

## Correspondence

## Persistent interstitial pregnancy diagnosed after two unsuccessful attempts of clandestine abortion: A case report and literature review



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Dear editor,

Ectopic pregnancy is a medico-surgical emergency requiring prompt diagnostic and therapeutic measures. It is defined as the implantation of the embryo outside its normal site within the endometrial cavity.<sup>1</sup> The fallopian tube is the most common site of ectopic implantations (96%), followed by the ovary (1%), caesarean section scar (1%–3%), cervix (1%) and viscera of the abdominal cavity (1%).<sup>2</sup> Among tubal locations, the interstitium is the least described implantation site (2.6%), whereas the ampulla, isthmus and fimbriated infundibulum have the following respective frequencies: 73.3%, 12.5% and 11.6%.<sup>3</sup> Heterotopic pregnancies are extremely rare cases. The frequency of these types of pregnancies is estimated at 15 per 1000 spontaneous gestations.<sup>4</sup>

Ectopic pregnancy is a life-threatening condition and a major public health problem. Indeed, the global prevalence of these pregnancies is estimated at 1%–2%.<sup>5</sup> In Cameroon, the incidence of ectopic pregnancy has been estimated at 2.55 per 100 pregnancies.<sup>6</sup> Globally, there is an increase in the proportion of ectopic pregnancy per year,<sup>7</sup> probably related to the increase in cases of Chlamydia infection, smoking and medically assisted procreation. Despite the advances made in early diagnosis and therapeutic modalities, this pathology remains a cause of morbidity and significant maternal mortality with 17 deaths per 100,000 live births reported in high-income countries.<sup>8</sup> In poor-resource settings, its mortality rate varies from 1% to 3%.<sup>9</sup> Late hospital presentation, delayed diagnoses, limited access to blood for transfusion or resuscitation, the relative high cost of healthcare and the absence of a national health insurance policy all culminate to contribute to a death rate which is 10 times higher in low and middle-income countries compared to high-income countries.<sup>9</sup> It is worth to mention that a composite of factors

further influencing the ectopic pregnancy death toll include maternal age above 35 years, socioeconomic level,<sup>8</sup> comorbidities<sup>8</sup> and interstitial ectopic pregnancies.<sup>10</sup>

The most common clinical presentations of ectopic pregnancy are vaginal bleeding and hypogastric pain in the first trimester.<sup>1,2</sup> Evidence has it that the prevalence of ectopic pregnancy in women admitted to the emergency unit with vaginal bleeding or lower abdominal pain during the first trimester of pregnancy is 18%.<sup>3</sup> Patient with ruptured ectopic pregnancy may also present with hypovolemic shock due to hemoperitoneum secondary.

A 27-year-old married African woman, G<sub>3</sub>P<sub>2</sub> with history of recurrent episodes of pelvic inflammatory pelvic disease (PID) and not on contraceptive. The patient has 2 living children, the youngest is 5 years old. At the consultation time, she reported a 10 weeks 4 days amenorrhea. It was an unwanted pregnancy. She was admitted to our emergency department for intense lower abdominal pain associated with gradual asthenia and dizziness over two weeks following a clandestine abortion by intrauterine vacuum suctioning. Her first clandestine abortion attempt which failed was five weeks ago following a positive urinary pregnancy test. This first attempt of abortion was performed by a nurse in a clandestine health center. Before the procedure, no ultrasound was performed to find out the exact location of the pregnancy. After the procedure, no ultrasound for monitoring was done and the patient was discharged the same day with only pain killers. The persistence of her amenorrhea prompted her to seek for a second manual vacuum intra-uterine aspiration attempts, which was followed by the onset of insidious intense lower abdominal pain without vaginal bleeding nor fever. She had never used any form of contraceptives. Her family and psychosocial histories were otherwise normal.

