Management and Complication of Ectopic Pregnancy in Wad Medani Obstetrics and Gynaecology Teaching Hospital, Gezira State, Sudan (2014)

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A thesis Submitted to The University in Partial Fulfillment for The Requirements of The Degree of Clinical Doctorate IN Obstetrics and Gynecology

Department of Obstetrics and Gynecology
Faculty of Medicine
University Of Gezira

Sep/ 2016
Management and Compilation of Ectopic Pregnancy in Wad Medani Obstetrics and Gynaecology Teaching Hospital, Gezira State, Sudan (2014)

Dr. Rania Sayed Bushra Osman

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Dr. Rania Sayed Bushra Osman

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April 2016
DEDICATION

TO

MY HUSBAND THE LATE (MAY ALLAH BLESS HIM)

AND MY KIDS

THE SPIRIT OF MY DEAR MOTHER AND MY FATHER (MAY ALLAH BLESS HIM)

RANIA
Acknowledgement

I would like to express my indebtedness and gratitude to my supervisor, Prof. Somaia Khalafallah professor of obstetrics and gynecology (MD) university of Gezira for her great help and tolerance in accepting to supervise this work and for her continuous invaluable guidance and support.

I would like to express my thanks and gratitude to Associate Prof Dr. A/Rahim Dafallah Haggaz (Allah Bless him)

I would like to thank my colleagues, hospital staff, computer man, the library staff and my family for their considerable help and support.
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<tr>
<td>ART</td>
<td>Assisted Reproduction Technology</td>
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<tr>
<td>CMACE</td>
<td>Center for Maternal And Child Enquiries</td>
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<tr>
<td>D &amp; C</td>
<td>Dilatation and Curettage</td>
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<td>ED-US</td>
<td>Emergency Department-Ultra Songrophy</td>
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<td>EP</td>
<td>Ectopic Pregnancy</td>
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<tr>
<td>FMOH</td>
<td>Federal Ministry Of Health</td>
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<tr>
<td>HCG</td>
<td>Human Chorionic Gonadotropin</td>
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<td>HSG</td>
<td>Hysterosalpingogram</td>
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<tr>
<td>IVF</td>
<td>In Vitro Fertilization</td>
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<tr>
<td>MTX</td>
<td>Methotrexate</td>
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<td>OR</td>
<td>Odd Ratio</td>
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<td>PT</td>
<td>Patients</td>
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<td>TAS</td>
<td>Trans Abdominal Scan</td>
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<td>TVA</td>
<td>Trans Vaginal Scan</td>
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<tr>
<td>WMOGTH</td>
<td>Wad Medani obstetrics and gynaecological teaching hospital</td>
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<td>USA</td>
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Management and Complication of Ectopic Pregnancy in Wad Medani Obstetrics and Gynaecology Teaching Hospital, Gezira State, Sudan (2014)

Dr. Rania Sayed Bushra Osman

Abstract

To study ectopic pregnancy at Wad Medani obstetrics and gynaecological teaching hospital during 2014. This is a descriptive prospective hospital based study done in Wad Medani obstetrics and Gynaecology Teaching Hospital during 2014. Carried on all patients admitted to gynecological casualty with vaginal bleeding in early pregnancy and agreed to be included in the study. Usually any patients admitted to gynecological casualty with vaginal bleeding in early pregnancy will attend by registrar and do the immediate assessment and decision for further plan. Data was collected by questionnaire containing all relevant information. The diagnosis was clinically and confirmed by TVS. Informed consent was obtained from patients and relatives. Ethical clearance was obtained from Sudan Medical Specialization Board. In this prospective study there were 81 cases of ectopic pregnancy, the total number of hospital admission to the gynecological casualty during the period of the study were 7851 patients. The incidence of ectopic pregnancy 1:100 patient, 43 pt (53%) presented with vaginal, 38 pt (46%) presented with vaginal bleeding and abdominal pain, 48 pt (59.3%) of them diagnosed clinically and confirmed by TVS, 80 pt (98.8%) were managed surgically, 1 pt (1.2%) was treated medically by methotrexate.

The incidence of ectopic pregnancy in Wad Medaini obstetric and gynecological Teaching Hospital (WMOGTH) was found to be (1%). Most ectopic pregnancy cases in WMOGTH diagnosed by pelvic US and managed surgically (salpingectomy) with minimal complications.
علاج و مضاعفات الحمل خارج الرحم في مستشفى ود مدني لأمراض النساء والتوليد، ولاية الجزيرة، السودان (2014م)

