

DIAGNOSIS OF UNRUPTURED ECTOPIC PREGNANCY IS STILL UNCOMMON IN GHANA

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SUMMARY

Objectives-To find out why the detection of ectopic pregnancy before its rupture continues to be low at the Korle Bu Teaching Hospital and to suggest ways of improving upon the detection rates.

Design-Longitudinal retrospective descriptive survey.

Setting-Gynaecology unit of Department of Obstetrics and Gynaecology, Korle Bu Teaching Hospital.

Subjects and Methods - Interview, between the 3rd and 5th post-operative days, of 1492 patients who had operative diagnosis of tubal pregnancy was conducted for socio-demographic data, circumstances of admission with ectopic pregnancy and desire to have more children. The case notes were also reviewed for operative findings.

Results-The incidence of tubal ectopic pregnancy was 32.90 per 1000 deliveries and unruptured cases formed 5.43%. Lack of awareness of early pregnancy, late reporting by women to health care facilities when aware of pregnancy and failure of health care providers to utilize the diagnostic aids for detecting unruptured ectopic pregnancy (like serum beta human chorionic gonadotrophin and ultrasonography) were the main reasons for the low detection rates.

Conclusions-Health education to encourage women to attend clinic early in pregnancy, especially when experiencing unusual symptoms of lower abdominal pain and irregular vaginal bleeding could help in the diagnosis of unruptured ectopic pregnancy.

Judicious use of diagnostic aids for detecting unruptured ectopic pregnancy by health care providers should improve upon the detection rates.

Keywords: Ectopic pregnancy, unruptured, ultrasonography, serum beta human chorionic gonadotrophin, health education.

INTRODUCTION

Ectopic pregnancy is a common condition throughout the world. The incidence rates vary among different countries. In developing coun-

tries, the incidence rates vary from 1 in 44 deliveries to 1 in 21 deliveries^{1,2,3}, while in the developed western countries, the rates are between 1 in 233 and 1 in 280 deliveries^{4,5}.

The incidence of ectopic pregnancy was thought to be rising^{3,6}. The causes for the rising trend are multifactorial, including more liberal sexual practices and an ever increasing incidence of pelvic inflammatory disease^{4,7}.

In the developed countries, the detection rates for unruptured ectopic pregnancy ranges from 88% to 100%^{8,9,10}. However, at the Korle Bu Teaching Hospital (KBTH), studies done in the past three decades reported unruptured ectopic pregnancy rates of 1.1% to 8.5%^{2,3}.

Meanwhile the methods of aiding in the diagnosis of unruptured ectopic pregnancy have been available in Ghana for sometime: laparoscopy for over 30 years, ultrasonography for nearly 20 years and quantitative measurements of serum beta human chorionic gonadotrophin for about 8 years. Although laparoscopy is still considered the gold standard in the diagnosis of unruptured ectopic pregnancy, the use of high-resolution endovaginal ultrasonography, in conjunction with two or more quantitative serum assays of the beta sub-unit of human chorionic gonadotrophin, allows the detection of earlier and smaller ectopic pregnancies in 89% - 100% of cases¹¹.

Early diagnosis of an ectopic pregnancy prior to rupture and haemorrhage is extremely important. This prevents life-threatening haemorrhagic shock, excessive tubal damage and blood transfusion.

Diagnosis in the unruptured state allows for a more conservative approach to patient management. Different conservative surgical and medical lines of management have been associated with increased chance of subsequent intrauterine pregnancy and decline in the incidence of repeat ectopic pregnancy¹⁰.

Laparoscopic salpingostomy has been the main definitive conservative surgical procedure of choice for unruptured ectopic pregnancy¹², although salpingectomy, salpingotomy and direct injection of cytotoxic agents are also modes of treatment⁹.

Medical treatment includes use of methotrexate alone¹³, or a combination of methotrexate and mifepristone¹⁴. Medical treatment has been reported to be successful in 83% of cases when the mean duration of amenorrhoea was not more than 54 days, the mean serum beta human chorionic gonadotrophin level was not higher than 15, 127 miU/ml and the mean size of the ectopic mass was not larger than 23mm¹⁵. In cases of persistent fetal cardiac activity after methotrexate treatment, complimentary potassium iodide injection into the pregnancy proved to be effective¹⁶.

Therapeutic laparoscopic surgery is still in its infant stages in Ghana, but medical management of unruptured ectopic pregnancy should be possible in some of the tertiary health institutions. The objectives of this longitudinal descriptive survey were to find out why the incidence of the diagnosis of unruptured ectopic pregnancy remains low at KBTH and to suggest ways of improving on the rates of its detection.

