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## **Anomalies of Placental Insertion (API) at Bogodogo university hospital in Ouagadougou, Burkina Faso: Epidemiological, clinical and prognostic aspects**

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### **Abstract**

**Objective:** To study the epidemiological, clinical and prognostic aspects of placental insertion anomalies in Ouagadougou hospitals.

**Patients and Methods:** This was a two-year retrospective study, from January 1, 2021 to December 31, 2022, at the Bogodogo University Hospital in Ouagadougou. We included in this study all patients carrying a pregnancy with a gestational age  $\geq 28$  weeks of amenorrhea in whom the diagnosis of placental insertion anomaly was made. Information was collected from admissions registers, clinical records and operative protocols.

**Results:** We recorded 389 cases of API in 33137 deliveries, representing a frequency of 1.17%. Placenta previa was the most common, followed by placenta accreta with frequencies of 1.13% and 0.03%. The mean age of patients was 28.5 [17-48] and mean parity 2.1 [0-10]. Of these, 95.5% were couples and 70% housewives. In addition to age, gestational age and parity, other risk factors included a history of abortion (21.2%), caesarean section (11.3%) and male foetus (55%). Twin pregnancies (6.18%) were only associated with PP. The mean age of pregnancy was 36.1 week of amenorrhoea [28-41] and abnormal presentations 24%. Overlapping PP represented 62% and placenta increta (2 cases out of 13). Blood transfusion was performed in 26% of patients, caesarean section 65.8% and 2 hysterectomies. The average length of stay was 4.2 days [1-29]. No maternal deaths were recorded. Anemia, hemorrhage and infection were the main maternal complications observed in 20.6% of cases. Stillbirths were 22.2%, neonatal morbidity 46.8%, and transfers to neonatology 23.5%.

**Conclusion:** API is a serious and frequent pathology of pregnancy. Early ultrasound diagnosis and timely Caesarean section are essential to improve maternal and fetal prognosis.

**Keywords:** Placental insertion anomalies, Ouagadougou, Burkina Faso

### **1. Introduction**

In Burkina Faso, maternal health is a public health problem due to the high maternal mortality rate, the main cause of which is haemorrhage. The anomalies of placental insertion (API) occupy an important place among the causes of these haemorrhages. These anomalies concern placenta previa (PP) and placenta accreta (PA). We therefore felt it necessary to carry out a descriptive study of these anomalies in a hospital setting in Ouagadougou, in order to identify the epidemiological profile, clinical features and prognosis, with a view to proposing strategies to improve the quality of management.

### **2. Materials and Methods**

This is a four semesters or two years retrospective study from January 1, 2021 to December 31, 2022, carried out at the Bogodogo University Hospital in Ouagadougou. All women with pregnancies of gestational age  $\geq 28$  week of amenorrhoea (WA) diagnosed clinically or ultrasonographically as having placental insertion anomalies, notably placenta previa or placenta accreta, were included in our study. Patients admitted for hemorrhage during the third trimester of pregnancy whose diagnosis could not be elucidated were not included in our sample. Socio-demographic characteristics, history, clinical and paraclinical data, management and prognosis were evaluated. Data collected from the questionnaire were entered on a microcomputer. The following software was used: Word 2016 for word processing; Excel 2016 for drawing up the various tables and figures, EPI info 3.5.1 for data analysis.

The significance level was set at 5% Ethical considerations included respect for anonymity and confidentiality. Patient consent was also obtained.

### 3. Results

**3.1 Frequency:** During the study period, we recorded 389 cases of placental insertion anomaly (PIA) in a total of 33,137 deliveries, giving an overall frequency of 1.17%. According to the type of placental insertion anomaly, we distinguished 376 cases of placenta previa (PP), i.e. 1.13%, 13 cases, i.e. 0.03% of placenta accreta (PA), and the combination of placenta previa and placenta accreta was noted in 1 case, i.e. 0.003%. The different frequencies are summarized in the following table.