رانيا سيد بشرى عثمان

ملخص الأطروحة

دراسة حالات الحمل خارج الرحم ، دراسة وصفية مقطعية أجريت بمستشفى ود مدني التعليمي لأمراض النساء والتوليد خلال العام 2014م. هذه الدراسة وصفية مقطعية ، تم جمع معلومات المريضات اللاتي تم حجزهن بقسم (القايني) ويشتكين من نزف مهبلي في المراحل الأولى من الحمل وأقررن بموافقةهن تشتمل على دراسة البحث. تم تحليل البيانات بواسطة برنامج الحزم الإحصائية للعلوم الاجتماعية. بلغ عدد الدخولات بقسم القايني خلال العام 2014م (7851) مريضة ، معدل الحمل خارج الرحم بلغ 1.43 (5.33) % دخلن نتيجة نزف مهبلي فقط 38 (0.46%) دخلن نتيجة آلام بالبطن ونزف مهبلي. 48 (59.3%) منهن تم تشخيصهن بواسطة الموجات المهبلية بعد التشخيص الإكلينيكي. 80 (88.8%) منهن تم علاجهن بواسطة الجراحة. 1 (1.2%) تم علاجها بعقار ميثوتركسيت. معدل الحمل خارج الرحم 1% في مستشفى ود مدني التعليمي لأمراض النساء والتوليد معظمهن تم تشخيصهن بواسطة الموجات فوق الصوتية وتم علاجهن جراحيا بواسطة استئصال الأنبوب المؤدي للرحم ولا يوجد مضاعفات في كل الحالات.
Chapter One

Introduction

&

Literature Review
Introduction

Ectopic pregnancy occurs when the developing blastocyst becomes implanted at a site, other than the endometrium of the uterine cavity the most common. 98 percent of all ectopic gestation management of these pregnancies has changed dramatically over the year (1).

The guiding principle has become a conservative approach that attempts to save the tube, rather than salpingectomy, however, it is important to remember that hemorrhage from ectopic pregnancy is still the leading cause of pregnancy related maternal death in the first trimester and accounts for 4 to 10 percent of all pregnancy related deaths, despite Improved diagnostic methods leading to earlier detection and treatment [2-31].

The prevalence of ectopic pregnancy among women who go to emergency department with first trimester bleeding, pain, or both ranges from 6 to 16% [4]. The overall Incidence of ectopic pregnancy increased during the mid twentieth century plateauing at approximately at most 20 per 1000 pregnancies in the early 1990s the last time national data were reported by the center for diseases control. The rising incidents is strongly associated with an increased of pelvic inflammatory disease[5].

The current incidence of pregnancy is difficult to estimate from available data (hospitalizations, insurance billing records) because the inpatient hospital treatment of ectopic pregnancy has decreased and multiple health care visits for a single ectopic pregnancy have increased. Furthermore since the incidence is expressed as the number of ectopic pregnancy /1000 pregnancies the denominator to determine accurately since early pregnancy failures that do not resolving deliver or hospitalization are often not Counted.(6)

Ectopic pregnancy occurs with some seasonal variation and is most common in June and December. The reason is unclear the authors postulated that reproduction is seasonal depends on photoperiod and temperature and varies with different latitudes therefore, depending on the location of the investigation, ectopic pregnancy may show
different seasonal rhythmicities. And altered maturation of the follicle and acolyte may negatively influence reproductive outcome in the transition between two reproductive steady states of highland low overall fecundity. (7) In the united states between 1980 and 2007 (876) deaths were attributed to ectopic pregnancy. The ectopic pregnancy maternal mortality ratio declined by 57% between the periods of 1980 to 2003 to 2007. From 1.15% to 0.50./. deaths per 100,000 live births [8].

The mortality ratio was 6.8 times higher for African. Americans than whites and 3.5 times higher for women older than 35 years than those younger than 25 years during 2003 to 2007. Of the 76 deaths among women hospitalized with ectopic pregnancy between 1998 and 2007, 71% of the gestations were located in the fallopian tubes rather than other sites.(8)

Almost all ectopic pregnancies occur in the fallopian tube 98%. In one series of 1800 surgically 70%, isthmic 12%, fimbrial 11.1%, ovarian 3.2%, interstitial 2.4% and abdominal %(9] Regardless of the location, the endomrtrium often responds to ovarian and placental production of pregnancy related hormones.

No constellation of historical and physical findings can confirm or exclude the diagnosis of ectopic pregnancy with a high degree of reliability. the diagnosis usually made clinically based upon results of imaging studies (ultrasounds) and laboratory tests serum (HCG). Virtually all women diagnosed f with an ectopic gestation undergo medical or surgical treatment because the frequency and potential morbidity and mortality of rupture are high .

