 24-25 weeks GA. On the eighth day, US reevaluation found placenta on the left anterior uterine corpus, extending to LUS and covering part of OUI.

In addition, the multiple Bizzare lacunas and increased vascularization of the placental base to urinary bladder interface confirmed by color Doppler were also found. Amniotic membrane thickness was 3,2 mm, suggesting a dichorionic pregnancy. Intrauterine fetal deaths were found on the second and seventh days of hospital treatment. Cesarean hysterectomy was decided on a ninth day, with a high corporeal incision distant from the placental margin. Then, male and female fetuses were born with weighed 300 grams each. Umbilical cords were left inside the uterus.

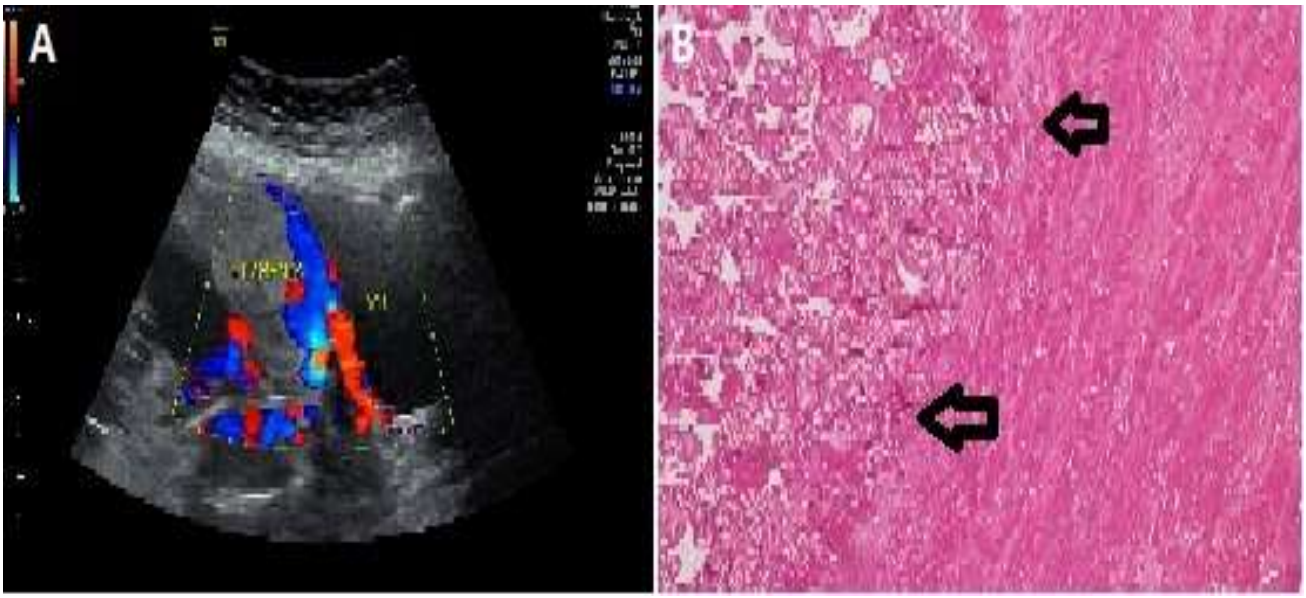

Figure 2: Case II. A) Multiple Bizzare lacunas with lacunar blood flow and increased vascularization on vesicouterine junction; B) Histopathologic specimen confirms deep placental invasion (Arrow)

During operation, we found the urinary bladder tightly adhered to the lower uterine segment, with 10 cm bladder cube laceration, posterior bladder rupture superior to trigonum ±2 cm, and loss of detrusor near bladder trigonum sized 2x3 cm. We conducted supracervical hysterectomy and bladder repair by a urologist. The total blood loss in this procedure was 2000 ml. She was treated in the intensive care unit (ICU) for 5 days due to hypoalbuminemia and pneumonia during hospitalization. The patient was discharged on the 11th in good condition.