**Table 1:** Distribution of placental insertion anomalies according to the semester

Quarter	Delivery	PP	PA	API
Semester 1	12088	231(1.91%)	7(0.05%)	238(1.96%)
Semester 2	7092	103(1.45%)	5(0.07%)	108(1.52%)
Semester 3	8646	30(0.34%)	1(0.001%)	31(0.35%)
Semester 4	5311	12(0.22%)	0(0.00%)	12(0.22%)
Total	33137	376(1.13%)	13(0.03%)	389(1.17%)

### 3.2 Epidemiological profile

The mean age of patients was 28.5 years [17-48]. By API entity, we found a mean age of 28.4 [17-48] for PP and 30.8 [21-39] for PA. Occupation was recorded for 360 patients, and 75% were not gainfully employed, compared with 25% who were. Marital status was represented by married life in 97.2% of cases and single in 2.8%.

Patients living in urban areas accounted for 75%, and in the city of Ouagadougou, 73.6%. In rural areas, the figure was 16%, and in peri-urban areas 9%. The following table summarizes the factors associated with placental insertion anomalies.

**Table 2:** Summary of the prevalence of favourable factors

Contributing factors	N=388
Patients' average age	28.5 ANS [17-48]
PP	28.4 [17-48]
PA	30.8 [21-39]
Average parity	2.1 [0-10]
PP	2 [0-10]
PA	2.2[1-5]
History of abortion (%)	82(21.2%)
History of caesarean section (%)	44(11.3%)
PP	38(10.4%)
PA	6 (46.15%)
Male fetus (sex ratio)	1.2
Twin pregnancy	24(6.2%)

### 3.3 Pregnancy follow-up

**3.3.1 Prenatal consultation:** In our series, 96.7% of patients had at least one antenatal consultation. The average number of antenatal care (ANC) was 3.1 [1-7].

**3.3.2 Ultrasound:** Obstetrical ultrasound was performed in 124 patients (31.9%). Ultrasound scans were most frequently prescribed in the 3rd trimester of pregnancy (85.4%). API was detected in 69.3% of cases. Only one case of PA benefited from an ultrasound scan.

### 3.4 Hospital admission

**3.4.1-Mode of admission:** There were 357 (92%) emergency patients versus 31 (8%). Of those who came as emergencies, 71.5% were referred. The health facilities that referred the most patients were, in ascending order: Saint Camille medical center (11), Zorgho medical center (12), Bogodogo urban medical center (14), Paul VI medical center (21) and Pissy medical center (23).

**3.4.2 Reasons for admission:** The table below shows the distribution of patients by reason for admission.

**Table 3:** Breakdown of patients by reason for admission.

Reason	Number	Percentages (%)
Retention 2nd twin	3	0.8
Scarred uterus	4	1
Placental retention	5	1.3
Circular, procidence of the cord	7	1.8
Fetal distress	8	2.1
Abnormal appearance	11	2.8
Scheduled cesarean section	28	7.2
Pelvic pain	169	43.6
Bleeding	277	71.3

Metrorrhagia and pelvic pain were the most common reasons  
3.5. Clinic

### 3.5.1 General examination

The patient's condition on admission was good in 259 cases (66.5%), fair in 83 cases (21%) and poor in 46 cases (12%).

### 3.5.2 Obstetrical examination

The results of the obstetrical examination are shown in the following table.

**Table 4:** Frequency of different obstetrical examination parameters

Obstetrical characteristics	Average or N(%)
Average age of pregnancy	36.1 SA [28-42]
Pregnancy less than 37 week of amenorrhoea	143(38%)
Pregnancy over 37 week of amenorrhoea	233(62%)
Fetal heart sounds present	312(80.5%)
Fetal heart sounds absent	76(19.5%)
Presentation during pregnancy	N=65
Cephalic	48(73.8%)
Seat	11(17%)
Transversal	6(9.2%)
Presentation during labor	N=186
Cephalic	141(76%)
Seat	26(14%)
Transversal	19(10%)
Delivery labor	N=362
Yes	266(73%)
No	96(27%)

The mean age of pregnancy was 36.1 week of amenorrhoea

### 3.6 Para-clinical

**3.6.1 Assessment of impact:** Hemoglobin levels were found in 246 (63.3%) patients. This result enabled the following classification to be made.