**Justification:**

because the ectopic pregnancy associated with high morbidity and mortality. And there is no published study done before m maternity hospital.
Literature review

Definition:

Ectopic pregnancy occurs when a fertilized ovum implants at any tissue other than the endometrial lining of the uterus. Approximately 1% - 2% of pregnancies in the United States were ectopic however, these pregnancies account for 3% - 4% of pregnancy-related deaths. The ectopic pregnancy mortality ratio in the United States decreased from 1.15 deaths per 100,000 live births in 1980-1984 to 0.50 in 2003-2007(4). During 1999-2008, the ectopic pregnancy mortality ratio in Florida was similar to the national rate, 0.6 deaths per 100,000 live births, but increased abruptly to 2.5 during 2009-2010. Mortality still high and represent 10% of maternal deaths. And the second leading cause of maternal mortality(12).

The prevalence of ectopic pregnancy among women who go to an emergency department with first trimester bleeding, pain, or both ranges from six to 16 percent. The overall incidence of ectopic pregnancy increased during the mid twentieth century, plateauing at approximately almost 20 per 1000 pregnancies in the early 1990s, the last time national data were reported by the Centers for Disease Control. This rising incidence is strongly associated with an increased incidence of pelvic inflammatory disease. The current incidence of ectopic pregnancy is difficult to estimate from available data (hospitalizations, insurance billing records) because inpatient hospital treatment of ectopic pregnancy has decreased and multiple health care visits for a single ectopic pregnancy have increased. Furthermore, since the incidence is expressed as the number of ectopic pregnancies /1000 pregnancies, the denominator is difficult to determine accurately since early pregnancy failures that do not result in delivery or hospitalization are often not counted(13).

Aetiology:

It has been reported that up to 67% of the exact aetiology of ectopic pregnancy is unknown. It is notable that it is unique to humans, and perhaps the higher apes, so that there are no good animal models that could be used to further our understanding. However, it is thought that tubal implantation occurs as a result of a combination of arrest of the embryo in the Fallopian tube and changes in the tubal microenvironment.
that allow early implantation to occur. Inflammation within the tube, resulting from infection or smoking, may affect embryo-tubal transport by disrupting smooth muscle contractility and ciliary beat activity and may also provide pro-implantation signals.

Molecular research generally involves studying Fallopian tube biopsies taken from women with ectopic pregnancies. Interpretation is limited as comparable Fallopian tube samples are not available from women with an intrauterine pregnancy (IUP) or in advance of an ectopic pregnancy occurring. Thus, it is difficult to ascertain whether any molecular changes observed are a cause or a consequence of ectopic implantation. Novel studies focusing on the functional consequences of smoking and infection on fallopian tube physiology and pathobiology are required.(14)

**Clinical presentation:**

Patients with an ectopic pregnancy commonly present with pain and vaginal bleeding between 6 and 10 weeks’ gestation. However, these are common symptoms in early pregnancy, with one third of women experiencing some pain and/or bleeding, the pain can be persistent and severe and is often unilateral. However unilateral pain is not always indicative of ectopic pregnancy as, In early pregnancy, a prominent painful ovarian corpus luteum cyst is common. Shoulder tip pain, syncope and shock occur in up to 20% of women and abdominal tenderness in more than 75%. Bimanual examination if performed at all should be done cautiously and gently. Cervical motion tenderness cases (+ ve Excitation sign), and a palpable adnexal mass in about 50%. More recently, it has been reported that one third of women with ectopic pregnancy have no clinical signs and 9% have no symptoms.(15)

A rupture ectopic pregnancy should be strongly suspected if a woman has a positive pregnancy test and presents with syncope and signs of shock including tachycardia, pallor and collapse, there may be abdominal distension and marked tenderness. While a bimanual examination may reveal tenderness, cervical excitation and an adnexal mass, great caution is required as this may exacerbate bleeding. As ectopic pregnancy affects young, fit women they are often able to mount remarkable haemodynamic compensation. Tachycardia is a particularly important sign, but decompensation with shock is a sign of significant intraperitoneal bleeding. In an emergency, where the patient has collapsed and there is high clinical suspicion of
tubal rupture, extensive clinical examination is inappropriate and immediate surgical intervention is indicated.(15)

Unfortunately, apical presentation is also relatively common. Ectopic pregnancy may mimic other gynaecological disorders and gastrointestinal or urinary tract disease, including appendicitis, salpingitis, ruptured corpus luteum or follicular cysts, threatened or inevitable spontaneous abortion, ovarian torsion and urinary tract infection. The 1997-1999 and 2003-2005 Confidential Enquiries into Maternal Deaths reports highlighted that most of the women who died from ectopic pregnancy were misdiagnosed in the primary care or accident and emergency settings. It was therefore recommended that all clinicians should be made aware of the apical clinical presentations of ectopic pregnancy. While there has been a welcome decline in the case death rate in women with ectopic pregnancies, a key lesson emphasized in these reports does not appear to have been learnt. In the 2006-2008 Centre for Maternal and Child Enquiries (CMACE) report, four of the six women who died from early ectopic pregnancy complained of diarrhea, dizziness or vomiting as early symptoms, without triggering any consideration of extra uterine pregnancy by their medical attendants. However, it remains difficult to diagnose an ectopic pregnancy from risk factors, history and examination alone. Clinicians should be suspicious of pregnancy in any such woman who presents with abdominal or pelvic symptoms and should always bear in mind the possibility of ectopic pregnancy in any woman of reproductive age who presents with any of the symptoms mentioned above. (16).

