Case Report

Primary Ovarian Pregnancy Mimicking Abdominal Pregnancy

O O Ogunbode, O O Aremu[1], C A Okolo[2]

From the Departments of Obstetrics and Gynaecology and [2]Pathology, College of Medicine, University of Ibadan, [1]Department of Obstetrics and Gynaecology, University College Hospital, Ibadan, Nigeria

Abstract

The objectives of this study were to emphasise that ectopic pregnancy (EP) can occasionally occur in rare sites such as the ovary, and to show that it may be difficult making the diagnosis clinically and radiologically. It also highlighted the benefit of early surgical intervention in reducing mortality and morbidity from this condition. The case was a 31-year-old nulliparous woman who presented with amenorrhoea of 20 weeks and a 2-month history of lower abdominal pain. Radiological studies suggested abdominal pregnancy coexisting with uterine fibroids for which she had an exploratory laparotomy, which revealed a primary right ovarian pregnancy necessitating the performance of right ovariectomy. Locating the sites of EP may still pose a diagnostic challenge. Despite the benefits and reliability of ultrasound scanning, there will still be situations where the definitive diagnosis can only be confirmed at surgery.

Key Words: *Amenorrhoea, laparotomy, ovarian, pregnancy, ultrasound*

Introduction

Ectopic pregnancy (EP) is an important health problem that has been described worldwide but causes greater harm in the developing countries where it is often not diagnosed early due to the late presentation of other factors.[1] EP is said to occur whenever there is implantation of a fertilised ovum outside the endometrial lining of the uterus.[2] It is a life-threatening condition, which is more common in the reproductive age group and invariably results into foetal death.[2,3] Its incidence across all populations ranges from 0.4% to 2%, but with a reduction in case fatality rates over the years.[4-6] It is one of the most common gynaecological emergencies, a major cause of maternal morbidity and accounts for 10–15% of maternal demise.[1,5,7,8]

Various risk factors for EP had been reported and some of these include a history of pelvic infections, previous pelvic or tubal surgery, endometriosis, pelvic adhesions, *in utero* exposure to diethylstilbestrol, congenital abnormalities of the fallopian tubes, use of progestogen only pills, intrauterine contraceptive devices and more recently the increased availability of assisted reproductive technique services.[9] It must be noted, however, that it can occur in the absence of any risk factor.[4] The most common site of an EP is the fallopian tubes which accounts for over 95% of cases.[2,7] Other less common sites include the abdominal cavity, ovary, cervix, broad ligament and rudimentary horn.[10]

Primary ovarian pregnancy is a rare form of EP accounting for 0.5–3% of all ectopic gestations.[10-12] The incidence ranges from 1 in 40,000 to 1 in 7000 deliveries.[11,13-15] Unlike tubal pregnancy, ovarian pregnancy is neither associated with pelvic inflammatory disease or infertility.[15,16] The most common risk factor associated with ovarian pregnancy is the use of intrauterine device and multiparity.[10,16,17] Although a rarity, ovarian pregnancy has been documented among patients undergoing assisted reproductive technique, after bilateral tubal ligation and in primigravid pregnancy.[18-20]

Preoperative diagnosis is challenging, but ultrasound, especially transvaginal scanning is helpful in diagnosis.[10,16] Diagnostic delay may lead to a rupture, secondary implantation, operative difficulties and maternal death, therefore, awareness of this rare condition is important in reducing the associated morbidities. We report a case of primary ovarian pregnancy presenting with recurrent lower abdominal pain.

Case Report

A. D. a 31-year-old gravida 3 para 0^{+2} woman was referred from a General Hospital. She presented with 20 weeks amenorrhoea and a 2-month history of recurrent lower abdominal pain which was insidious in onset. There was no relieving or aggravating factor. The patient had two previous pregnancies that were both voluntarily terminated at the gestational age of about 8 weeks. There were no postabortal sequelae. She never used any form of the contraceptive device. She had an abdominopelvic ultrasound scan (USS) done prior to the presentation that was suggestive of abdominal pregnancy.

