



## Case report

## Abdominal pregnancy diagnosed by ultrasonography and treated successfully by laparotomy: Two cases report

F. ELMISKI<sup>\*</sup>, B. OUAFIDI, E. ELAZZOUZI, R. ELQUASSEH, A. LAMRISSI, K. FICHTALI, S. BOUHYA

Obstetrics And Gynecology Department, University Hospital Center Ibn Rochd, Casablanca 20100, Morocco

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## ABSTRACT

**Introduction:** Abdominal pregnancy is one of the rare types of ectopic pregnancies that has a high rate of mortality. Its clinical presentation is similar to those of the other types of ectopic pregnancies.

**Cases presentation:** we report two cases of abdominal pregnancies whose the diagnosis was made by ultrasonography and successfully treated by laparotomy in emergency obstetrical department of Ibn Rochd University Hospital of Casablanca.

**Clinical discussion:** the ultra-sonography based on precise criteria represents the fundamental paraclinical examination in the diagnosis of abdominal pregnancies. The treatment of early form is based on surgery; And despite the advent of laparoscopic surgery, laparotomy retains its indications including forms with hemorrhagic shock.

**Conclusion:** Due to the high risk of complications and maternal mortality, abdominal pregnancies should be surgically treated as soon as possible when the diagnosis is confirmed.

## 1. Introduction

Abdominal pregnancy corresponds to the direct implantation of the gestational sac in the abdominal peritoneum, it represents 1% of ectopic pregnancies [1]. Abdominal pregnancies are associated to a high-risk of maternal morbidity and mortality [2]. The treatment of early form is based on surgery; And despite the advent of laparoscopic surgery, laparotomy retains its indications including forms with hemorrhagic shock [3]. We will present 2 cases of patients who have abdominal pregnancies in hemorrhagic forms and successfully treated by laparotomy in emergency obstetrical department in Ibn Rochd University Hospital of Casablanca. This work has been reported with respect to the SCARE 2020 criteria [4].

## 2. Cases report

## 2.1. Observation 1

A 36-years-old woman Gravida 2 Para 1, was referred to our unit with a history of 15-weeks of gestation and unmonitored pregnancy. No contraception was used in the past and no particular pharmacological or family history were founded in anamnesis. The patient was presented

into emergency room with a pelvic pain and late periods, her urine pregnancy test was positive.

In admission, the patient had a pelvic pain and an instable hemodynamic status (shock), mild pallor, low blood pressure (systolic pressure 70mm Hg, diastolic pressure 40mm Hg) and high pulse rate 120 p/min. The patient benefited from a conditioning with 2 peripheral venous routes and infusion of crystalloid. Laboratory parameters were hemoglobin concentration 7.2 g/dl and hematocrit 28.2%.

Gynecological examination showed a long closed posterior cervix with bleeding and positive cervical excitation tenderness, and there was a complex mass in the right uterine during palpation. In addition, abdominal examination revealed a hypogastric tenderness and defense during deep abdominal palpation.

A transvaginal and Pelvic ultrasonography was made and showed an empty uterus with unusual size, pregnancy with no detectable myometrium around fetal membranes, amniotic cavity with fetus in retro uterine with movement and cardiac activity present (bi-parietal diameter 33 mm) associated with fluid in the pouch of Douglas as shown in Figs. 1 and 2.

Diagnostic of abdominal pregnancy was made, the patient was transfused with two red blood cells, we proceeded to an urgent laparotomy under general anesthesia and in dorsal decubitus, where were

<sup>\*</sup> Corresponding author.

E-mail address: [dr.fatiha.elmiski@gmail.com](mailto:dr.fatiha.elmiski@gmail.com) (F. ELMISKI).

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**Fig. 1.** Abdominal pregnancy revealed during transvaginal ultrasound. Empty uterus increased in size; fetus in retro-uterine lying in pool of fluid with a biparietal diameter at 33 mm.



**Fig. 2.** Abdominal pregnancy revealed during transvaginal ultrasound; fetus in retro-uterine with movement and cardiac activity present.

found a fetus lying in a pool of blood in the abdominal cavity, a placenta attached to the posterior surface of the uterine fundus. However, her ovaries and both Fallopian tubes were found normal. The fetus and placenta were carefully evacuated and the peritoneal cavity copiously lavaged. A drain was inserted before closing the abdomen as shown in Fig. 3. Post-operative recovery was uneventful, healthy mother was discharged on 5th post-operative day and the regular follow-up of the patient was without anomaly.