**Pathogenesis:**

Ectopic pregnancy occurs in the fallopian tube in over 95% of cases. Other locations for ectopic pregnancies are rare: abdominal, ovarian or cervical. The most common, location in the fallopian tube for ectopic pregnancies to occur is the ampulla (70.0%); other locations, such as the isthmus (12.0%), the fimbria (11.1%) and the cornua (2.4%), are less common. The ampullar portion of the fallopian tube is more distendable than other areas. Ectopic pregnancies in this location may result in tubal abortion and not be recognized clinically. The isthmus of the fallopian tube is not able to expand to accommodate a growing ectopic pregnancy and is more prone to rupture, pregnancy, who have had previous tubal surgery, who have documented Ectopic pregnancies may occur owing to Impaired migration of the fertilized ovum.
fallopian tube, resulting from inflammation, hormonal or other factors, if the passage of the fertilized ovum is slowed and hatching occurs prior to the ovum reaching the endometrial cavity, the embryo may implant in the fallopian tube. Intrinsic factors to the embryo do not seem to contribute to ectopic pregnancy, in a series analyzing the chromosomes of abnormally implanted embryos, no karyotype abnormalities were noted.(16).

**Diagnosis:**

Ectopic pregnancy is usually diagnosed in the first trimester of pregnancy. The most common gestational age at diagnosis is 6 to 10 weeks. The diagnosis of ectopic pregnancy requires differentiating it from a viable intrauterine pregnancy. This is done with the use of \(\beta\)-human chorionic gonadotropin levels is (\(\beta\)-hCG), Transvaginal ultrasound and, in some cases, uterine curettage.

Although progesterone levels are typically higher in intrauterine gestations compared with ectopic gestations and a progesterone level of less than 5 ng/ml can rule out a viable pregnancy, there is no definitive value that demarcates the two therefore, progesterone levels often doesn’t aid in the diagnosis of ectopic pregnancy(17).

Use of \(\beta\) human chorionic gonadotropin measurement is important to confirm pregnancy. In the emergency department, pregnancy is diagnosed by determining the urine or serum concentration of \(\beta\) human chorionic gonadotropin (\(\beta\)-hCG), This hormone is detectable in urine and blood as early as 1 week before an expected menstrual period. Serum testing detects level as low as 5 IU/L, whereas urine testing detects levels as low as 20 - 50 IU/L. In most cases, screening is done with a urine test, since obtaining the results of a serum test is time-consuming and is not always possible in the evening and at night. However, if pregnancy is strongly suspected, even when the urine test has a negative result, serum testing will be definitive(17).

A single serum measurement of the \(\beta\)-hCG concentration, however, cannot identify the location of the gestational sac. Although women with an ectopic pregnancy tend to have lower \(\beta\)-hCG levels than those with an intrauterine pregnancy, there is considerable overlap.
If a low serum $\beta$-hCG level ($< 1000$ IU/L) is associated with a higher relative risk of ectopic pregnancy, then can very low levels predict a benign clinical course? In general, no. Although a single very low serum level ($< 100$ IU/L) has been felt to be reassuring, in a review of 716 admitted patients with ectopic pregnancy, 29%, of those with such a level were found to have tubal rupture at laparoscopy. The risk of tubal rupture was similar across a wide range of $\beta$-hCG values. Another study identified 38 instances of rupture among women with serum levels ranging from 10 to 189 IU/L. Thus, a single serum $\beta$-hCG measurement cannot exclude ectopic pregnancy or predict the risk of rupture unless it is less than 5 IU/L.

Serial $\beta$-hCG measurement is often used for women with first-trimester bleeding or pain, or both, but, as with a single measurement, serial measurement cannot confirm the location of the gestational sac. In a normal pregnancy, the first-trimester $\beta$-hCG concentration rapidly increases, doubling about every 2 days. An increase over 48 hours of at least 66% has been used as a cutoff point for viability. Ectopic pregnancy may present with rising, falling or plateau $\beta$-hCG levels; thus, serial measurement is most useful to confirm fetal viability rather than to identify ectopic pregnancy. In a patient with a subnormal increase in $\beta$-hCG concentration, nonviability is assumed, and more invasive investigations can be used to clarify the nature of the abnormality (i.e., miscarriage vs. ectopic pregnancy). However, over-reliance on the doubling time may result in the interruption of a normal pregnancy through diagnostic dilatation and curettage (D & C) or administration of methotrexate. A recent study identified patients with only a 53% increase in serum $\beta$-hCG levels over 2 days who had a viable intrauterine pregnancy. Thus, demonstration of normal doubling of serum levels over 48 hours supports a diagnosis of fetal viability but does not rule out ectopic pregnancy, and a rising $\beta$-hCG concentration that fails to reach 50% suggests a failing or ectopic pregnancy, as does a plateau. Failing levels confirm nonviability but do not rule out ectopic pregnancy.

