Case Reports

Management of ovarian cysts in pregnancy: A case report

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Summary

According to recent epidemiological studies on ovarian cysts during pregnancy one out of 600 are, in most cases, benign neoformations. The most frequent histological type reported is mature cystic teratoma (50% of the cases), followed by functional cysts (13%), benign cystadenomas (20%) and ovarian cancer (0.6%). Most adnexal masses are asymptomatic and spontaneously resolve before the 16th week of amenorrhoea. On the other hand, some cases are persistent forms which can cause complications for the mother and fetus.

The objective of this work was to review the existing literature from an epidemiological point of view, with an emphasis on diagnostic and therapeutic management.

We have paid particular attention in our review to the use of diagnostic techniques and non surgical therapies such as laparoscopy, which in expert hands and adopting particular skills, can be considered as on approach to ovarian cysts in pregnancy.

We present the case of a patient with an ovarian cyst during pregnancy that was a successfully treated with laparoscopy.

Key words: Pregnancy, Ovarian cysts, Laparoscopy.

Introduction

Incidents of adnexal masses in pregnancy have increased considerably in recent years. This reported higher incidence could be due to the routine use today of echography which is capable of pointing out completely asymptomatic adnexal forms.

Before echography, when a diagnosis of a palpable adnexal mass was made on examination, one case out of 591 pregnancies resulted [1], in 1986 one case out of 190 was reported [2] and in 1999 one out of 50 [3]. Recent epidemiological data report one case of an adnexal mass per 600 pregnancies [4].

Histopathologically 50% of the cases studied were mature cystic teratomas, 13% functional cysts, 20% benign cystadenomas and only 0.6% ovarian cancers [5].

Total epidemiological data was produced and contrasted well with other published data in the literature a year ago, in which the incidence of malignant adnexal masses was 2-6%, mature cystic teratomas 20-30%, and functional cysts 22-54% [6]. Moreover, new clinical information has shown that some of these asymptomatic masses resolve spontaneously before the 16th week of amenorrhea, while others persist causing complications for the mother and fetus.

The most frequent maternal complications recorded are torsion, rupture and intracystic bleeding, among these fetal dystocia (mechanical or dynamic), spontaneous abortion (4.7%), PROM and preterm birth (9%) [7]. Thus the management of ovarian cysts in pregnancy is very much discussed.

All researchers who are dealing with this argument are in agreement on the importance of clinical evolution, echography and laboratory findings (cancer markers) which identify the benign or malignant nature of the condition. Echography studies show an essential need to carefully consider the dimension (< 6 cm) of the pathology and the indications of the resistence and pulsatility indices [8, 10]. Finally, echography must be completed with nuclear magnetic resonance (NMR) imaging if a cyst persists in all probability as a lesion [8].

In cases of ovarian neoformations during pregnancy < 6 cm, it is recommended to proceed cautiously; 95% of the cases spontaneously resolve. When the dimension of a mass is > 6 cm or it is persistent for more than 16 weeks of amenorrhea and presents as benign the same caution should be applied. Indeed by studying our case (with benign characteristics), which was symptomatic, transvaginal aspiration by laparoscopy was recommended after diagnostic and cytological studies.

A different discussion should be addressed when the size is > 6 cm and diagnostic certainly regarding malignancy is in doubt; in this case, it is advised to surgically intervene with the appropriate laparoscopy or laparotomy [9].

As for the question of laparoscopy for emergency gynecology during pregnancy there is less information, probably because of few clinical trials which are not conclusive.

Analyses of the studies reported in the literature [10-14] seem to confirm that intervention is feasible wide-world and favors pelvic surgery during pregnancy with reasonable certainty for laparotomy and laparoscopic approaches.

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Addressing the issue of laparoscopy, various well documented reports seem to indicate benefits from the use of such technique [10, 11].

The first advantage offered by laparoscopy is that it minimizes abdominal incisions. Moreover there are fewer postoperative infections and analgesic side-effects.

It should not be forgotten that stomach muscle tension increasingly works to delay the recovery of iron, thus increasing the pain and incidence of postsurgical infection. A laparoscopic intervention guarantees a rapid return of normal intestinal function. Moreover it minimizes adhesion complications, reduces hospital stay and postsurgerical immobility, and significantly reduces the risk of thrombosis [15].