Address for correspondence:
Dr. O O Ogunbode, E-mail: yinkaogunbode@yahoo.co.uk

How to cite this article: Ogunbode OO, Aremu OO, Okolo CA. Primary ovarian pregnancy mimicking abdominal pregnancy. Niger Postgrad Med J 2015;22:185-8.

Access this article online

Quick Response Code:

Website: www.npmj.org

DOI: 10.4103/1117-1936.170739

At presentation, the general examination was essentially normal. Examination of the respiratory and cardiovascular systems were also normal. The abdomen moved with respiration and there was some tenderness in the suprapubic region. There was a 20 cm by 20 cm intra-abdominal mass involving the umbilical and suprapubic region. Her routine haematological and biochemical tests were within normal limits. A repeat abdominopelvic USS performed while on admission was suggestive of abdominal pregnancy and uterine leiomyoma [Figure 1]. She had exploratory laparotomy on April 14, 2013. At surgery, there was a gestational sac containing a live female foetus at the right ovarian fossa. The right ovary, placenta and membrane were attached to the right ovarian ligament, while the right fallopian tube was grossly normal. The left fallopian tube and ovary showed no abnormality. The uterus was 12-week size and enlarged with uterine fibroids. There was no haemoperitoneum. Right ovariectomy and myomectomy were done and specimens were sent for histopathological examination [Figure 2]. Her postoperative period was uncomplicated and she was discharged home on the 4th postoperative day. She was given an appointment for follow-up at the outpatients gynaecology unit and counselled on the need to present early in her next pregnancy.

The histology report revealed on gross examination, a well-formed female foetus with crown-rump length of 21 cm and crown-heel length of 30 cm corresponding to 24–25 weeks of intrauterine life. The foetus was connected to the placenta via the umbilical cord [Figure 2]. The placenta measured 14 cm × 11 cm × 8 cm. Cut sections of the placenta showed greyish brown appearance with a rim of greyish white tissue at the periphery. The foetus showed widening of the third interdigital space of the right foot. There was scoliosis of the spine. Microscopic examination of the umbilical cord showed a normal pair of the umbilical artery and an umbilical vein. Sections of the placenta showed chorionic villi of varying shapes and sizes and scanty deciduas areas of haemorrhages. These chorionic villi were attached to an ovarian tissue. The overall features were in keeping with ectopic ovarian gestation. The fibroid nodules enucleated intraoperatively were also confirmed on histology.

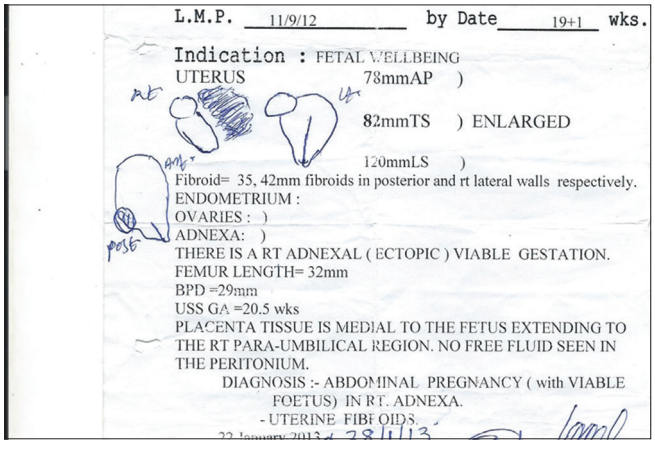
L.M.P. 11/9/12 by Date 19+1 wks.
Indication : FETAL WELLBEING
UTERUS 78mmAP)
82mmTS) ENLARGED
120mmLS)
Fibroid= 35, 42mm fibroids in posterior and rt lateral walls respectively.
ENDOMETRIUM :
OVARIES :)
ADNEXA:)
THERE IS A RT ADNEXAL (ECTOPIC) VIABLE GESTATION.
FEMUR LENGTH= 32mm
BPD =29mm
USS GA =20.5 wks
PLACENTA TISSUE IS MEDIAL TO THE FETUS EXTENDING TO THE RT PARA-UMBILICAL REGION. NO FREE FLUID SEEN IN THE PERITONIUM.
DIAGNOSIS :- ABDOMINAL PREGNANCY (with VIABLE FOETUS) IN RT. ADNEXA.
- UTERINE FIBROIDS.