**Use of progesterone measurement:**
Measurement of the serum concentration of progesterone has been investigated as a potentially useful adjunct to serum $\beta$–hCG measurement. Since progesterone levels are stable and independent of gestational age in the first trimester.(40) A meta-analysis, published in 1998 of studies assessing a single progesterone level demonstrated good capacity of low levels ($\leq 5$ ng/mL) to correctly diagnose pregnancy failure, but this cutoff was unable to discriminate between ectopic pregnancy and intrauterine pregnancy.(42) Both high ($> 22$ ng/mL) and low($\leq 5$ ng/mL) cutoff points have since been studied for their ability to correctly identify nonviable pregnancy and ectopic pregnancy.(43-44).

Rapid progesterone analysis can identify 2 important subgroups of patients in emergency department with symptomatic first-trimester bleeding or pain, or both: stable patients with progesterone levels above 22 ng/mL, who have a high (but not certain) likelihood of viable intrauterine pregnancy, and patients with levels of 5 ng/mL or less, who almost certainly have a nonviable pregnancy. Invasive diagnostic testing (e.g., D&C) could be postpone in the former patients but offered to the latter, as could treatment with methotrexate, without fear of interrupting a potentially viable intrauterine pregnancy(18).

Transvaginal ultrasonography:

Transvaginal ultrasonography has transformed the assessment of women with problematic early pregnancy, allowing earlier, clearer visualization of both Normally and Abnormally developing embryos. A normal gestational sac, an ovoid collection of fluid adjacent to the endometrial stripe, can be visualized by means of the transvaginal probe at a gestational age about 5 weeks. It can often be seen when it is 2 or 3 mm in diameter and should be consistently seen at 5 mm. Since the hormonal environment in ectopic pregnancy can produce an intrauterine fluid collection that mimics a gestational sac, the “pseudogestational sac” a sac alone cannot Confirm intrauterine pregnancy. The concept of the discriminatory threshold (the $\beta$–hCG level at which an intrauterine gestational sac can be reliably seen in a normal pregnancy) has existed since the early 1980s. A $\beta$–hCG level that has risen above the discriminatory threshold in the absence of sonographic signs of early pregnancy is considered
presumptive evidence of an ectopic pregnancy. With the evolution in ultrasound technology, the discriminatory threshold has dropped from 6500 IU/L with a transabdominal approach to between 1000 and 2000 IU/L with transvaginal imaging. This threshold is user, and machine. It depends on an bus will vary slightly from institution to institution. Caution should be used in assuming an ectopic pregnancy when a nondiagnostic ultrasound image accompanies single β-hCG level above the discriminatory threshold: several articles have reported a small number of patients with indeterminate ultrasound images and β-hCG levels above the threshold who have been eventually found to have available intrauterine pregnancy. In addition, there could be unseen multiple intrauterine gestational sacs, since the β-hCG values relative to gestational age are higher in patients with multiple embryos (19).

**Ultrasonographic diagnosis:**

Ultrasonographic identification of an intrauterine pregnancy (gestational sac plus yolk sac or other embryonic sign) rules out ectopic pregnancy in most patients. The exception is in patients with ovulation induction and assisted conception, who are at risk of heterotopic pregnancy (dizygotic twins, 1 intrauterine and 1 extrauterine). Although this phenomenon is extremely rare in the general population (estimated frequency 1 per 3889 to 30 000 in Pregnancies in the setting of assisted reproduction. It may occur in 100 pregnancies. The spectrum of sonographic finding in ectopic pregnancy is broad. Identification of an extrauterine. Gestational sac containing a yolk sac (with or without an embryo) confirms the diagnosis. Suggestive findings include an empty uterus, cystic or solid adnexal or tubal masses (including the tubal-ring, representing a tubal gestational sac), hematosalpinx and echogenic or sonolucent cul-de-sac fluid (20).

Many prospective studies have shown that "formal" transvaginal ultrasound imaging (i.e., that performed by ultrasound technicians and interpreted by radiologists) in the emergency department has high accuracy in confirming intrauterine and ectopic pregnancy. Most protocols can establish a diagnosis with the initial scan in more than 75% of emergency department patients A diagnosis can often
be established even in the subgroup of patients with $\beta$-hCG levels below the discriminatory threshold.

In some studies, transvaginal scanning has identified up to one-third of the patients with below-threshold $\beta$-hCG levels who had ectopic pregnancy. Given the likelihood of a definitive diagnosis, even with below-threshold $\beta$-hCG levels ultrasonography is the best initial investigation in problematic early pregnancy (19,20).