**Table 5:** Distribution of patients according to the presence of anemia (N=246)

Anemia	Number	%
Yes	218	88.6
Severe anemia	35	14.2
Moderate anemia	95	38.6
Mild anemia	88	35.8
No	28	11.4

### 3.6.2 Diagnostic

**3.6.2.1 Ultrasound:** Ultrasound scans were performed during hospitalization in 93 patients (24%). These scans detected API in 88.2% of cases. Ultrasound was performed during hospitalization in 2 cases of API. However, no signs of PA were found.

**3.6.2.2 Pathological examination:** An anatomopathological examination was requested in 2 cases. No results were found, even in pathology departments.

### 3.7 Clinical forms

**3.7.1 Associated pathology:** In our series, more than 27 pathologies were associated with API recorded in 136 patients. Circular cord, HRP, threat of premature delivery and premature rupture of membranes were associated with PP, while adhesions were associated with PA. The distribution of PP during pregnancy was 19% for lateral PP, 56% for marginal PP and 25% for central PP. Overlapping PP was observed in 62% of cases and non-overlapping PP in 38% of cases. The distribution of PP according to the presence of haemorrhage was 76% for haemorrhagic PP and 24% for non-haemorrhagic PP. The following table shows the distribution according to the type of diagnosis.

**Table 6:** Distribution of PP by type of diagnosis (N=376)

Type of diagnosis	Number	%
Clinical	185	49.2
Clinical and ultrasound	86	22.9
Ultrasound	66	17.5
Per operative	38	10.1
Short side measurement	1	0.3
Total	376	100

Nearly half of all PPs were diagnosed clinically. Of these, 116 (62.7%) were confirmed intraoperatively during caesarean section. During our study period, 7379 caesarean sections were performed. Of these, 207 were indicated by PP. PP thus represented 2.8% of caesarean section indications.

**3.7.2 Placenta accrete:** The different anatomical forms of PA encountered were 11 cases of placenta accreta and 2 cases of placenta increta. We encountered more cases of placenta accreta. No cases of percreta were found. There were more haemorrhagic APs (54%) than non-haemorrhagic APs (45%). Clinically diagnosed AP was 31% (4 cases), while 69% (9 cases) were discovered intraoperatively. Placental retention was the circumstance leading to the discovery of 38.5% (5 cases) of AP. These cases were diagnosed clinically. All cases of retained placenta (5) were AP.

**3.8 Management:** The table below shows the distribution of patients according to the treatment received.

**Table 7:** Distribution of patients according to management (N=388)

Care and Support	Number	%
Solute infusion	351	90.5
Infusion of macromolecules	45	11.6
Blood transfusion	62	16
Tocolysis	101	34.2
Delivery by vaginal route	252	65.8
Caesarean delivery	211	83.7
Emergency Caesarean section	41	16.3
Scheduled cesarean section	11	84.6
Artificial delivery	2	15.4

It should be noted that the 2 hysterectomies were performed for haemorrhagic AP (incretta).

### 3.9 Prognosis

**3.9.1 Maternal prognosis:** Maternal prognosis was good in 376 cases, with a mean of 4.2 days [1-29]. The maximum number of patients were hospitalized for 3 to 4 days (42.8%). No maternal deaths were recorded in our series. We recorded 80 cases (20.6%) of maternal complication. According to API entity, PA caused more complications (38.5%) than PP (20.2%). Complications included anemia (64.2%), delivery hemorrhage (26.1%) and hyperthermia (9.7%). No patient was transferred to intensive care in our series.