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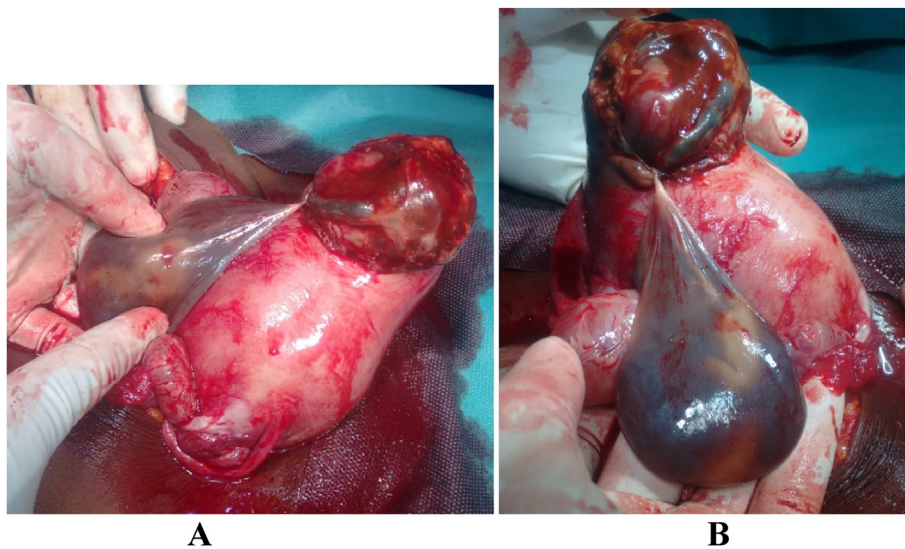


Fig. 1. Ruptured interstitial pregnancy exposing the placenta.

On admission, she was conscious and ill looking and in shock base on a blood pressure of 32/14 mm Hg, pulse rate at 112 beats per minute, respiratory rate of 36 cycles/minute, temperature of 37.4 °C, and an oxygen saturation of 99%. Her extremities were cold and the conjunctivae were pale. Immediate fluid resuscitation was initiated with 2500 cc of Ringer Lactate solution then 500 cc of whole blood after placement of using two large bores catheter. She was also placed in trendelenburg position with her lower limbs elevated to increase venous return and cardiac output. Thereafter, there was an improvement in blood pressure from 32/14 to 113/84 mmHg and pulse from 112 to 98 beats per minute. The lungs were clear on auscultation, heart sounds were regular and with no murmur. The abdomen was distended with generalized tenderness, rebound tenderness, guarding and dullness to percussion. Bowel sounds were absent. Pelvic examination using a speculum revealed normal vaginal walls, a bulging tender pouch of Douglas and no bleeding from the cervical os. On digital vaginal examination, the cervix was long, firm, closed with no cervical motion tenderness. The rest of physical examination was unremarkable. An abdominal paracentesis revealed bright red coagulating blood. Focus assessment sonography for trauma showed: a massive free particulated intraperitoneal fluid suggestive hemoperitoneum, normal uterus with thick mucosa and a free-floating embryo of about eight weeks gestation with no cardiac activity in the abdominal cavity. A laboratory panel showed hemoglobin of 5.4 g/dl, hematocrit of 22.3%, white blood cells count of  $5.6 \times 10^6$  cells/L. Platelet's count, blood urea nitrogen, creatinine and C-reactive protein values were within normal ranges. The  $\beta$ -hCG levels was 11,136 mIU/mL, and was not consistent with gestational age (10 weeks 4 days).

Our diagnosed was a ruptured ectopic pregnancy. Following multidisciplinary meeting among gynecologists and anesthesiologists an emergency laparotomy under general anesthesia with orotracheal intubation was indicated. A counseling was done on the possibility of a salpingectomy or hysterectomy according to intraoperative findings to obtain her informed consent. Prior to surgery a second unit of whole blood was administered. She received 2g of intravenous amoxicillin-clavulanate as antibiotic prophylaxis prior to general anesthesia and orotracheal intubation. A Pfannenstiel Incision was done, following exposition, 1500 cc of intraperitoneal blood was found and aspirated, a slightly enlarged uterus, a left rupture fallopian tube at the cornual region exposing trophoblastic tissue and an abdominal gestational sac connected to the placenta were identified in the abdominal cavity (Fig. 1). The right fallopian tube and ovaries were macroscopically normal. We proceeded with the of extraction of the gestational sac and placenta (Fig. 2), cornual resection with ipsilateral salpingectomy followed by

repair with Vicryl®1 suture, abdominal toileting with lukewarm normal saline then closure of the abdominal wall. Her postoperative course was uneventful. She received psychological counseling on clandestine abortion risks and her conception chances and lifestyle with her resected fallopian tube. On her sixth postoperative Day, she was discharged and the selected contraceptive method was Depot-medroxyprogesterone acetate (DMPA) provided by an intramuscular shot every three months.