Figure 1: Ultrasound scan suggesting abdominal pregnancy

Discussion

Primary ovarian pregnancy is rare. The first case was reported in 1682 by St. Maurice.[21] Ovarian pregnancy can be classified as primary or secondary. It is called primary ovarian pregnancy when the ovum is fertilised while still within the follicle.[22] Secondary ovarian pregnancy occurs when fertilisation takes place in the fallopian tube and the conceptus is subsequently implanted in the ovarian stroma.[22] The classification into primary and secondary ovarian pregnancy has no bearing on the management as both are managed similarly.[20]

The diagnosis of ovarian pregnancy is as established by the Spiegelberg criteria as far back as 1878.[23] The criteria includes four components that are: (a) Intact ipsilateral tube, clearly separate from the ovary; (b) gestational sac occupying the position of the ovary; (c) sac connected to the uterus by the ovarian ligament; and (d) histologically proven ovarian tissue located in the sac wall. Our patient, Mrs. O. B from the surgical findings and the histological examination met this diagnostic criteria. Ovarian pregnancy is more frequent with the use of intrauterine contraceptive devices[24] which was not present in this case. Although our patient had two previous voluntary terminations of pregnancies, the history did not suggest evidence of clinical pelvic infection. She also had a complete course of antibiotics which probably would have reduced the likelihood of infectious complications.

The presentation of ovarian pregnancy is similar to the other forms of EP.[2] There may be a history of amenorrhea, abdominal pain and minor ailments of normal intrauterine pregnancy such as nausea, vomiting and constipation are often exaggerated. In cases, where rupture had occurred, it presents with an acute abdomen.[2,7] The diagnosis as demonstrated in this case report and previous studies can be challenging to the managing clinician.[25] It can easily be mistaken for a haemorrhagic corpus luteum or an ovarian cyst.[25] Ovarian pregnancies usually terminate in rupture during the first trimester in 91.0% of cases, 5.3% in the second trimester and 3.7% in the third trimester.[8,26] Ovarian pregnancy when asymptomatic may be missed until late gestation.[13] In addition to a high index of clinical suspicion, abdominopelvic ultrasonography helps in locating the gestational sac/foetus in the region of the ovarian fossa.[16,27] With further developments in ultrasonography, the transvaginal route has helped to limit the number of misdiagnosis and has proven to be an invaluable tool in the diagnosis.[16,27]

Ovarian pregnancy can be treated conservatively with single dose methotrexate.[14,28,29] Methotrexate can also be given

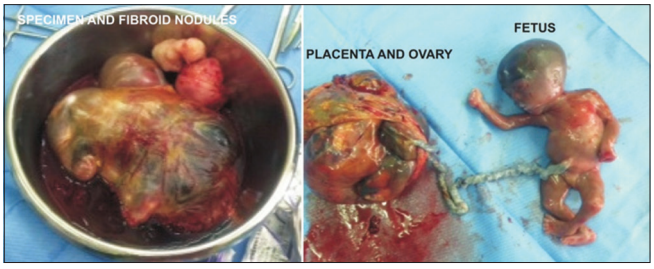

Figure 2: The right ovary and fibroid nodules including the attachment of the foetus to the ovary

