CASE PRESENTATION

Heterotopic Gestation : A Case Report And Review of the Literature

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ABSTRACT

A case of heterotopic gestation is described after clomiphene therapy. Following the removal of the ectopic the intrauterine pregnancy continued uneventfully until term.

A short review of the literature is made here with particular reference to the predisposing causes, and to the difficulties encountered in making early and accurate diagnosis of heterotopic gestation.

We would like to draw attention to the advantages of combining ultrasonography and early laparoscopic intervention for making a definite diagnosis. Routine curettage in cases of "rule-out ectopic" laparoscopy procedures may result in an inadvertant evacuation of a wanted pregnancy.

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The first documented reference to extrauterine pregnancy is by Abo Al-Kassim Al-Zahrawi (known as Albucasis) in the 10th century AD[1]. Riolan in 1626 referred to several cases of ectopic gestation. Heterotopic gestation, i.e. combination of intrauterine and extrauterine, is generally acknowledged to be a rare phenomenon with a theoretically calculated incidence of one in 30,000 pregnancies[2, 3, 4].

Duverney was the first to describe a case in 1708. The patient died as a result of the ruptured ectopic pregnancy with the diagnosis made at autopsy. Weibel in 1905 and Penkert in 1913 have documented 126 cases. Since then several reviews have appeared, in 1926, 1963, 1966, 1983 and most recently nine cases from Mount Sinai Hospital, New York in 1986, which brings the total number reported in world literature to 622.[1, 5, 6, 7, 8, 9, 10, 11]

THE CASE

A 29 year old para 2 + 0 was admitted to hospital with a history of spontaneous onset of painless vaginal spotting following five and a half weeks of amenorrhoea. She complained also of frequency of micturition, nausea and tenderness in the breasts.

The previous gynaecological history is significant in that, during the past year she had been treated with antibiotics for an episode of pelvic infection and four months earlier she had attended the clinic for

investigation of secondary infertility. The history, physical examination and investigation then demonstrated that pelvic organs were normal, tubes patent, coital timing was good and seminal count was normal. The ovarian cycles however, were anovulatory as shown by a series of basal body temperature records and serum progesterone assays on the 19th day of the cycle. She was prescribed clomiphene citrate 50 mgm tablets, two tablets daily starting from the third day of the menstrual cycle. Pelvic examination revealed closed cervical os, slight vaginal bleeding, signs of early pregnancy but no palpable mass or tenderness. She was admitted to hospital for rest and observation. The pregnancy was confirmed by a positive pregnancy test. For the next three days she remained asymptomatic and was discharged home at her request.

Two days later she was readmitted, having presented with pain in the right iliac fossa and right loin, frequency of micturition and low grade pyrexia. Urinalysis and microscopy revealed pus cells and red blood cells. Total WBC and differential counts were normal except for moderate leuckocytosis. The haematocrit was 38%. A mid-stream specimen of urine was sent for culture and sensitivity and she was commenced on Amoxycillin capsules 500 mgms 8 hourly. Pelvic, gall bladder and right kidney ultrasonic scans were done. The report suggested a normal intrauterine gestation consistent with the patient's dates. The right kidney, biliary system and gall bladder were normal.

Over the following two days her condition improved and she discharged herself again, against medical advice. Later, in the evening of the same day, she was readmitted looking pale, diaphoretic, anxious and in marked distress. The abdominal wall was tender with evidence of guarding but there was no shifting dullness. The haematocrit value dropped down to 33% Provisional diagnosis of acute abdomen was made. Preliminary laparoscopy showed haemoperitoneum and we proceeded to laparotomy. The operation disclosed ruptured ectopic pregnancy in the ampullary part of the right tube. The uterus was uniformally enlarged and consistent with seven weeks gestation. Right salpingectomy and adhesiolysis of peritubal, periovarian and peritoneal adhesions were dissected. Haemoperitoneum of approximately 400 mls was evacuated. The ovaries and the pouch of Douglas were explored for chorionic tissue or secondary implantation and found to be normal. Two units of whole blood were transfused and the abdominal wall closed in layers. Post operatively her progress was smooth and she was discharged home on the 7th post-operative day with evidence of continuing intrauterine pregnancy. Follow-up showed a continuing normal intrauterine pregnancy concomitant with the period of gestation.

DISCUSSION

Between 1980 and 1985 the number of deliveries in the Bahrain government hospitals (BGH) were 66,000[12]. If we consider the commonly estimated rate of occurrence of heterotopic gestation which is 1 : 30,000 we are potentially expected to encounter 3–4 cases during this period. The incidence of heterotopic gestation in any community is most dependent upon the rate of ectopic pregnancy as there seems to be little fluctuation in the rate of spontaneous twinning. Figures derived from the records of the BGH hospitals over the last 5 years reveal no increase in the number of admissions for ectopic pregnancy, Table 1. The incidence rate is consistant with a rate close to that reported by Kitchin et al. of 0.4%[3]. This would put the spontaneous rate of heterotopic gestation in Bahrain at around one in 30,000.

TABLE 1

Number of Ectopic Gestations Admitted to Salmaniya Medical Centre 1980–1985

1980	1981	1982	1983	1984	1985
22	19	14	15	17	24

To date no case of heterotopic gestation has been reported in Bahrain. To explain this discrepency one should bear in mind several facts when evaluating our data. It is well known that some ectopic pregnancies remain asymptomatic or resolve spontaneously[7, 8]. In fact some may be terminated during evacuation or termination of pregnancy since the rate of ectopic pregnancy amongst women seeking induced abortion is lower than expected in the general populace[9]. It is probable that one or

more cases have been missed. To the extent that ectopic or combined pregnancies resolve without diagnosis or treatment, estimates of the true incidence of ectopic and heterotopic gestation are low, leading to underestimation of the actual incidence.