**Fig. 3.** Intraoperative finding of abdominal pregnancy.

## 2.2. Observation 2

The patient, a 26-year-old woman in her 9th week of gestation, primigravida, presented to the emergency room with abdominal pain and bleeding per vaginam accompanied by cold sweat and episodes of syncope.

In admission, patient has signs of shock with mild pallor and low blood pressure (systolic pressure 80mm Hg, diastolic pressure 50mmHg) and level pulse rate 110 p/min, her blood parameters were hemoglobin concentration 6 g/dl and hematocrit 26.4%, also her urine pregnancy test was positive.

The patient benefited from a conditioning with 2 peripheral venous routes and infusion of crystalloids. Physical examination showed a diffuse abdominal tenderness and long closed posterior cervix with bleeding in gynecological examination.

Ultra sonography revealed internal bleeding with empty uterus that has unusual size and gestational sac containing a vital embryo (Cranio-codal Length 3 cm; 9 weeks of gestation and 5 days) with movement and cardiac activity that was present in the abdominal cavity as shown in Figs. 4 and 5.

We proceeded to an urgent laparotomy under general anesthesia and in dorsal decubitus, on exploration the uterus is increased of the size with normal fallopian tubes and ovaries. A gestational sac of approximately 4 cm was identified in the pouch of Douglas, attached to the posterior surface of the uterine fundus and momentum, intact sac with embryo were dissected and removed as shown in Fig. 6. Patient was discharged on 5th post-operative day after the surgery and the regular follow-up of the patient was without anomaly.

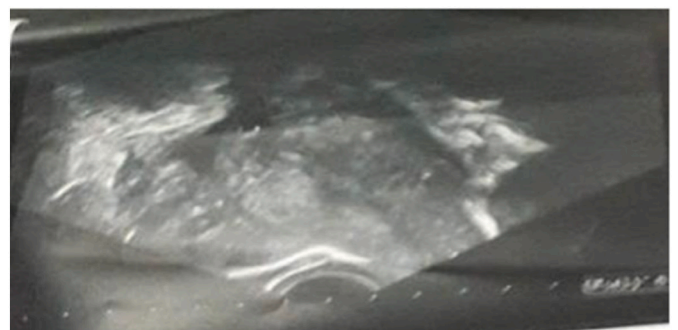
## 3. Discussion

Abdominal pregnancy represents 1% of extrauterine pregnancies with an incidence of 1/10.000–1/30.000 of all pregnancies [1], the level of maternal mortality is estimated to 7.7 times than other ectopic tubal pregnancies and to 90 times higher than intrauterine pregnancies [2].

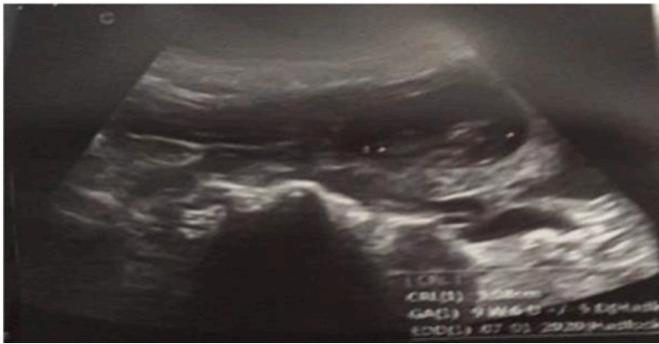
Multiple locations of ectopic abdominal pregnancies were reported, the most common ones were recto-uterine and vesico-uterine pouches (24.3%), uterine and tubal serosa (23.9%). The risk factors for abdominal pregnancy are not specific are the same as those for all ectopic pregnancy [6].

The first classification of abdominal pregnancies based on the physiopathological mechanism divided them into 2 groups. First abdominal pregnancy that refers to pregnancy where implantation of the fertilized ovum occurs directly in the abdominal cavity. In such cases, the Fallopian tubes and ovaries are intact. In contrast, secondary abdominal pregnancy accounts for most cases of advanced extra uterine pregnancy. It occurs following an extra uterine tubal pregnancy that ruptures or aborts and is reimplemented within the abdomen. [7]