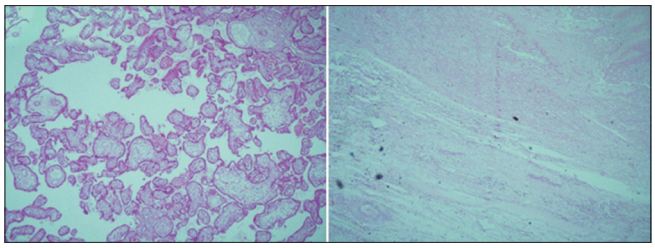

Figure 3: Chorionic villi on the left and ovarian stroma on the right in this case (H and E, ×400)

by laparoscopic assisted injection into the ectopic site.[22] However, higher failures rates with the use of methotrexate occurs if the pregnancy is advanced, if the gestational sac is >3.5 mm or if serum B-human chorionic gonadotropin is <5000 mIU/ml.[28] Other cytotoxic drugs such as etoposide has been used and documented to have fewer side effects.[22] With regard to surgical management, interventions in the past were more radical, with ipsilateral salpingo-oophorectomy being commonly done, however, recently the trend has shifted towards conservative surgery such as cystectomy or wedge resection performed at either laparotomy or laparoscopy, especially when diagnosis is made early. The preferred surgical approach for ovarian pregnancy is minimal access surgery using laparoscopy.[20,30] The additional cosmetic advantage of laparoscopy makes it appealing and readily acceptable by patients. The technique of laparoscopic removal, however, depends on the size and location of the pregnancy within the ovary, as well as the patients' haemodynamic status. Operative laparoscopy is costly to set up and not available in most health centres in developing countries thereby making laparotomy the more common surgical intervention adopted. At our centre, the operative laparoscopy was not functional at the time of her presentation, therefore she was offered laparotomy. Irrespective of the method adopted, the priority in the management of ovarian pregnancy is, however, to prevent mortality.[22] Fertility has been reported to be unmodified following ovarian pregnancy.[22]

Our patient presented with amenorrhoea and lower abdominal pain with ultrasound findings suggestive of abdominal pregnancy. She subsequently had successful laparotomy with histopathological examination confirming the diagnosis of an ovarian pregnancy [Figure 3]. Although ovarian pregnancy is rare, its awareness is important in reducing the associated maternal morbidity and mortality. It should, therefore be considered as a differential diagnosis in a female of reproductive age group presenting with acute abdomen and pregnancy.

Financial support and sponsorship

Nil

Conflicts of interest

There are no conflicts of interest.