The fallopian tubes are two muscular ducts that are bilaterally attached to the upper portion of the uterine cavity.<sup>11</sup>They form a connection between the endometrial and peritoneal cavities allowing passage of fertilized egg from the ovaries to the uterus. There are variations in their anatomical subdivision depending on authors; however most agree on 3 parts: the isthmus, the ampulla and the infundibulum



Fig. 2. Resected embryo and placental trophoblastic tissue.

which ends with the fimbriae.<sup>11</sup> The interstitial part is considered as the intramural portion of the fallopian tube. In adults, it is 1–2 cm long and 0.7 mm wide.<sup>12,13</sup> Therefore, interstitial ectopic pregnancy is defined as the presence and development of the embryo within that this area. Furthermore, we distinguish 3 types of ectopic pregnancies near the uterotubal junction: interstitial, angular and cornual.<sup>14</sup> Differentiating between these three types of ectopic pregnancy is not easy in daily practice. Although the interstitial part emerges from the horn of the uterus, the term interstitial pregnancy is not used interchangeably with cornual pregnancies. In cornual pregnancies, implantation of the embryo occurs in the horn of a bicornuous uterus<sup>15</sup> or the rudimentary horn of an unicorn uterus. In regards to Angular pregnancies, the diagnostic criteria are: clinical presentation with painful asymmetric enlargement of the uterus, a directly observed lateral distension of the uterus with displacement of the round ligament laterally, and retention of the placenta in the uterine angle.<sup>14</sup>

Interstitial part of fallopian tubes is found in an anatomically region vascularized by a confluence of the ovarian and uterine vessels. As a result of this, the rupture rate is very high at this location, around 13.6% resulting in a life-threatening hemorrhage. Therefore, the mortality associated with this location (2.0%–2.5%) is higher than other tubal pregnancy's location.<sup>13</sup>

The clinical presentation of interstitial gestations is polymorphic with no pathognomic sign. The large myometrial distensibility at the level of interstitial part induces late clinical manifestations, between 7 and 12 weeks of gestation.<sup>13</sup> A large-scale study shows a 4-day delay in diagnosis compared to other presentations of ectopic tubal pregnancies.<sup>16</sup> There are two clinical entities related to ectopic pregnancies: unruptured and ruptured pregnancies. Abdominal pain and vaginal bleeding are the two main complaints in unruptured pregnancy. Severe persistent abdominal pain, as well as signs of hemorrhagic shock are suggestive features of ruptured pregnancy.<sup>2</sup> In 20%–50% of cases, these interstitial pregnancies occur with signs of hemorrhagic shock.<sup>17,18</sup> In the case above, the patient presented with hemorrhagic shock, which was managed with prompt fluid and transfusional resuscitations.

In case of ectopic pregnancy, transvaginal ultrasonography and quantitative human chorionic gonadotropin (hCG) level measured serially are the key elements for diagnosis.<sup>2</sup> In order to specify the exact site of ectopic pregnancy, imaging and/or laparoscopy should be used. On *trans*-abdominal or *trans*-vaginal ultrasound, the diagnostic criteria are<sup>19</sup>: an empty uterus; a chorionic sac seen separately and usually less than one cm from the most lateral edge of the uterine cavity and; a thin myometrial layer surrounding the gestational sac. In case of doubts on

ultrasound, magnetic resonance imaging (MRI) can also be used for diagnostic confirmation.<sup>1</sup> Laparoscopy has the advantage that it can be used for diagnosis and treatment.

Once diagnosed, management should be administered as a matter of urgency. Fluid's resuscitation and blood transfusion must administer urgently in case of hemorrhagic shock. Definitive treatment can be conservative or surgical. Note that medical treatment using methotrexate can be administered in selected cases of unruptured ectopic pregnancy.<sup>1,2</sup> The success rate after conservative treatment with Methotrexate varies between 66% and 100%.<sup>20</sup>

Indications for surgical treatment are: hemodynamic instability, heterotopic pregnancy, the presence of an embryo with cardiac activity on sonography and contraindication or failure of medical treatment with Methotrexate.<sup>1,2</sup> In case of interstitial pregnancy, therapeutic modalities during surgery include: cornual resection with or without salpingectomy, salpingostomy and hysterectomy.<sup>21</sup> Table 1 presents the different modalities of medical and surgical treatment. The surgery can be done by an open approach or by laparoscopy. the latter represents the gold standard. however, it requires advanced laparoscopic skills and is associated with a higher risk of bleeding.<sup>14,20</sup>

Data on subsequent pregnancy outcomes after interstitial pregnancies are limited. Indeed the rate of uterine rupture at the level of the uterine scar is high. Therefore, pregnancies occurring later are considered high-risk pregnancies and must benefit from adequate medical follow-up.