Case III

A 38 years old multigravida referred from a regional hospital diagnosed with G5P2A3 32-33 weeks GA + antepartum bleeding (total placenta praevia) suspected placenta adhesiva. She experienced painless vaginal bleeding before admission. She had uterine curettage due to miscarriage. Her 3rd and 4th pregnancy were delivered by CS due to twin pregnancy and macrosomia (13 and 5 years ago).

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No history of comorbidity or medical illness was noted. US examination showed placenta at anterior uterine corpus extending to LUS covering IUO. Blood vessels were seen crossing the vesicouterine junction from the color doppler. A joint conference involving urologist, pediatrician, Blood Bank, anesthesiologist, and heads of associatedinstallations was arranged on the 6th day of treatment. The team decided to perform cystoscopy and double-J stent (DJ stent) insertion followed by a cesarean hysterectomy after the shake test had suggested fetal lung maturation.

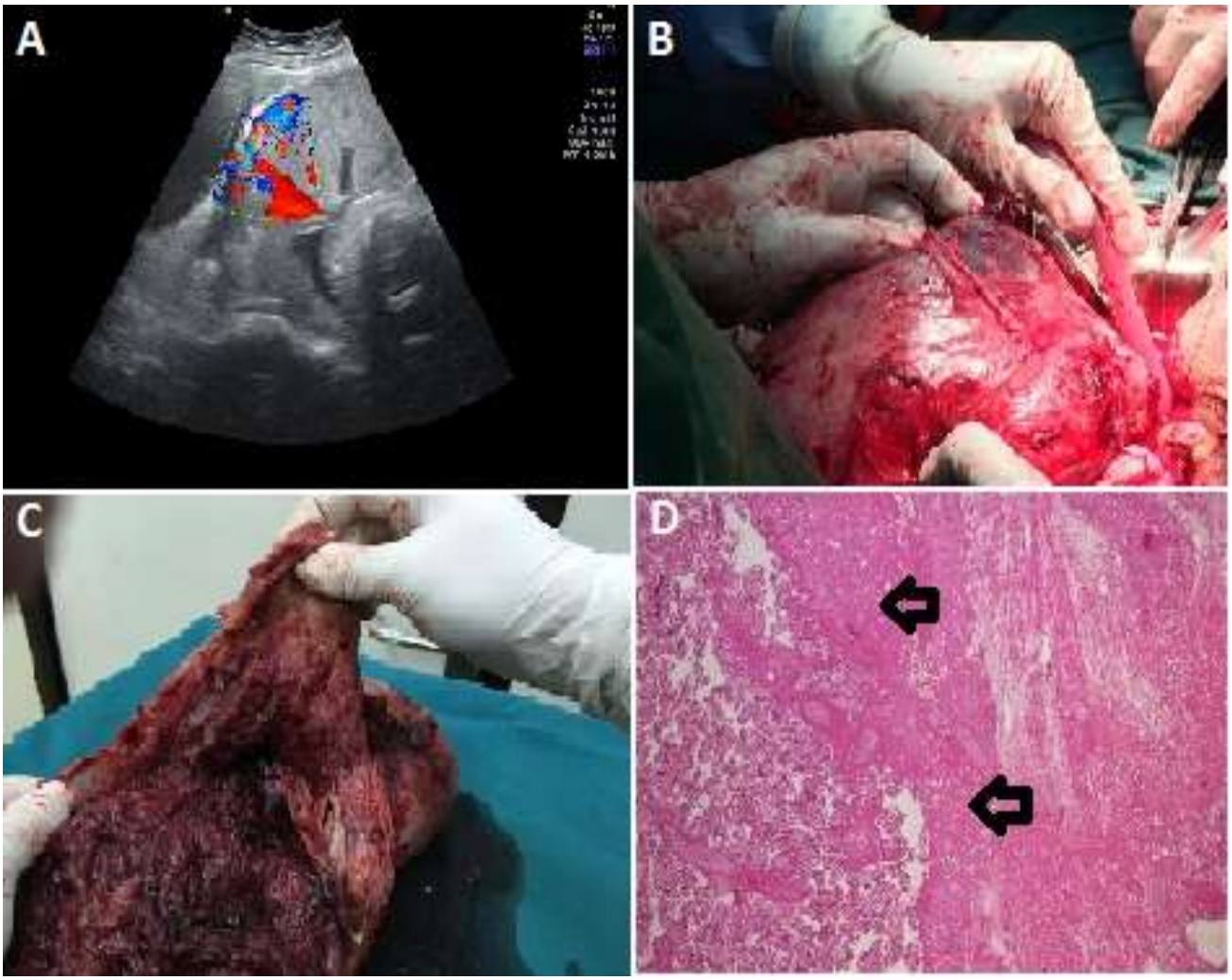

Figure 3: Case III. A) USG showed vesicouterine irregularity, with rich vascularization crossing vesicouterine border; B) During operation was seen placental implantation at LUS, without serousal invasion; C) Gross placental examination showed adherent placenta; and D) Histopathologic specimen confirms deep placental invasion (Arrow)