**3.9.2 Fetal prognosis:** Stillbirths are fetal deaths occurring between 28 weeks' gestation and delivery. Out of the 388 API cases, we recorded 29 progressive pregnancies (7%), 2 cases with no information on the newborn and 357 cases giving birth to 378 children, including 21 twins, distributed as follows: 294 live newborns (72%) and 84 stillbirths (21%), i.e. a stillbirth rate of 22.2%. This rate was well above the overall stillbirth rate of 3.9% during our study period. Stillbirths due to AIP accounted for 6.5% of overall stillbirths, while stillbirths due to PP accounted for 22.6% and PA for 9%. Our study found 96 neonates with complications (46.8%), including 14.6% respiratory distress, 2.1% neonatal infections and 83.3% prematurity. Also, the association with certain pathologies was a source of complications: Retroplacental hematoma (77.2%), Acute fetal distress (18.2%), Cord Circulopathy (12%). During our study, 68 newborns (23.5%) were transferred to neonatology. Newborns from twin pregnancies were most frequently transferred to neonatology (52.9%).

## 4. Discussion

**4.1 Frequency of PIA:** The results of our study show a frequency of 1.13% of placentas. This rate is relatively low compared with those reported by Onadja<sup>[15]</sup> in Burkina Faso, Gazoby<sup>[6]</sup> in Niger, Houessou<sup>[9]</sup> in Benin, Ghazli<sup>[7]</sup> in Morocco and N'Guessan<sup>[14]</sup> in Côte d'Ivoire, who found 1.7%, 1.98%, 1.75%, 1.64% and 1.6% respectively. This may be explained by the fact that our study took place in several hospitals, not all of which have the technical facilities of university hospitals, as in other African studies. The frequency of PA was lower, at 0.03%.



These results corroborate those of Rhajdi <sup>[17]</sup> in Morocco, Clouqueur <sup>[1]</sup> in France and Miller <sup>[12]</sup> in the USA, who found 0.02%, 0.05% and 0.04% respectively. However, all these studies were associated with an anatomopathological criterion, which could not be specified in our study. The studies that did have a clinical criterion, like ours, reported significantly better results than the others. These included Gielchinsky <sup>[8]</sup> in Israel, who reported 0.9%.

#### 4.2 Epidemiological profile

- **Age of patients:** The 20-35 age group was the most represented. This predominance of the optimal fertilization period is found in most African studies. French studies reported a higher mean age, with Douysset <sup>[3]</sup> at 32, Ley <sup>[10]</sup> at 33.7, Dupont <sup>[4]</sup> at 33.7, Oudaoud <sup>[16]</sup> at 34.5 and Debarre <sup>[2]</sup> at 35. This difference can be explained by early marriage in Africa, which increases the proportion of young multiparous women likely to present with API.
- **Parity of patients:** The average parity was 2.1. Our results corroborate those of Nacoulma <sup>[13]</sup> and Onadja <sup>[15]</sup> in Burkina Faso, Douysset <sup>[3]</sup> and Oudaoud <sup>[16]</sup> in France, who reported 2; 2.5; 2.3 and 2 respectively.
- **History of abortion:** A history of abortion was observed in 21.2% of cases. Our results are comparable with those of Ghazli <sup>[7]</sup> in Morocco, Fonseca <sup>[5]</sup> in Mali, Onadja <sup>[15]</sup> in Burkina Faso and Houessou <sup>[9]</sup> in Benin, who reported 15%, 15.9%, 24.3% and 25.1% respectively, but significantly lower than those of Nacoulma <sup>[13]</sup> and Messou <sup>[11]</sup>, who reported 78.2% and 52.8% respectively. This could be explained by the often unacknowledged nature of abortions, especially when they are performed clandestinely.
- **History of caesarean section:** We found 11.3% with a previous caesarean section. These results are close to those of Nacoulma <sup>[13]</sup> in Burkina Faso and Gielchinsky <sup>[8]</sup> in Israel, who found 10.9% and 12% respectively.
- **Male foetus:** In our study, 55% of fetuses were male and 45% female, giving a sex ratio of 1.2. Fonseca <sup>[4]</sup> in Mali found the same proportions: 55.4% versus 44.6%, with a sex ratio of 1.24. Douysset <sup>[3]</sup> and Ley <sup>[10]</sup> in France reported 57% versus 43% and 62% versus 38% respectively.
- **Twin pregnancies:** Our study found 6.2%. This frequency is significantly higher than in other African series. Nacoulma <sup>[13]</sup> and Onadja <sup>[15]</sup> in Burkina Faso, Fonseca <sup>[5]</sup> in Mali and Ghazli <sup>[7]</sup> in Morocco found 3.22%, 2%, 3.6% and 1.5% respectively.
- **Profession:** 70% of our study population were housewives. This rate is higher than that of Nacoulma <sup>[13]</sup> and Onadja <sup>[15]</sup> from Burkina, who found 50.9% and 51.4%. However, it is lower than that reported by Fonseca <sup>[5]</sup> from Mali, who found 94.3%. The high proportion of FAFs in our countries is skewed by the multiplicity of informal activities.