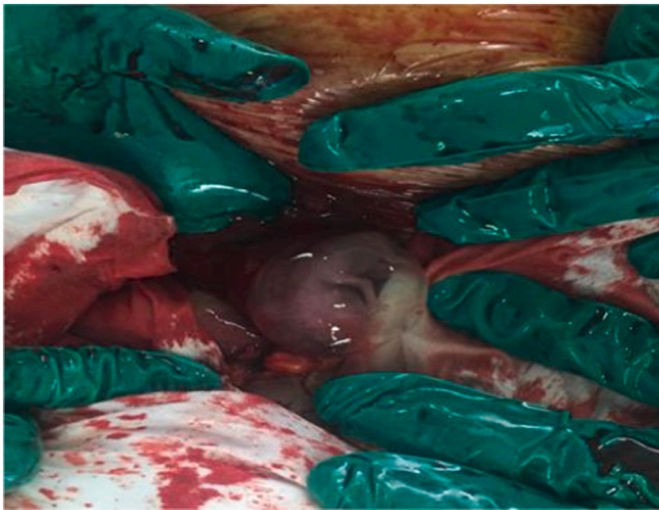
This classification does not have any practical interest in opposition to the classification based on the pregnancy term. Therefore, we call



**Fig. 4.** transvaginal ultrasound: Empty uterus with unusual size and haemoperitoneum.



**Fig. 5.** Pelvic ultrasonography, pregnancy with no detectable myometrium around a gestational sac.



**Fig. 6.** Intraoperative finding of abdominal pregnancy; gestational sac with embryo attached to the posterior surface of the uterine fundus and momentum.

early abdominal pregnancy when the term is less than 20 weeks of amenorrhea and advanced abdominal pregnancy when that limit exceeds 20 weeks [8].

Abdominal pregnancy can be asymptomatic hence the interest of ultrasonography which allows the diagnosis of abdominal pregnancy less than 12 weeks, thus make it possible to adapt the management and avoid the evolution towards the sometimes severe hemorrhagic forms [9,10].

A pre-operative ultra-sonographic diagnosis of abdominal pregnancy has been described in a more advanced gestation (12 weeks) [11], but in our case, the ultrasonographic diagnosis was performed in 9-weeks pregnant.

The ultrasonographic criteria observed in our cases were: (1) Empty uterus increased in size and absence of intrauterine gestational sac; (2) absence of adnexal abnormalities; (3) a gestational cavity surrounded by loops of bowel and separated by peritoneum; (4) a wide mobility, particularly evident with a gentle pressure of the transvaginal.

Medical treatments is offered mainly for abdominal pregnancies where the location or surgical treatment is potentially associated with an increased risk of hemorrhage. These sites are essentially represented by the hepatic and splenic location [8,12],

Patients should be closely monitored due to the possibility of a surgery in case of a hemorrhagic complication. The In situ or systemic methotrexate injection or in situ potassium chloride injection are the most widely used protocols [6,13].

The most of the patients who received the first medical treatment

requires the combination of adjuvant therapy [5]. Other authors have reported deceiving results concerning methotrexate use in abdominal pregnancies [12].

Surgery is the treatment of choice for the management of abdominal pregnancy. Laparotomy was chosen to be better than laparoscopic surgery because of the risk of perioperative hemorrhage, which can be uncontrollable from the implantation site [2].

The laparoscopic surgery is chosen instead of laparotomy if the abdominal pregnancy is diagnosed at an early age (< 12 weeks) or if the implantation site allows a non-hemorrhagic surgical excision [13]. In addition, the advantage of laparoscopy that is associated with a significant reduction in blood loss and the length of hospital stays.

#### 4. Conclusion

Abdominal pregnancy is a rare type of ectopic pregnancies that can be potentially serious due to the hemorrhagic complications. The early diagnosis offers a better prognosis. However, clinical polymorphism makes early diagnosis difficult.

Our report showed the interest of ultrasound in the diagnosis of abdominal pregnancy, which guided the urgent management by laparotomy of two cases of abdominal pregnancy with hemorrhagic forms.

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#### Consent

Written informed consent for publication of their clinical details and/or clinical images was obtained from the patient.

#### Ethical approval

I declare on my honor that the ethical approval has been exempted by my establishment.

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#### Author contribution

El Miski Fatiha: Corresponding author writing the paper and operating surgeon

El Ouafidi Ibtissam: writing the paper and operating surgeon

El Azzouzi El Hassan: writing the paper and operating surgeon

Elquasseh Rajaa: writing the paper

Lamrissi Amine: study concept

Fichtali Karima: study concept

Bouhya Said: correction of the paper

#### Guarantor

El Miski Fatiha.

#### Research registration number

None.

#### Declaration of competing interest

The authors report no declarations of interest.

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