No tissue infiltration was found during cystoscopy, and DJ stents were inserted. The corporeal uterine incision was performed, born vigorous male baby, 3125 gram. The placenta was left inside and the urinary bladder was successfully dissected from the uterus without laceration. A hysterectomy was done and the total blood loss was ±2,500 ml. She received one-day intensive care treatment and was discharged on the 4th day in good condition.

Case IV

A 24 years old multigravida, with known low-lying placenta for 20 weeks of GA admitted to the hospital. This is her 4th pregnancy and she had a miscarriage in her 2nd pregnancy and underwent curettage. She also underwent CS for her 3rd pregnancy. She had hypertension and asthma before pregnancy and was consuming amlodipine 5 mg daily and salbutamol spray. US evaluation found placenta at anterior uterine corpus covering entire IUO with multiple bizarre lacunas (blood flow was evident on color doppler).

The placental base hypoechoic layer was not seen in the vesicouterine area. However, color doppler showed blood vessels protruding into the urinary bladder, suggesting placental invasion as well as bladder wall discontinuity.

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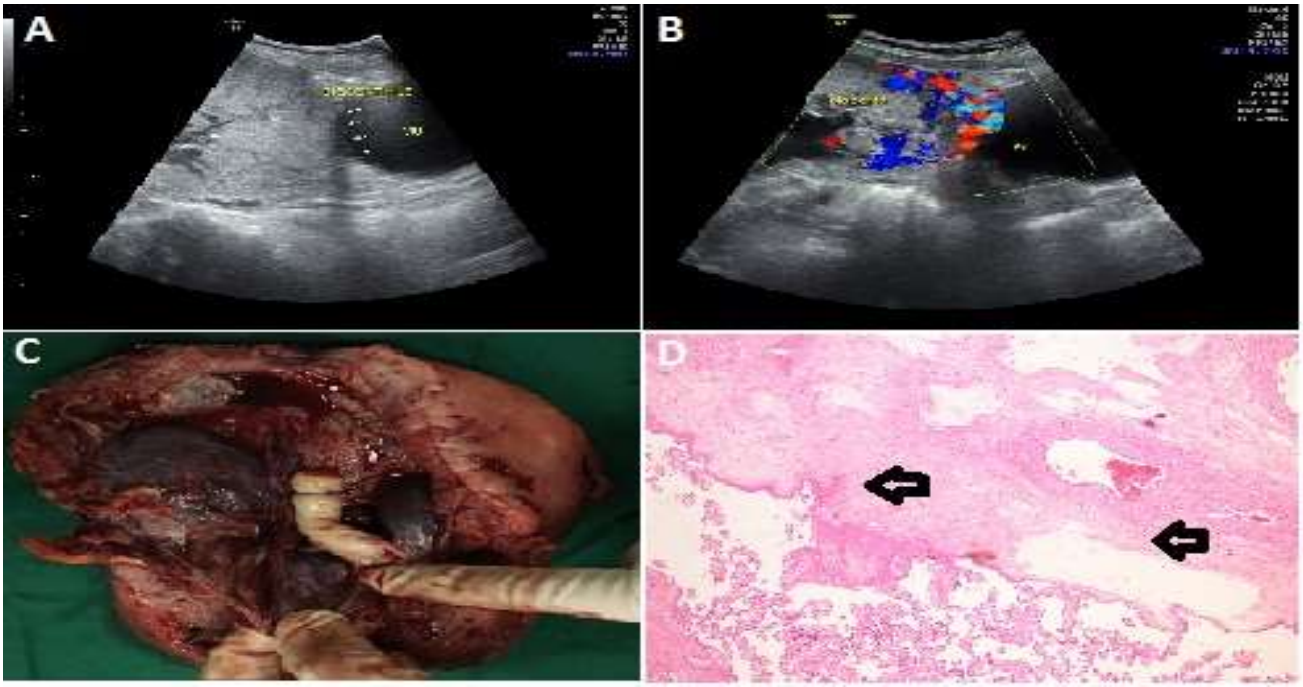