References

1. Lawani OL, Anozie OB, Ezeonu PO. Ectopic pregnancy: A life-threatening gynecological emergency. Int J Womens Health 2013;5:515-21.
2. Dutta DC. Haemorrhage in early pregnancy: Ectopic pregnancy. In: Konar H, editor. Dutta's Textbook of Obstetrics. 7th ed. London: New Central Book Agency (P) Ltd.; 2011. p. 177-89.
3. Tay JI, Moore J, Walker JJ. Ectopic pregnancy. BMJ 2000;320:916-9.
4. Farquhar CM. Ectopic pregnancy. Lancet 2005;366:583-91.
5. Anorlu RI, Oluwole A, Abudu OO, Adebajo S. Risk factors for ectopic pregnancy in Lagos, Nigeria. Acta Obstet Gynecol Scand 2005;84:184-8.
6. Leke RJ, Goyaux N, Matsuda T, Thonneau PF. Ectopic pregnancy in Africa: A population-based study. Obstet Gynecol 2004;103:692-7.
7. Garmel SH. Early pregnancy risks. In: DeCherney AH, Nathan L, editors. Current Obstetrics and Gynaecologic Diagnosis and Treatment. 9th ed. New York: Lange Medical Books/McGraw-Hill Publishers; 2003. p. 272-85.
8. Das S, Kalyani R, Lakshmi V, Harendra Kumar ML. Ovarian pregnancy. Indian J Pathol Microbiol 2008;51:37-8.
9. Orazulike NC, Konje JC. Diagnosis and management of ectopic pregnancy. Womens Health (Lond Engl) 2013;9:373-85.
10. Bouyer J, Coste J, Fernandez H, Pouly JL, Job-Spira N. Sites of ectopic pregnancy: A 10 year population-based study of 1800 cases. Hum Reprod 2002;17:3224-30.
11. Hallatt JG. Primary ovarian pregnancy: A report of twenty-five cases. Am J Obstet Gynecol 1982;143:55-60.
12. Samaila MO, Adesiyun AG, Yusufu LM. Ovarian pregnancy presenting as ovarian tumour: Report of 2 cases. Ann Afr Med 2007;6:36-8.
13. Corrigan KJ, Kowalzyk DR. Ectopic ovarian pregnancy in a second-trimester patient. Am J Emerg Med 2007;25:1085.e3-4.
14. Goyal LD, Tondon R, Goel P, Sehgal A. Ovarian ectopic pregnancy: A 10 years' experience and review of literature. Iran J Reprod Med 2014;12:825-30.
15. Yılmaz Ö, Kucur SK, Yardim D, Davas I, Polat N. Diagnosis and clinical approach in primary ovarian ectopic pregnancy: A case report and review of the literature. Dicle Med J 2013;40:121-3.
16. Nwanodi O, Khulpateea N. The preoperative diagnosis of primary ovarian pregnancy. J Natl Med Assoc 2006;98:796-8.
17. Panda S, Darlong LM, Singh S, Borah T. Case report of a primary ovarian pregnancy in a primigravida. J Hum Reprod Sci 2009;2:90-2.
18. Vahnu C, Rajlaxmi M, Vandana R. Primary ovarian pregnancy after interval tubal ligation: A case report. J Family Reprod Health 2013;7:187-8.
19. Wittich AC. Primary ovarian pregnancy after postpartum bilateral tubal ligation: A case report. J Reprod Med 2004;49:759-61.
20. Kaur H, Shashikala T, Bharath M, Shetty N, Rao KA. Ovarian ectopic pregnancy following assisted reproductive techniques: A rare entity. Int J Infertil Fetal Med 2011;2:37-9.
21. Mehmood SA, Thomas JA. Primary ectopic ovarian pregnancy (report of three cases). J Postgrad Med 1985;31:219-22.
22. Yuksel MA, Abali R, Unal F, Temel I, Boran AB. Primary ovarian pregnancy: A report of four cases. East J Med 2011;16:277-80..
23. Spiegelberg O. The causes of ovarian pregnancy. Arch Gynaekol 1878;13:73.
24. Bagga R, Suri V, Verma P, Chopra S, Kalra J. Failed medical management in ovarian pregnancy despite favorable prognostic factors – A case report. MedGenMed 2006;8:35.
25. Gon S, Majundar B, Ghosal T, Sengupta M. Case report: Two cases of primary ectopic ovarian pregnancy Online J Health Allied Sci 2011;10:1-2.
26. Jahan S, Jahan A, Joarder M, Khan SH, Habib SH, Akhter P,

et al. Laparoscopic management of primary ovarian pregnancy. Bangladesh J Endosurg 2013;1:39-42.

27. Gupta N, Gupta A, Onyema G, Pantofel Y, Ying SC, Garon JE, *et al.* Accurate preoperative diagnosis of ovarian pregnancy with transvaginal scan. Case Rep Obstet Gynecol 2012;2012:934571.
28. Dhorepatil B, Rapol A. A rare case of unruptured viable secondary ovarian pregnancy after IVF/ICSI treated by conservative laparoscopic surgery. J Hum Reprod Sci 2012;5:61-3.
29. Habbu J, Read MD. Ovarian pregnancy successfully treated with methotrexate. J Obstet Gynaecol 2006;26:587-8.
30. Narvekar SA, Vijaykumar PK, Shetty N, Gupta N, Ashwini GB, Ka R. Unruptured ovarian pregnancy following *in-vitro* fertilization: Missed diagnosis followed by successful laparoscopic management. J Hum Reprod Sci 2008;1:39-41.