MATERIALS AND METHODS

Medical records of all the patients who had an operative diagnosis of tubal ectopic pregnancy from 1st January 2000 to 31st December 2003 at the gynaecology unit of KBTH were retrieved for analysis. Patients were also interviewed between the 3rd and 5th post-operative days to supplement information that was not available in the case notes. The information obtained from these inquiries included age, parity, desire to have more children, formal educational attainment, awareness of the pregnancy and the health facility attended before being admitted at KBTH and whether the ectopic pregnancy was ruptured or not at the time of surgery.

The information obtained was fed into a computer and analysis performed using Epi-info version 6. Statistical analysis was done using student's t-test and a p-value less than 0.05 was interpreted as significant.

RESULTS

The total number of deliveries at KBTH from 2000 to 2003 was 45, 354. The total number of tubal

ectopic pregnancies diagnosed at surgery during the 4-year period of study was 1492. The incidence of ectopic pregnancy was 32.90 per 1000 deliveries or 1 in 30.40 deliveries. Eighty-one (5.43%) of the ectopic pregnancies were unruptured as at the time of surgery (Table 1).

Table 1 Annual ectopic pregnancy rates

Parameter	Year				Total
	2000	2001	2002	2003	
Total no. of deliveries	11,738	11,182	11,798	10,536	45,354
Total no. of ectopic pregnancies	362	371	382	377	1,492
Incidence of ectopic pregnancy (per 1000 deliveries)	30.84	3.18	2.38	5.78	32.90
No. of unruptured ectopic pregnancy	14	23	19	25	81
Unruptured ectopic pregnancy rate (%)	3.87	6.20	4.97	6.63	5.43

The duration of amenorrhoea of the women who had ectopic pregnancy ranged from 6 to 17 weeks. Out of the 1492 cases 107 [7.17%] were repeat ectopic pregnancies. The mean age of the women who had ectopic pregnancy was 21.1±1.3 years and the mean parity was 0.9±0.6. As many as 1297 [86.93%] of the women who had ectopic pregnancy desired to have more children.

Table 2 illustrates the formal educational attainment of the women and the unruptured ectopic pregnancy rates. There were no significant differences among the groups of women with respect to formal educational attainment.

Of the 1411 women who had ruptured ectopic pregnancy, 408 (28.92%) were aware that they were pregnant before the episode of the rupture.

Table 2 Formal education attainment and prevalence of unruptured ectopic pregnancy

Number of years of formal education	Number of unruptured ectopic pregnancies	Number of ruptured ectopic pregnancies	Unruptured ectopic pregnancy rate (%)	P-value
0 – 6	66	1197	5.23	0.42
>6	15	214	6.55	
Total	81	1411	5.43	

Table 3 Awareness of pregnancy before rupture of ectopic pregnancy, health facility attended and tests performed to confirm pregnancy

Health facility	Confirmatory Test	
	Hcg (%)	Ultrasonography (%)
Government hospital/ polyclinic N = 85	11 (12.94)	2 (2.35)
Private hospital N = 67	19 (28.36)	7 (10.45)
Private maternity home N = 43	3 (6.98)	1 (2.32)
KBTH N = 17	12 (70.59)	8 (47.06)

KBTH-Korle Bu Teaching Hospital

The mean gestational age was 8.7 ± 0.9 weeks. One hundred and ninety-six (48.04%) of the 408 women who had prior knowledge of the pregnancy did not attend any health facility before the rupture. The mean gestational age for this group was 8.5 ± 0.7 weeks. Of the 212 who had prior knowledge of the pregnancy and who attended a health facility before the rupture, some had beta human chorionic gonadotrophin estimation and/or transvaginal ultrasound performed before the event (Table 3). The mean gestational age for this group was 8.3 ± 0.8 weeks. It is worthy to note that all the 18 women who had ultrasound scan done were seen later at the gynaecology emergency unit with hypovolaemic shock from ruptured ectopic pregnancy. These women reported back to the health

care providers 3 to 86 hours after the ultrasound scan.

Of the 1003 women who had ruptured ectopic pregnancy but were unaware that they were pregnant before the rupture, 742 (73.98%) had not reported to any health facility before the admission to KBTH. Of these 742 women, varied symptoms were observed: delayed or irregular menses 396, low abdominal pain 413, and irregular vaginal bleeding 136. The women did not consider these symptoms serious enough to report to a health facility. However, 63 did not have any symptom before the admission to KBTH with ruptured ectopic pregnancy. The other 261 women reported to various health facilities with complaints of mainly lower abdominal pains and irregular vaginal bleeding. Table 4 shows the health facilities that these women attended and the investigations done to find out if they were pregnant as well as to determine the presence of ectopic pregnancy.