Figure 4: Case IV. A) USG showed irregular and discontinue vesicouterine area; B) Increased vascularization could be seen on colour doppler; C) Gross examination found placental infiltration to serous layer, suggesting placenta percreta; and D) Histopathologic specimen confirms deep placental invasion (Arrow)

Joint conference involving urologist, pediatrician, and anaesthesiologist decided cesarean hysterectomy at 35 weeks 2 days of GA. Cystoscopy showed venous dilatation on bladder mucosa, bilateral ureteric catheter, and three-way urethral catheter. The placenta's corporeal incision was performed and the female infant was born with APGAR score 6-7 (suspected congenital cardiac anomaly). During operation, the placental tissue was invaded the serous uterine layer. The placenta was left inside and the hysterectomy was performed. There was no bladder injury found and total blood loss was ±1,000 ml. The patient needed no intensive care and she was discharged on the 4th day in good condition. According to the USG findings among cases, several diagnostic criteria were summarized in Table 1. Besides, the clinical outcome of cases was also determined in Table 2 based on setting, joint conference, gross confirmation, bleeding, length of stay, intensive care, and long-term morbidity.

Table 1: Ultrasound findings in cases

Diagnostic criteria	Cases			
	I	II	III	IV
Loss of retro placental hypo echoic line	(+)	(+)	(+)	(+)
Multiple vascular lacunae	(+)	(+)	(+)	(+)
HipVesicouterine junction hypervascularity, that may cross urinary bladder	(+)	(+)	(+)	(+)
Myometrial thinning (<1mm)	(-)	(-)	(-)	(+)
Vesicouterine border irregularity	(-)	(-)	(-)	(+)
Echogenic exophytic focus towards urinary bladder	(+)	(-)	(-)	(+)

Table 2: The clinical outcomes of cases

Case	Setting	Joint Conference	Gross confirmation	Bleeding (ml)	Length of stay (days)	Intensive care (days)	Long term morbidity
I	Cito	(-)	Percreta	4500	6	2	(-)
II	Elective	(-)	Percreta	2000	11	5	Bladder rupture
III	Elective	(+)	Increta	2500	4	1	(-)
IV	Elective	(+)	Percreta	1000	4	1	(-)

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Discussion

The increasing incidence of placenta adhesiva has been associated with the worldwide popularity of C-section. In the 1970s, it was reported as high as 1 in 4.027 to 2.510 deliveries, which increased to 1 in 533 deliveries from 1982 to 2002 period [2]. In general, its incidence reaches 1 in 1.000 pregnancies, ranging from 0, 04%-0, 9% [2, 10, 11].Mean maternal age is 34 years old, with 2,5 parities. The risk increases with the number of previous CS (39-60% in women with 2 or more previous CS), with coexisting placenta previa in 88% cases [2].

History of previous CS, placenta previa, maternal age >35 years old, multiparity, history of curettage and uterine surgery are also associated with placenta adhesive [19]. This condition increases maternal and neonatal morbidity and mortality and also is the leading cause of postpartum hysterectomy in a developing country [14]. Antenatal diagnosis is still a major challenge despite the availability of imaging modalities such as the gray-scale US, color doppler, and MRI.