Because expertise in transvaginal ultrasonography is not available in all hospitals may not be quickly available in some larger countries, there have been several studies of ultrasonography performed by emergency physicians in the assessment of patients with first-trimester bleeding or pain ultrasonography in the emergency department (ED-based ultrasonography) has evolved over the last decade and is now part of the diagnostic work-up for many clinical problems in major Canadian centres, as well as in a large number of smaller community emergency department (Dr. Ray Wiss, Emergency Department Echo course, director: personal communication, 2005). The evaluation involves 2 "Yes/No" question: can an intrauterine pregnancy be identified? is there free pelvic or intra-abdominal fluid? This approach is in contrast to the goal of a "formal" pelvic ultrasound study, which is to describe the anatomic appearance and visible abnormalities of the uterus, adnexa and cul-de-sac. Absence of an intrauterine pregnancy translates to risk of ectopic pregnancy of about 36% and free fluid in the cul-de-sac represents an even higher risk, several studies have documented the ability of emergency physicians to quickly and accurately identify both intrauterine pregnancy and intra-abdominal free fluid by means of ED-based ultrasonography after brief standardized training. The addition of ED-based ultrasonography to structured protocols for assessing symptomatic patients in the 1st trimester of pregnancy has led to a dramatically decreased stay in the emergency department as well as a decrease in the incidence of complications associated with missed ectopic pregnancy and tubal rupture(20).

Transvaginal ultrasonography should therefore be the initial investigation for pregnant patients presenting to the emergency department with first-trimester bleeding or pain. Not only is it highly accurate in identifying ectopic pregnancy, but also it offers patients what they are most expecting from their visit: information about
the health and viability of their pregnancy. No combination of history-taking, physical examination and laboratory tests can make the same claim. The use of ED-based ultrasonography offers rapid detection of a viable intrauterine pregnancy or a high risk of ectopic pregnancy. Emergency physicians without access to bedside ED-based ultrasonography should arrange formal ultrasonography for all patients with early-pregnancy complaints. This investigation can be performed during the initial visit or, if the patient is stable and has minimal symptoms, the next day in an outpatient visit. However, in the case of outpatient investigation, mechanisms for timely follow-up, re-examination and further investigation must be in place. Diagnostic laparoscopy In cases where an ectopic pregnancy is suspected and ultrasound is inconclusive a diagnostic laparoscopy maybe required. This is believed by many to be the gold standard investigation in ectopic pregnancy. Indeed reluctance or delay in performing a diagnostic Laparoscopy has been highlighted as a factor in fatal cases. (21)

Management:

Expectant management:

Ectopic pregnancy can resolve spontaneously through progression or tubal abortion. However, about 90% of women with ectopic pregnancy and serum $\beta-hCG$ levels greater than 2000 IU/L require operative intervention owing to increasing symptoms or tubal rupture. Tubal rupture can also occur when serum $\beta-hCG$ levels are low or declining, or both Expectant management should be offered only when transvaginal ultrasonography fails to show the location of the gestational sac and the serum levels of $\beta-hCG$ and progesterone are low and declining. Because of the possibility of tubal rupture, these patients must be carefully monitored until the serum $\beta-hCG$ concentration falls below 15 IU/L; at this point almost all ectopic pregnancies resolve spontaneously, without rupture (22).

Medical treatment:

Methotrexate (MTX), a folic acid antagonist, inhibits DNA synthesis in actively dividing cells, including trophoblasts. Administered to properly selected patients, it has a success rate of up to 94%. The success in ectopic pregnancy depends mainly on $\beta-hCG$ concentration a meta-analysis of data for 1327 women with ectopic
pregnancy treated with MTX showed that resolution was inversely associated with $\beta - hCG$ level, and that increasing levels were significantly correlated with treatment failure. Fetal cardiac activity may also be associated with MTX treatment failure. However, tubal diameter, a measure of fetal size, is unrelated to outcome.

The criteria for MTX treatment of ectopic pregnancy are as follows:

- Hemodynamic stability.
- Ability and willingness of the patient to comply with post-treatment monitoring.
- Pretreatment serum $\beta - hCG$ concentration less than 5000 IU/L.
- Absence of ultrasound evidence of fetal cardiac activity.