#### 4.3 Pregnancy monitoring by ultrasound

Obstetrical ultrasound was performed in 124 of our patients, i.e. 31.9%. Ultrasound monitoring was higher than that of Fonseca <sup>[5]</sup> (13.2%) but lower than that of N'guessan in Côte d'Ivoire <sup>[14]</sup> (47.9%).

#### 4.4 Clinical

- **Reason for admission:** In our study, metrorrhagia was found in 71.3% of cases. This rate is higher than that of Onadja <sup>[15]</sup> and Ghazli <sup>[7]</sup>, who found 42% and 52.2% respectively, but Rhajdi <sup>[17]</sup> in Morocco reported a rate of 90%, which is higher than ours.
- **Age of pregnancy:** The mean age of pregnancy in our study was 36.1 week of amenorrhoea. This is slightly higher than the French average. Douysset <sup>[3]</sup>, Dupont <sup>[22]</sup>, Oudaoud <sup>[16]</sup> and Clouqueur <sup>[1]</sup> found 35.5 SA; 35 SA; 35 SA and 35.5 SA respectively. Only 38% of our patients had a pregnancy of less than 37 SA at entry. This result falls short of the literature. Fonseca <sup>[5]</sup>, Ghazli <sup>[7]</sup> and Debarre <sup>[2]</sup> reported 41.02%, 48% and 51% respectively.
- **Fetal vitality:** Fetal heart sounds was observed in 312 cases (80.4%) versus 76 cases (19.6%). This rate of absence of fetal heart sounds is lower than that reported by the Nacoulma study <sup>[13]</sup>, which is 43%, and close to that of Fonseca <sup>[5]</sup>, which is 21.6%. It should be noted that these studies focused on hemorrhagic PP, which is fetocidal.
- **Presentation:** In our study, breech presentation accounted for 14%, as did Ley <sup>[10]</sup> and Douysset <sup>[3]</sup>, who reported 14% and 14.1% respectively. Transverse presentation was 10%. This result is close to that of Ley <sup>[10]</sup>, who found 11%, and Nacoulma <sup>[13]</sup>, who reported 14%.
- **Additional tests:** Hemoglobin levels revealed severe anemia in 14% of cases. Only 24% of our patients underwent obstetrical ultrasound during their hospitalization.