Elsewhere however, the incidence of heterotopic gestation and ectopics is increasing and the main cause for this rise is the increase in pelvic inflammatory disease (PID). Westrom in a large series from Sweden found evidence of PID in 25% of ectopics and heterotopic gestation[13]. Eschenbach quoted similar percentages from the U.S.A.[14]. Jones (after adjusting his figures) cited 20% in a large survey from London hospitals[15]. The case reported here also had a history of pelvic infections prior to pregnancy. Although she had received the full course of antibiotics, tubo-ovarian adhesions on the affected-side were found during surgery. Admittedly, combined pregnancy is not exclusive to cases with PID. Nevertheless, adhesions or loss of functional integrity of the tubes can lead to an increase in this association[16].

We are not aware of any reference in relation to PID in Bahrain, but certain data are worth discussion :

Bahrain's Public Health figures of venereal disease showed a marginal decline over the past five years. Gonorrohoea and syphilis figures have not shown any change[12]. This may not reflect the situation, either because of under reporting from general practice or because patients may seek therapy outside Bahrain.

Another factor which plays a part in the pathogenesis of PID is the wide use of intrauterine contraceptive devices[14, 15]. Usage or insertion of these devices when the cervix is infected is associated with the higher incidence of PID. Certain measures can be followed to minimise this potential risk, such as removal of the IUCD and institution of appropriate antibiotic therapy in all cases which show a febrile reaction after fitting an intrauterine device. Preliminary treatment of vaginal or cervical infection is also advised.

Not all cases of PID present acute symptoms[17]. In fact many women with salpingitis have no symptoms at all. This observation was confirmed in many women who gave no history of pelvic infection but were subsequently found to have pelvic adhesions on laparoscopy[16]. The liberal use of outpatient antibiotics for cases of PID tends to eliminate clinical recognition but does not prevent tubal damage.

Elective abortion is considered as a predisposing cause for the recent prevalence of PID[13, 14]. In Bahrain abortion is illegal except when carried out for medical reasons, and thus, this operation is rarely performed locally. Curettage of an incomplete spontaneous abortion is frequently performed in most hospitals with an emergency service. In this case, it has been observed that a delayed febrile reaction may occur after discharge from hospital[14, 16]. Because of inadequate diagnosis or treatment, this may lead to chronic pelvic infection.

Of further interest is the increase in the incidence of ectopics and multiple or heterotopic gestation with the use of ovulation induction drugs[18, 19, 20, 21, 22]. This has been reported in many reviews, as well as in our case. Indeed, it is not surprising that in a series of patients subjected to ovulation induction, unusual combinations of multiple pregnancy would be discovered in greater than the expected frequency[18].

Diagnosis of heterotopic gestation can be difficult in many ways, i.e. the clinical presentation may be that of an ectopic or threatened abortion or combination of the two. In our case the initial difficulty was caused by the early onset of vaginal spotting, the absence of pain in the beginning and the ultrasonic findings which suggested the possibility of missed abortion. In the second admission the clinical picture was suggestive of urinary tract infection and there was no further blood loss per vaginum. The ultrasound was repeated and this time it showed a normal intrauterine pregnancy but no adnexal problem, highlighting the difficulty in the diagnosis of heterotopic gestation.

In several series the proportion of "early" correct diagnosis of heterotopic gestation varied from 2.6–9.9%[23]. The clinical symptoms may vary but in most instances, those related to the ectopic gestation are predominant. If there is also vaginal blood loss, one should exclude the associated presence of intrauterine pregnancy.

In early gestation an intrauterine pseudo sac, associated with extrauterine gestation, may be mistaken for the sac of an intrauterine gestation[24, 25, 26].

In fact, as has been noted in many reports, ultrasound could be misleading in the diagnosis of ectopic pregnancy[25]. Correlating HCG titre with ultrasonographic findings can be helpful in the diagnosis of ectopic pregnancy[26, 27]. Recently many workers have claimed success in diagnosing cases of heterotopic gestation using a combination of ultrasonography and serial HCG level determination[28].

Exploratory laparoscopy, as in this case, is indicated if the symptoms become acute, even in the absence of any evidence which may point towards vaginal abortion. The detection of an ectopic pregnancy on laparoscopy should not be associated with a routine curettage of the uterus unless an intrauterine gestation has been excluded. Therefore, in cases of definite intrauterine pregnancy, when the abdominal pain and/or shock is not consistant with the degree of vaginal blood loss, associated ectopic gestation should be considered.

Because heterotopic gestation is a form of plural pregnancy, several hypotheses have been advanced to explain why one ovum reaches the intrauterine cavity and the other stays in the tube[10]. Superfecundation (two ovulations and two conceptions in the same menstrual cycle) could not be excluded in this case. Although superfetation (two conceptions in two different menstrual cycles) have been mentioned in the literature, its existence in humans remains theoretical. Another plausible but still unproven theory to explain heterotopic gestation, is that a defect in one of the fertilised ova may be responsible for errant migration and implantation in otherwise normal fallopian tubes[29, 30].

This is the first case of heterotopic gestation reported from Bahrain. The lesson we have learned is that the causes in this instance were similar to causes of documented heterotopic gestation from elsewhere, and that an increase in pelvic infections and common usage of fertility drugs and IUCD's may bring about more cases in the future.

We also feel that this case brings to attention the need to do a careful adnexal ultrasonography, in combination with HCG assays in cases of threatened abortion which had been preceded by a history of induction of ovulation or PID.

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