Table 4 Lack of awareness of pregnancy before rupture of ectopic pregnancy, health facility attended and tests performed to confirm pregnancy

Health facility	Confirmatory Test	
	Hcg (%)	Ultrasonography (%)
Government hospital/polyclinic N = 71	4 (5.63)	1 (1.41)
Private hospital N = 183	15 (18.24)	2 (1.09)
KBTH N = 7	1 (14.29)	3 (42.86)

The six patients who had transvaginal ultrasound scan were later seen at the emergency unit of KBTH 5 to 46 hours after the scan with ruptured ectopic pregnancy.

All the 81 women who had unruptured ectopic pregnancy were investigated with ultrasound scan and reported to the gynaecology unit of KBTH 1-7 hours afterwards. These 81 women reported to the health facilities with symptoms of amenorrhoea, and or lower abdominal pain and spotting blood per vaginam. The mean gestational age of this group was 8.2 ± 1.2 weeks. There was no significant difference between the mean gestational age

of unruptured and ruptured ectopic pregnancies. Two of the patients had, in addition, diagnostic laparoscopy before laparotomy. Seventy-nine of the cases had salpingectomy and the other two, salpingotomy at laparotomy.

No medical or therapeutic laparoscopy was done. As many as 1156 (81.93%) of the patients who had ruptured ectopic pregnancy were transfused with donor blood ranging from 1-5 units. There were 2 deaths from ectopic pregnancy, both from hypovolaemic shock due to massive blood loss.

DISCUSSION

The incidence of ectopic pregnancy in this series is 32.90 per 1000 deliveries or 1 in every 30.40 deliveries. This incidence is higher than the 1 in 44 deliveries in a 1975 study² but lower than the 1986-1990 report of 1 in 21 deliveries at the same centre.

The annual incidence rates of ectopic pregnancy was fairly constant during the study period. These rates and trend are similar to the 1986-1990 study at the same centre³.

Though it was believed that the incidence of ectopic pregnancy was rising from previous studies throughout the world in the twentieth century^{4,5,6,7}, a recent study indicates some decline after reaching a peak in the 1990's¹⁷. Probably the incidence has now peaked at KBTH. The low mean age and parity and the desire for more children in the women who had ectopic pregnancy in this study imply that all efforts should be made to detect ectopic pregnancy in the unruptured state to enhance the prospects of successful future pregnancies.

The rates of unruptured ectopic pregnancy are very low at the KBTH compared to the developed countries^{8,9,10} even though the diagnostic aids for the detection of unruptured ectopic pregnancy have been available in Ghana for many years. Only a few health care providers request for these tests.

In the developed countries, a major significant social profile of women is the attainment of higher formal education compared to those in the developing countries. But in this study, women who had acquired post primary formal education did not have significantly higher rates of unruptured ectopic pregnancy compared to those who had had little or none.

Reporting to a health facility early in pregnancy is still not being appreciated by women in Ghana¹⁸.

Over 48% of the women who were aware of their pregnancy did not seek any medical advice before the rupture of the ectopic pregnancy.

Even for those who reported for care, less than 20% in all types of health institutions except KBTH had any test done to find out the location of the gestation. Though it is not that easy to diagnose unruptured ectopic pregnancy, it is important for health care providers to suspect it in cases of young women complaining of amenorrhoea, lower abdominal pain and irregular vaginal bleeding even in a stable condition. Judicious application of the diagnostic aids of serum beta human gonadotrophin, ultrasonography and laparoscopy would eventually lead to the correct diagnosis.

The facilities for making the diagnosis, in particular sensitive quantitative serum beta human chorionic gonadotrophin and high resolution ultrasound machines, must be made available at all polyclinics and hospitals, with appropriately trained personnel.

As there was no significant difference between the mean gestational age of unruptured and ruptured ectopic pregnancies, it would be more prudent to encourage women to seek medical attention as soon as they miss their period, preferably within 5 to 7 weeks of amenorrhoea, during public health education.

Early diagnosis of ectopic pregnancy in the unruptured state will prevent blood transfusion with its attendant numerous risks.

Conservative laparoscopic surgery for unruptured ectopic pregnancy could become imperative if many cases are detected. Medical treatment can also be then introduced for equally good results to achieve successful future pregnancy outcomes.

In conclusion, the rate of detection of unruptured ectopic pregnancy is very low mainly due to late reporting to hospital by women when pregnant and inability of the health care providers to suspect it when faced with early pregnancy problems of lower abdominal pain and irregular vaginal bleeding. Further use of serum beta human chorionic gonadotrophin estimation and ultrasonography should improve on the rates of detection of unruptured ectopic pregnancy.

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