Methotrexate is a folic acid antagonist. It works by inhibiting the synthesis of purines and pyrimidines and therefore interfering with DNA synthesis. Methotrexate affects rapidly dividing cells and halts mitosis. In ectopic gestations, it prevents the proliferation of the cytotrophoblasts. This results in decreased trophoblast $\beta - hCG$ production, which causes decreased secretion of progesterone by the corpus luteum. In the 1980s, methotrexate was first used to treat ectopic pregnancies. A study by Stovall Fetal published in 1989, described outpatient treatment of ectopic pregnancy with methotrexate. In this protocol, a leucovorine ‘rescu’ was used. Leucovorine is folinic acid and allows a higher dose of methotrexate to be used by mitigating some of its side effects. In this protocol, which is known as the multidose methotrexate protocol, methotrexate is given in a dose of 1 mg/kg intramuscularly on days 1, 3, 5 and 7. Leucovorine is given at a dose of 0.1 mg/kg intramuscularly on days 2, 4, 6 and 8. In the multidose protocol, up to four doses of methotrexate are given until $\beta - hCG$ levels decrease by 15% on two consecutive days ($\beta - hCG$) levels are followed weekly until they are less than 15 IU/L.

A second course of methotrexate may be given after 1 weeks if $\beta - hCG$ levels increase or plateau. The study by StovaW et al. reported a success rate of 90% using this protocol (23).
A single-dose protocol was developed subsequently. It was noted in prior studies that giving a single-dose of methotrexate enhance patient compliance without decreasing effectiveness.

Therefore, protocol came to be known as the single-dose methotrexate protocol, as most patients only receive a single dose of the medication. In this protocol, methotrexate is given at a dose of 50 mg/m2 on day 1. A second dose is given on day 7 if $\beta - hCG$ values do not decrease by at least 15% between days 4 and $\beta - hCG$ levels are followed Weekly until they are undetectable. An article by Lipscomb et al. reported that 20% of patients undergoing this protocol will require more than one treatment cycle. The mean time to resolution of the ectopic pregnancy was 35 days but could take as long as 109 days. There is no leucovorin rescue used in this protocol. After initial diagnosis, ultrasounds are generally not repeated. The ectopic gestation may actually increase in size after methotrexate treatment, which may be due to hematoma formation (23,24).

Prior to giving methotrexate, a complete blood count, liver function tests and creatinine should be checked. In a patient with a history of pulmonary disease, a chest x-ray should be obtained owing to the risk of interstitial pneumonitis with methotrexate therapy. Absolute contraindications to methotrexate therapy are a hemodynamically unstable patient, a patient who is breastfeeding, has immunodeficiency, liver disease or alcoholism, active pulmonary disease, peptic ulcer disease and hematologic, renal or liver dysfunction.

Relative contraindications are an ectopic gestation 3.5 cm in size or greater and the presence of fetal heart activity. These contraindication are related to the efficacy of methotrexate as well as its side effects. Methotrexate is generally well tolerated in doses given to treat ectopic pregnancy. High-dose methotrexate has been associated with bone marrow suppression, hepatotoxicity, stomatitis, pulmonary fibrosis, reversible alopecia, photosensitivity and febrile morbidity. The most common side effect is mild elevations of liver transaminases. Patients receiving methotrexate should stop prenatal vitamins or folic acid supplements (23).

During treatment with methotrexate, $\beta - hCG$ levels may actually rise or plateau between days 1 and 4 before they start to decrease. This is thought to be due to the
syncytiotrophoblasts that continue to produce $\beta - hCG$ after methotrexate treatment. Another phenomenon seen during treatment with methotrexate is transient abdominal pain, which can occur 3-7 days after the start of therapy and can last for 4-12 h. This can be due to a tubal bleed, the formation of a hematoma or a tubal abortion. It is also important to rule out tubal rupture, which would be an indication for surgical intervention. Clinical indications for surgery are abdominal pain that is severe and persistent beyond 12 h, orthostatic hypotension or decreasing hematocrit values (24).

Beyond the clinical signs of treatment failure, other signs indicating possible methotrexate failure include an increase or plateau of $\beta - hCG$, which occurs after the first week of treatment (25).

The effectiveness of different methotrexate protocol has been investigated. In 12 studies, which include 338 patients who underwent variable-dosing methotrexate therapy, in which therapy was titrated according to $\beta - hCG$ levels. The success rate of methotrexate therapy was 93%. Furthermore, on follow-up hysterosalpingogram (HSG), fallopian tubal patency was 75%. The subsequent fertility rate was 58% and 7% of patients had a repeat ectopic pregnancy. In 32 studies of 1626 patients undergoing conservative laparoscopic surgery for ectopic pregnancy, both success rates and subsequent fertility rates were similar. This compares with seven studies of 393 patients who underwent the single-dose methotrexate protocol, with 87% having a successful resolution of the ectopic pregnancy. Of these patients, 8% required a second dose of methotrexate. Follow-up HSG demonstrated tubal patency in 81% of patients. Of patients desiring fertility, 61% subsequently had a demonstrated intrauterine pregnancy and 8% had a repeat ectopic pregnancy. This suggests decreased efficacy of the single-dose methotrexate protocol as compared with multidose protocol, while efficacy of the multidisc methotrexate protocol similar to that of conservative laparoscopic surgery (23,26).

