

# Rare Case Of Ovarian Pregnancy And Review Of The Literature

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**Abstract:** Ovarian pregnancy is a rare entity among ectopic pregnancies where the ovary is the site of implantation. Its diagnosis is based on a well codified approach. We report the case of a 28 year old patient with no notable pathological antecedents admitted for management of acute pelvic pain associated with metrorrhagia on amenorrhea of 2 months. A pelvic ultrasound suspected the presence of an ectopic pregnancy. The patient benefited from an exploratory mini laparotomy for hemodynamic instability confirming the diagnosis of ovarian pregnancy.

**Keywords—** ovarian pregnancy, case report,

## 1. INTRODUCTION

Ovarian pregnancy (OP) is a type of pregnancy where the ovary is the site of implantation [1]. It occupies a special place among ectopic pregnancies because of its rarity, which is linked on the one hand to its definition, which takes into account anatomical criteria, and on the other hand to well codified diagnostic procedures. Contrary to other types of ectopic pregnancy (EP), Ovarian Pregnancy remains an isolated and exceptional phenomenon, independent of the usual risk factors. Moreover, the exact mechanism leading to an Ovarian Pregnancy is still poorly understood.

Through this article and a review of the literature we will try to analyze the determining factors of Ovarian Pregnancy, to support the etiopathogenic, histopathological and evolutionary particularities of this ectopic pregnancy.

## 2. CASE REPORT :

This is a 28-year-old patient, G2 P1, with no notable pathological antecedents, admitted to the maternity hospital emergency room of the Hassan II Hospital of FES for the management of acute pelvic pain associated with metrorrhagia and 2 months of amenorrhea

in whom the clinical examination found an obnubilated patient in a state of hemorrhagic shock

Pelvic ultrasound showed an empty uterus with a right latero-uterine image, raising the suspicion of an ovarian pregnancy with an abundant effusion (image 1 and 2). An emergency laparotomy was decided, which allowed the extraction of a product of conception from the right ovary (image 3), preserving the right ovary with hemostasis assured by aspiration of the hemoperitoneum.



image 1: Pelvic ultrasound showed an empty uterus with large effusion

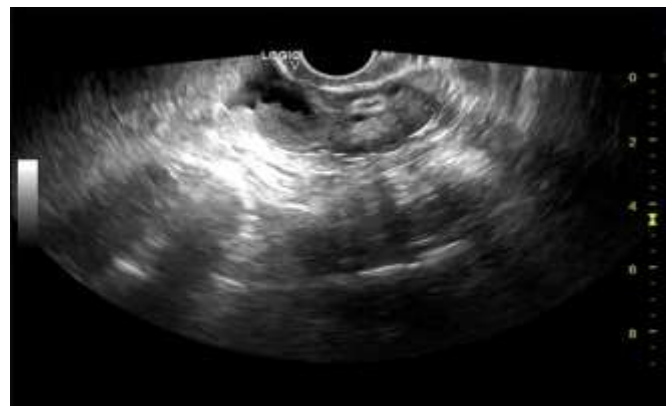


image 2: right latero-uterine image making us suspect an extrauterine pregnancy of probably ovarian location



image 3: intraoperative image of an extrauterine pregnancy of ovarian location

### 3. DISCUSSION

Ovarian pregnancies represent the first sites of localization of rare EPs. Ovarian pregnancy was first suspected by Mercurius in 1614 and proven from other works cited by Grall [2]. Their frequency is estimated at 2-3% of EPs, which represents an incidence of approximately 1/2500 to 1/5000 births [3]. These frequencies are those generally reported in the literature [4,5].

The population at risk is somewhat different from those of patients with tubal EP, since it is represented by young, mostly fertile, multiparous women with an IUD [6]. In their series, Riethmiller et al. found two cases of Ovarian Pregnancy in older, infertile women without IUDs [7]. The age of occurrence of GO in our patient is close to that described in a study carried out in Côte d'Ivoire [8], which is between 20 and 34 years. For E. Philippe [9], the average age of onset of Ovarian Pregnancy is 29 years. The authors' opinions are divided on parity as a factor in the genesis of Ovarian Pregnancy: according to Grall [2], parity does not seem to play a role because out of his 4 cases, he noted 2 cases in second gestations and 2 cases in multigestations, i.e. 50%; Philippe [9] states that multiparous women are carriers of Ovarian Pregnancy in 73 to 84% of cases.