#### 4.5 Clinical forms

- **Associated pathologies:** Premature rupture of membranes accounted for 6.7% of associated forms Onadja <sup>[15]</sup>, Fonseca <sup>[5]</sup> and Debarre <sup>[2]</sup> found 4.7%, 14.37% and 11% respectively. HRP reached 16.2%, which is higher than the rates reported by Ley <sup>[10]</sup>, Ghazli <sup>[7]</sup> and Fonseca <sup>[5]</sup>, i.e. 4%, 8.5% and 11.98% respectively.
- **Placenta Previa:** We found 19% lateral PP, 56% lateral PP and 25% central PP during pregnancy, and our results are close to those of Douysset <sup>[3]</sup> with regard to the frequency of lateral PP. As for marginal and central PP, our frequencies are respectively higher and lower than in the literature; during labor, we noted 62% of overlapping variant and 38% of non-overlapping. The frequency of overlapping PP is higher in our series than in the literature. Indeed, Onadja <sup>[15]</sup>; Nacoulma <sup>[13]</sup>; Fonseca <sup>[5]</sup> and Ley <sup>[10]</sup> found respectively 21.4%; 30%; 47.9% and 57% of overlapping PP. We found 76% of hemorrhagic PP, which corroborates those of Douysset <sup>[3]</sup> and Dupont <sup>[4]</sup> who found 75.8% and 79%, but this rate is high compared with the study by Onadja <sup>[15]</sup> who reported 42%.
- **Placenta accrete:** In our study, we found 85% accreta and 15% increta. The accreta form was higher than in the literature, and the increta form less frequent. This could be explained by the clinical criterion of our study. We found 54% of hemorrhagic AP. Debarre <sup>[2]</sup> found less than us (16%), while Rhajdi <sup>[17]</sup> and Clouqueur <sup>[1]</sup> reported higher frequencies, namely 90% and 76%.

#### 4.6 Care and support

- **Blood transfusion:** About 26% of patients underwent blood transfusion in the study. This rate is higher than that of Fonseca [5], Douysset [3], Gielchinsky [8] and Ley [10] who found 14.97%; 22.1%, 21% and 25%. However, it is lower than that reported by Onadja [15], Nacoulma [13] and Debarre [2] 32.4%; 32.97% and 48%.
- **Mode of delivery:** The caesarean section rate was 65.8% in our study. It ranged from 28.83% to 87% in the literature [14, 2, 4, 5, 7, 10, 13, 14, 15, 16], but is significantly higher than those found previously in Burkina Faso [13, 15], which were 28.83% and 29.4%.
- **Hysterectomy:** Hysterectomy was associated with AP in our series at 15.4%. Gielchinsky [8] in Israel found a lower frequency (3.5%), which may be explained by the high rate of accreta form in our study.

#### 4.7 Prognosis

- **Maternal prognosis:** No maternal deaths were recorded in our study, as were Dupont [4] and Ley [10]. It should be noted that Nacoulma [13] found 5.01% in 1992 and Onadja [15] 5.4% in 2003, which could be explained by improved management of placental insertion anomalies. We recorded 80 cases (20.6%) of maternal complications. Our figures are higher than those of Douysset [3] and Fonseca [5], who reported 13% and 19.5% complications respectively. N'guessan [14] recorded more complications than us, at 57.1%.
- **Fetal prognosis:** From 52.29% in 1992 [13], 33.7% in 2003 [15], stillbirths fell to 22.2% in the present study. Even so, our figures are higher than most African studies. N'guessan [14] reported 21.3%, Fonseca [5] 20.9% and Ghazli [7] 30.54%. The high stillbirth rate in our study can be explained by the fact that our patients arrive late at hospital, in emergency, in a state of hemorrhagic shock, labor often induced prematurely with fetuses in pain or already dead. The number of newborns with complications was 46.8%, and those transferred to neonatology 23.5%. Douysset [3] in France found 59.52% and 50% Oudaoud [16] 56.52% and 56.52% in the same country.

#### 5. Conclusion

Placental insertion anomalies are a frequent obstetric emergency. During the course of our study, we recorded 389 cases in hospitals in Ouagadougou, representing an incidence of 1.17%. Placenta previa was the most common, followed by placenta accreta, with incidences of 1.13% and 0.03%. Housewives living in couples and having given birth twice were prone to placental insertion anomalies. The most frequent circumstance of discovery was metrorrhagia. Treatment consisted of medical resuscitation and obstetrical management. Hysterectomy was performed in 2 patients for hemorrhagic placenta increta. Maternal prognosis was good, while that of the fetus was marked by a stillbirth rate of 22.2%. Early diagnosis of placental insertion anomalies during pregnancy would improve maternal and fetal prognosis.