In the case reported, it was an ectopic pregnancy revealed after an attempt of clandestine abortion. When the continuation of a gestation poses no vital threat to pregnant mother and embryo/foetus, medical abortion or termination of pregnancies is legally prohibited in the Cameroon's penal code and the Cameroonian Medical Council. Consequently, young women go into high-risk practices to carry out clandestine abortions in non-medicalized institutions; exposing themselves to potentially fatal complications. In this context, long-term care of the patient in additions to medications is to ensure psychological support, social re-integration and the used of an appropriate and effective contraceptive method.

The presence of amenorrhea, hemorrhagic shock and an acute abdomen in all women of child-bearing age should urgently lead to investigations to roll out an ectopic pregnancy. Interstitial location pregnancy is a grave form of ectopic pregnancy, wherein late diagnosis worsens the maternal prognosis. Prompt resuscitation followed by surgery for definitive cure are required to bring the patient out of a state hemodynamic instability and prevent fatal outcomes.

**Table 1**  
Therapeutic options in the treatment of interstitial ectopic pregnancies.

Treatment Methods	Indications	Approach	Options	Comments
<b>Surgical approach</b>	<ul style="list-style-type: none"> <li>•Evidence of ruptured ectopic pregnancy</li> <li>•Hemodynamic instability</li> <li>•Contraindication to medical treatment</li> <li>•Failed medical therapy</li> <li>•Heterotopic pregnancy</li> </ul>	Laparotomy	- Cornual resection with or without Salpingectomy	- Mini-cornual excision can be achieved
		Laparoscopy	- Cornuostomy/salpingostomy	- Salpingectomy decrease the risk of tubal neoplasia with spread to the ovary, and the risk of persistent trophoblastic tissue
<b>Medical treatment</b>	<ul style="list-style-type: none"> <li>•Hemodynamically stable patient</li> <li>•Serum <math>\beta</math>-hCG level <math>\leq</math>5000 mIU/mL</li> <li>•No absolute contraindications to Methotrexate therapy</li> <li>•No fetal cardiac activity detected on transvaginal ultrasound.</li> <li>•No ruptured mass</li> </ul>	Local injection	- Endometrial resection done transcervically	- Hysteroscopic endometrial resection performed under laparoscopic control
		Systemic MTX	- Hysterectomy	- Treatment of last resort, in case of uncontrollable bleeding
<b>Expectant management</b>	<ul style="list-style-type: none"> <li>•Asymptomatic patient</li> <li>•With quantitative beta hCG <math>\leq</math>200 mIU/mL;</li> <li>•Transvaginal ultrasound with no extrauterine gestational sac or mass suggestive of an ectopic pregnancy.</li> </ul>		Through ultrasound	- Preferred treatment option for ectopic pregnancy
			- Single-dose	- Clinical monitoring, biological monitoring (hCG level) every 48 hours
			- Two-dose regimen	Imaging monitoring.
			- Multiple-dose protocol	- An operating room ready for surgery in the event of a failure
				- Require folic acid supplementation
				- Clinical monitoring, biological monitoring (hCG level) every 48 hours
				-Unsafe approach
				- A good surgical preparation in the event of a failure

MTX: Methotrexate;  $\beta$ -hCG: beta-human chorionic gonadotropin.

Data from the studies.<sup>2,19</sup>



## Conflicts of interest

The authors do not declare any conflicts of interest.

## Funding

Not applicable.

## Availability of data and material

'Not applicable' in this section.

## Ethical considerations

Written informed consent was obtained from the patient for publication of this case report and any accompanying images.

We obtained research authorizations from the administrative authorities of the hospital.

A copy of the written consent is available for review by the Editor-in-Chief of this journal.

Any identifying material has been removed, including the patient's name, date of entry, face or any distinctive features on the pictures taken.

## Authors 'contributions

LWT contributed in design of the study and writing of the manuscript. AFNN, JNT, FTW, ASNM, and FT, contributed in critical reading.

LWT, collected the pictures, and obtained the patient's consent.

All authors have read and approved the final version of the manuscript.

## Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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