The clinical symptomatology is unremarkable, with abdominal pain, delayed menses, and metrorrhagia being most commonly present [4,10]. The pain corresponds to the rupture of the ovarian capsule by the GO and the formation of hemoperitoneum [8,11]. Patients are most often seen in an emergency context, with significant hemoperitoneum or even in a state of hypovolemic shock [11], these are signs reported in our patient. But other circumstances have been reported. Like that of Pan et al. an original case of GO in a clinical picture of adnexal torsion has been reported [12].

The anatomical-pathological examination is of paramount importance because it is this that allows the diagnosis of Ovarian Pregnancy to be confirmed. Its purpose is to eliminate primary abdominal pregnancies, those grafted on the ovary but originating from a tubo-abdominal abortion, and those where the ovary is not the exclusive site of

implantation, according to Spielberg's anatomical criteria in 1878 [3]: the tube on the affected side, including the auricle, must be free of any lesion; the ovarian sac must occupy the usual anatomical place of the ovary;

the ovary and gestational sac must be connected to the uterus by the utero-ovarian ligament; there must be ovarian tissue within the ovarian sac [which implies histological confirmation of the presence of chorionic villi within the ovarian tissue]. From the anatomical criteria defined by Spielberg and Riethmiller [7], several classifications of GO have been proposed by Baden [13], and Philippe [9]. Therefore, histologically, chorionic villi must be found within the ovarian tissue [7]. If we refer to the definition described by Spielberg [7], only the respect of the 4 criteria brings the diagnosis of certainty of GO. None of our patients completely met the criteria of this definition. However, the macroscopic and histological aspects are in favor of a diagnosis of GO. Sergent et al [8] remind us that the criteria cited above do not incorporate modern methods of diagnosis, treatment and follow-up of EP. They seem insufficient or even inappropriate, constituting a bias and leading to a probable underestimation of the rate of GO. This team therefore proposes to associate the 4 Spielberg criteria with: 1) the existence of an EP confirmed by a plasma HCG level greater than 1000 IU /L associated with uterine vacuity on endovaginal ultrasound, spontaneous miscarriage being excluded by the absence or low volume of metrorrhagia; 2) ovarian involvement confirmed by surgical exploration, with bleeding or visualization of trophoblast at its level, or even presence of an atypical ovarian cystic formation; 3) presence of healthy fallopian tubes; 4) decrease and negativation of plasma HCG levels after ovarian treatment.

Moreover, if the histology reveals ovarian material, even if it is not surrounded by ovarian tissue, the diagnosis of GO can be retained insofar as the preoperative sampling involves the ovary.

According to the site of the GO, our case develops on the right ovary. GO according to Spiegelberg [14] is characterized by its usual occurrence on the right side, because: 1) the normal size of the right ovary (16mm x19mm) is much smaller than that of the left ovary (35mm x18mm); 2) part of the parenchyma of the right ovary often becomes a cystic cavity; 3) the wall of this cavity and the ovary have the same structure histologically, in this cavity we usually find the remains of the fetus and the placental remnant

The etiopathogenesis of GO has not been clearly defined. There are several opposing hypotheses but the mechanism seems to be that of a transtubar reflux of the fertilized oocyte into the ovary. Novak [15] recalls the three main theories put forward to explain the pathogenesis, two of which are for primary GO: 1) firstly, the theory of intra-follicular fertilization in which an unexpelled egg is fertilized inside the unruptured follicle by the spermatozoon. This theory is probably wrong since it is known that the oocyte, in order to be fertilized, must undergo nuclear and cytoplasmic maturation. These phenomena must take place outside the

follicle; 2) secondly, the theory of extra-follicular fertilization of Baden and Heins [13]: fertilization takes place outside the follicle and implantation is ovarian, the egg implanting preferentially on the scar of the original follicular ostium rich in fibrin and neocapillaries [6]. From a histological point of view, this implantation corresponds to intrafollicular and juxtafollicular forms [16]. More rarely, the implantation will take place at a greater distance from the corpus luteum, or even on the contralateral ovary corresponding to the juxtacortical and interstitial forms. This second theory of implantation of the egg on the cortical part of the ovary probably explains the pathogenesis of our case; 3) thirdly, the theory of an ovarian graft of an EP from a tubo-abdominal abortion [17].

Whatever the mechanism involved, it is likely that it is not unique in all cases, which explains the different types of GO observed.

#### 4. CONCLUSION

Ovarian pregnancy is a rare entity among ectopic pregnancies where the ovary is the site of implantation. Its diagnosis requires a well codified approach.

Anatomopathological examination is of paramount importance because it allows confirmation of the diagnosis of GO. Its purpose is to eliminate primary abdominal pregnancies, those grafted on the ovary but originating from a tubo-abdominal abortion, and those where the ovary is not the exclusive site of implantation

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