Ultrasound findings include: (1) loss of retroplacental hypoechoic area, (2) multiple vascular lacunae (irregular vascular space, swiss cheese appearance, (3) hypervascularity at the vesicouterine junction and/or placental tissue crossing vesicouterine border, (4) retroplacental myometrial thickness <1 mm, (5) coherent blood vessels from basal-view power doppler, and (6) irregular vesicouterine interface [14-21].

Irregular vesicouterine line and extrauterine placental mass are good ultrasound signs indicating urinary bladder invasion. From color doppler or three-dimensional doppler, it can be noticed turbulent blood flow from the placenta to the bladder, vesicouterine hypervascularity, unseparated intervillous circulation, and chaotic vascular branching. MRI can confirm a diagnosis when ultrasound images appear inconclusive.

Other significant findings include heterogeneous signal intensity on the placenta, placental mass invasion to the surrounding area, and focal hypointense disturbance on myometrium [22, 23]. Cali et al. found that the most effective ultrasound findings were abnormal basal hypoechogenicity (loss or irregular) and hypervascularity of vesicouterine junction (sensitivity 90%; negative predictive value 96,7% and 97% respectively) [19]. This is similar to a study by Tanimura et al., who found the highest negative predictive value on the loss of hypoechoic area (95, 2%) [15].The presence of multiple lacunae provides good negative predictive value (90%), though sensitivity, specificity, and positive predictive value are unsatisfying (73%, 86%, and 60%) [19]. Using color doppler, lacunar and vesicouterine junction blood flow can be proven, showing sensitivity and positive predictive value as high as 82% and 87% [20].

In our series, loss of hypoechoic area, multiple lacunae, and vesicouterine hypervascularity were always found. Myometrial thinning, vesicouterine irregularity, and echogenic exophytic foci were also supportive findings on the fourth case (Table 1). These findings support the utilization of ultrasound as the primary diagnostic modality in suspected placenta adhesiva. Chalubinsski et al. reported that gray-scale two-dimensional ultrasound might sufficiently predict placental adhesion depth, with good sensitivity, specificity, negative predictive value, and accuracy (91, 4%, 80%, 98, 4%, and 95, 3%) [21]. Using a combination of delivery history and two-dimensional ultrasound findings, Rac et al. proposed a placenta accreta index as placenta adhesiva predictor, which resulted in 96% accuracy [24].

Gilboa et al. Used two-dimensional ultrasound as the base of a scoring system to further classify patients into four categories, from normal to high-risk placentation [14].Three parameters were included: 1) Loss of hypoechoic line separating uterus and placenta; 2) Number of lacunae on the lower uterine border; and 3) Disruption of vesicouterine line [14]. This study found that 97% of high-risk patients were proven to have placenta adhesiva, and 63, 6% were percreta [14]. In the low-risk group, 31, 8% were confirmed placenta adhesiva and only 4, 5% experienced placenta percreta.

In the normal placenta group, none had placenta adhesive [14]. MRI remains an accurate imaging method for predicting invasion, depth of invasion, and placental invasion topography, though many authors

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reported similar diagnostic value compared with ultrasound [15, 23]. Nevertheless, MRI should be considered when ultrasound is inconclusive [18, 20, 26].MRI findings associated with placenta adhesiva are: heterogenic placenta, intraplacenta dark band on T2-weighted HASTE and FISP, abnormal placenta vascularization, bizarre large spaces with blood flow sized ≥ 6 mm in diameter on T2-weighted HASTE showing internal blood flow, also loss of retro placental dark area and placenta homogeneity [26]. In our cases, MRI has not been performed due to convincing ultrasound findings in all cases and the high financial cost of MRI.

Placenta adhesiva should be carefully diagnosed in cases with less than 20 weeks gestational age. Repeated evaluation in the next visit might help diagnose, especially in cases of posterior placenta implantation and history of previous CS. Ramadan EF and Cardoso-Medinillia R reported a case of placenta increta diagnosed during 19 weeks of gestation, which was proven postoperatively after 28 weeks of gestation [27].