The risks associated with laparoscopy carried out during pregnancy include spontaneous abortion, (highest in the first trimester), anesthesia complications (much higher than during surgery), low weight and intrauterine growth retardation (IUGR).

The total risks are compounded with those of surgery. Penetration of the uterus by a Veress needle can cause bleeding, rupture of the uterus, loss of amniotic fluid, infection and direct damage to the fetus with abortion following [15].

The data available on the risks associated with insufflation of CO_2 in the pneumoperitoneum show different results: Cruz *et al.* [16] in a study on animals attributed risk of hypoxemia, acidosis and hypercapnia both for the mother and the fetus to the pneumoperitoneum. Hunter *et al.* [17] reported a reduction of uterine blood flow in association with increased amniotic fluid pressure. Galan *et al.* [18] in a study on four female pregnant baboons reported carbon dioxide acidosis in three cases, however pregnancy outcomes were unaffected.

On the contrary, the results of a careful analysis by Barnard *et al.* [18] demonstrated that laparoscopy induces a large reduction in placental blood flow without maternal changes, placental blood reserve, no blood flow or perfusion of the fetal placenta nor of the value of pH as well as partial pressure in maternal and fetal hematic gas. From the literature review we can verify that considerable attention has been placed on the development of noxious gas in the abdomen due to laser and electrosurgery (bipolar) used during laparoscopic procedures.

In patients where laser was used, results have shown a significant increase in fetal carboxyhemoglobin levels in peripheral blood and in concentrations of CO [20].

Researchers indicate that potential intraperitoneal noxious gas through adeguate elimination of CO with ventilation and with other concentrations of oxygen can be liberated [20, 21].

Finally, introduction of pneumoperitoneum during pregnancy results in a significant reduction in diaphragmatic excursion and risk of a gas embolism during surgery and postpartum.

Nagao and Reichert [22] reported on how to minimize the risk of starting insufflation at low pressure and low speed in order to limit the volume of gas emitted to avoid puncture of the venous veins. They recommend monitoring of breathing and maternal heart conditions in an attempt to avoid treating increased hypoxemia, hypotension, acidity, hypoventilation and hyperventilation too suddenly.

Case Report

In October 2003 we observed a 36-year-old patient in the eighth week of pregnancy with an echographic diagnosis of an ovarian neoformation on the left side. It was 51 x 65 mm in diameter, contained mostly fluid, was < 3 mm thick without vegetation or septum and was diagnosed for the first time at six weeks of amenorrhoea.

Another echography was done again at 11 weeks, and the cyst dimension was 73 x 53 mm with the echographic aspect unchanged.

The following tumor dosage markers were performed: CEA -1.50 ng/ml, CA19-9 - 12.09 IU/ml, and CA125 - 9.79 IU/ml.

Given the persistence and increased size of the cyst, we decided to remove it by laparoscopy at 17 weeks of amenorrhea. Thus, open laparoscopy with introduction of a telescope via the umbilicus and two ancillary trocars under visual control was carried out. The cyst content was aspirated followed by stripping of the capsula.

The resected area was coagulated with a bipolar forceps. Histological examination immediately indicated a benign cystoadenoma. The patient left the hospital on the second day and was treated with tocolytic therapy for ten days. No complications arose during the course of the surgery and/or postoperatively.

Conclusions

Since 1963 Mundell and others have given good reasons for removal of ovarian cyst formations during pregnancy: 1) a possible cause of dystocia, 2) because of the risk of rupture, torsion and bleeding, 3) and because of the risk of malignant pathology [23].

After 40 years all these factors still exist today with, however, mini-invasive surgery and technical diagnostics as a recourse.

From our data and the literature data on the question of whether to perform laparoscopy what emerges is that cysts in pregnancy require a careful approach (both for the mother and fetus): there is a reduction in hospitalization, faster patient mobility, reduced risk of thromboembolisms, fewer postsurgical complications, fewer infections and problems of scarring, a reduction in adhesions, less intestinal obstruction and a reduction in maternal and fetal morbidity [1-8]. All these authors agree that laparoscopy during pregnancy must only be done with a team of expert surgeons and obstetricians [24].

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