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#### 6. References

1. Clouqueur E, Rubod C, Paquin A, Devisme L, Deruelle P. Placenta accreta: Diagnostic et prise en charge. État des lieux dans une maternité de type 3. *J Gynecol Obstet Biol Reprod (Paris)*. 2008;37(5):499-504.
2. Debarre M. Placenta accreta/percreta: A propos de 46 cas. Mémoire pour l'obtention de diplôme d'études spécialisées d'anesthésie-réanimation. Académie de Paris, 2010, 47.
3. Douysset X. Facteurs de risque d'hémorragie sévère en cas de césarienne pour placenta praevia. Faculté mixte de médecine et médecine de Rouen, thèse de médecine. 2012, 51.
4. Dupont M. Placenta praevia: A propos de 200 cas. Mémoire pour l'obtention du diplôme d'études spécialisées d'anesthésie-réanimation. Académie de Paris, 2004, 28.
5. Fonseca NRA. Placenta praevia hémorragique: Aspect épidémiologique au centre de santé de référence de la commune V du district sanitaire de Bamako à propos de 334 cas. Université de Bamako, thèse de médecine, 2003, 83.
6. Gazoby Y, Sekou H, Gueho C, Hausser JC, Altine J. Placenta praevia et césarienne en zone sahélienne: A propos de 473 cas recensés à la maternité centrale de Niamey, 1990, 13-9.
7. Ghazlim M, Zinoun, Salah EA, Aderdour M, Bekkay M. Placenta praevia et pronostic fœtal: A propos de 200 cas. *Gynecol Obstet*. 1998;93:457-63.
8. Gielchinsky Y, Rojansky N. Placenta accreta summary of 10 years: A survey of 310 cases. Elsevier Sciences. 2002;23:210-14.
9. Houessou H. Contribution à l'étude du placenta praevia en république populaire du Bénin (à propos de 698 cas). Université de Cotonou, thèse médecine. 1983;n°145:82.
10. Ley D. Prise en charge du placenta praevia hémorragique: Evaluation des pratiques professionnelles à la maternité de Port Royal. Université Paris Descartes. 2010, mémoire de sage-femme n°2010PA05MA17:77.
11. Messou N. Placenta praevia hémorragique au cours du travail: A propos de 590 cas au CHU de Treichville. Université d'Abidjan. 1984, thèse de médecine n°673:95.
12. Miller DA, Chollet JA, Goodwin TM. Clinical risk factors for placenta previa-placenta accreta. *Am J Obstet Gynecol*. 1997;177(1):210-14.
13. Nacoulma D. Étude épidémiologique du placenta praevia hémorragique au cours du travail à la maternité du Centre Hospitalier Universitaire Sourou Sanou de Bobo Dioulasso (Burkina Faso). Université de Ouagadougou. 1992, thèse de médecine n°8:99.
14. N'guessan K, Kouakou F. Placenta praevia: Maternal and fetal prognosis at the CHU de Cocody (Abidjan-RCI). *Mali médical*. 2009; tome 24n°2:57-9.
15. Onadja KAT. Aspects épidémiologiques, cliniques et thérapeutiques du placenta praevia au cours du travail à la maternité du Centre Hospitalier Universitaire Yalgado Ouédraogo. Université de Ouagadougou. 2003, thèse de médecine n°030.

16. Oudaoud S. Placenta accrete facteurs de risqué et prise en charge. Mémoire de sage-femme. Université Paris Descartes. 2011:80.
17. Rhajdi A. Placenta accreta: Etude rétrospective à propos de 10 cas. Université Sidi Mohammed Ben Abdellah. 2010, thèse de médecine n°107:129.

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