Placenta implantation pathologies are associated with preterm labor (57,7% of cases), which exposes patients to 5-fold increased risk of prematurity, neonatal intensive care unit admission, and peri/neonatal mortality. Thus, early diagnosis and proper management are critical [28].Treatment varies among cases, depending on the patient's characteristics, operator experience, skill, and resource availability.

Until recently, three approaches are available: 1) cesarean hysterectomy; 2) leaving placenta *in situ*; or 3) resection of involved tissue along with placenta body, followed by uterine anatomy reconstruction [29]. Hysterectomy in such cases is challenging with a high risk of hemodynamic and hemostatic deterioration due to uncontrolled bleeding caused by fragile vascularization and adhesion release difficulties. Thus, skillful and experienced operators, teamwork, and resource availability are crucial [29].

Technical approaches such as vascular ligation and tunnel dissection between cervix and bladder in severe adhesion might assist the operator [29].

Classical corporeal or transverse fundal incision should be considered, and attempts to deliver the placenta should be avoided. Ultrasound placenta mapping using a sterile-coating probe during operation might also be beneficial [1, 30]. Matsubara et al. suggested 8 important approaches in placenta adhesiva hysterectomy: (1) arterial occlusion using intra-iliac balloon catheter, (2) ureter catheterization, (3) cervical clamping to prevent blood flow to the vagina (for better bleeding identification), (4) fundal uterine incision, (5) avoid uterotonics after delivering of the baby (to prevent bleeding due to placental separation), (6) crossed M ligation on an ovarian ligament, (7) filling the urinary bladder with 300 ml normal saline to identify bladder margin, and (8) clamping medial parametrium using a clamp or transfixing ligation (unlike non-gravid uterus, medial side of the parametrium in gravid uterus still has high blood flow) until the operation ends [31].

In this series, cesarean hysterectomy with longitudinal uterine corpus incision was done in all cases. Preoperative cystoscopies were performed in case number three and four, with a ureteral catheter insertion. A longitudinal corporeal incision was preferred in cases where placental implantation does not cover the entire anterior wall of the uterus and reduces the risk of extended tearing toward uterine cornea.

In the fourth case, the incision was not high enough, thus tearing the placenta. However, bleeding can be resolved by incision corner ligation. S study by Kotsuji F et al. proposed a transverse fundal approach for the uterine incision [32]. After delivery of the baby, ligation at the lower uterine segment level is done with Rubin's tourniquet technique [32].

The delivery of the placenta might be considered during operation from inspection through the uterine incision. If compression is not possible or difficult, or if the invasion is suspected due to hypervascularization of the lower uterine segment, placental delivery is not recommended, and hysterectomy should be done [32]. This approach leads to an average of 1,370 ml bleeding, 173.5 minutes of operative time, and 12 days length of stay [32]. A case report by Matsuzaki S et al. was performed transverse fundal uterine incision, followed by retrograde hysterectomy due to urinary bladder involvement, challenging to

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overcome with the usual approach [33]. A total of 7,800 ml of bleeding mostly occurred during the first attempt to set aside the bladder prior to hysterectomy. The patients received a massive transfusion, intensive care, and were discharged on day ten [33]. Despite optimal preparation, massive bleeding is still potential in hysterectomy. It is advisable to perform vascular ligation or embolization of proximal vessels [30, 34].

In addition, various surgery techniques to minimize bleeding due to partial separation or implantation site bleeding can be considered, such as circular stitching of isthmus-cervix, uterine sandwich stitches, cervical inversion, and figure of eight compression stitch [35-37].When the placenta is implanted at the lower uterine segment, vascular supply can be derived from the uterus and surrounding organs, mostly the urinary bladder [29]. The placental growth hormones cause blood vessels to dilate, large enough to accommodate relatively high blood flow.

Fibroid tissue might form between the two organs because of neovascularization, which can be a sign of bladder involvement, although, from a histology standpoint, the placenta never invades the bladder [29]. Gross hematuria is often associated with invasion of the bladder trigone, and a perfect dissection nearly impossible [29].Until now; cystoscopy is still the modality to rule out bladder invasion preoperatively, though it is inaccurate.

This is because newly formed blood vessels are located in the detrusor layer instead of the mucosa, biasing the positive result. Thus, bladder overdistention is needed for a cystoscopy to suppress the blood vessels [29]. According to our experiences, cystoscopy gave a good overview of the bladder's potential involvement and helped determine the surgical technique.

Bladder rupture occurred in the second case, in which prior cystoscopy was not done. These results are not enough to support cystoscopy's routine use, but it seems better preparation and involvement of various disciplines can significantly avoid bladder complications, which is of particular concern. In our case series, the amount of bleeding is higher in emergency operations (4,500 ml in emergency settings and 1,000-2,500 ml in elective settings).

Minimal bleeding in the fourth case seemed to relate to the use of the tourniquet technique. As published by several authors, the use of tourniquets (with various tools) in the lower segment of the uterus significantly reduced bleeding in cesarean hysterectomy [38-40]. Tangcharoensilp reported the use of up to three tourniquets on the lower uterine segment and as high as uterosacral ligament, followed by utero-ovarian ligament ligation, with an average amount of bleeding less than 1,000cc [39].

Sankhwar et al. reported an average of 1,050 cc bleeding with one tourniquet and 850 cc with three tourniquets [40]. Tourniquet technique can also be used in the conservative approach, combined with Bakri balloon tamponade, B-Lynch suture, or ligation stitches [41, 42].In a cesarean hysterectomy, hemorrhage is the major complication, reaching 3.000-10.000 ml of blood loss [38].

One even reported 47,000 ml of bleeding and other complications were urinary tract injury, gastrointestinal dysfunction, and febrile complications [33, 43].The high morbidity in hysterectomy has led many researchers to use conservative methods. This is a significant consideration in women of childbearing age who wants to preserve fertility. In unexpected placenta adhesiva, the placenta can be left in utero, and the patient may be referred to a higher center in the absence of bleeding.

A previous study reported that of 26 patients with a conservative approach, in which placenta left *in situ*, 21 percent eventually require a hysterectomy (due to bleeding or infection) [1-3].The remaining mostly requires medical intervention major surgery [1-3].There is not adequate evidence to support the use of methotrexate, and hormonal monitoring is not satisfactory.

Imaging is a better option for monitoring [1]. A study by Khan M et al. reported a successful case treated conservatively [4]. The placenta was left in situ, followed by uterine artery embolization by interventional radiologists, and methotrexate was given in the postpartum period until the ß-HCG level reaches normal [4].However, some complications have been reported (i.e., bleeding, disseminated intravascular coagulopathy (DIC), endomyometriris, sepsis) [4].

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Nearly 60% of patients require additional surgery, and 42% develop serious complications [44]. Conservative management is also related to increased maintenance costs directly or indirectly [45]. Another approach by Chandraharan E et al., using a triple-P procedure, including: 1) localization of the placenta preoperatively and deliver the baby through a transverse uterine fundus incision; 2) pelvic devascularization; and 3) non-separation of the placenta with myometrium excision and anterior uterine wall reconstruction [46].

Of the cases handled, bleeding was approximately 450-1,600 ml, and they needed no additional surgery [46]. Conservative methods by leaving the placenta *in situ* are less preferred in our center, due to limited resources, especially in artery embolization. A previous study also found that urological complications could be occurred in the obstetric-gynecologic procedure besides bleeding [47]. Based on our literature experiences and literature; we proposed a systematic approach to minimize the risk of morbidity and fatal morbidities.

Conclusion

Placenta adhesiva is an obstetric complication with a high risk of morbidity and mortality. The inability to predict this condition and the lack of adequate management have been the cause. There is no diagnostic method that gives 100% certainty for diagnosing placenta adhesiva and bladder involvement. However, ultrasound and MRI provide considerable predictive value and accuracy. The choice between hysterectomy and conservative method is controversial, with varying results. Based on our experiences, cesarean hysterectomy assisted with the tourniquet technique can significantly reduce the amount of bleeding during surgery. Good preparation and a team approach are essential to avoid complications.

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