**Surgical management:**

Surgical management of ectopic pregnancy should be reserved for patients who refuse or have contraindications to medical treatment, those in whom medical treatment has failed and those who are hemodynamically unstable.
Three randomized studies have demonstrated that, compared with laparotomy, laparoscopic treatment of ectopic pregnancy is associated with lower cost, shorter hospital stay, less operative time, less blood loss, less analgesic requirement and faster recovery. Patients randomly assigned to laparoscopy also had fewer adhesions than patients treated with laparotomy (19% v. 64%) (27).

Tube-sparing salpingostomy (in which the gestational sac is removed, without the tube through a 1-cm-long incision on the tubal wall) is preferred to salpingectomy (removal of the tube), as the former is less invasive but has comparable rates of subsequent fertility and ectopic pregnancy. However, 8% of patients have persistent ectopic pregnancy after salpingostomy. Follow-up determination required until $\beta - hCG$ is undetectable. Regardless of the type of surgery, contra lateral tubal abnormalities predispose to recurrent ectopic pregnancy. In a retrospective study of 276 women with ectopic pregnancy, the cumulative rates of spontaneous intrauterine pregnancy over 7 year were 0 after conservative surgery and 66% after radical surgery there was no significant difference in the risk of repeat ectopic pregnancy (17% after conservative surgery and 16% after radical surgery) (28).

In summary, salpingostomy is preferred, particularly, for women who wish to have another pregnancy. Salpingectomy may be necessary for women with uncontrolled bleeding, recurrent ectopic pregnancy in the same tube, a severely damaged tube or a tubal gestational sac greater than 5 cm in diameter.(27,28)

**Traditional Surgery:**

The traditional surgery performed for an ectopic pregnancy was an exploratory laparotomy with salpingectomy. Today, many patients with ectopic pregnancies that require surgical management are treated with a laparoscopic salpingectomy or salpingostomy. However, if a patient presents in hypovolemic shock with a ruptured ectopic pregnancy, laparotomy and salpingectomy remain the treatment of choice (28).

**Laparoscopy:**

Laparoscopy as the benefits of shorter hospital stay, shorter postoperative recovery time and being less expensive compared with laparotomy. We would be more likely to perform a laparoscopic salpingectomy instead of a salpingostomy in the
following circumstances: uncontrolled bleeding, recurrent ectopic pregnancy in the same fallopian tube, an ectopic gestation greater than cm or a severely damaged fallopian tube. In other cases, a salpingostomy may be appropriate. A longitudinal incision should be made on the antimesenteric border of the fallopian tube. This can be performed with a unipolar needle. The products of conception should then be removed from the fallopian tube by flushing with high-pressure irrigation. Any bleeding from the fallopian tube can be controlled with the use of electrosurgical fulguration. The incision on the fallopian tube can heal by secondary intention or can be sutured closed (29).

In a review of nine studies comparing laparoscopic salpingostomy with salpingectomy, there was no significant difference in subsequent intrauterine pregnancy rate (approximately 50%). However there was an increased rate of / repeat ectopic pregnancy in the salpingostomy group (10 vs 15%).

Another study suggests that there may be a higher subsequent fertility rate in patients undergoing salpingostomy instead of salpingectomy(29).

After 5-20% of salpingostomies performed for ectopic pregnancies, there is persistent trophoblastic tissue. All patients undergoing salpingostomy need to be followed with weekly $\beta - hCG$ levels until they are undetectable because of this risk. If $\beta - hCG$ levels plateau or increase, a persistent ectopic pregnancy is diagnosed. This may be treated with methotrexate. There is an increased risk of persistent ectopic pregnancy if the salpingostomy was performed at a very early gestational age, if the size of the ectopic pregnancy was less than 2 cm or in patients with high initial $\beta - hCG$ levels. Current guidelines stating that the operation of choice, where there is a healthy contra lateral tube, is laparoscopic salpingectomy. In the presence of contralateral tuba disease, a laparoscopic salpingostomy should be considered if future fertility is desired (27,28).

**Complications:**

**Ruptures:**
You are also more likely to have a ruptured ectopic pregnancy (when the fallopian tube splits) and severe internal bleeding. Which can lead to shock (when your blood pressure suddenly drops to a dangerously low level).

**Infertility:**

Around 65% of women have a successful pregnancy 18 months after experiencing an ectopic pregnancy. The emotional impact of an ectopic pregnancy the loss of a pregnancy can have a profound emotional impact - not only on the woman herself, but also on her partner, friends and family. The most common emotions that are felt after an ectopic pregnancy are grief and bereavement. (30,31)

Prospective study was conducted to test the hypothesis that the absence of an intrauterine gestational sac when the serum level of human chorionic gonadotropin (hCG) is above 6500 mlU/mL is 383 indicative of ectopic pregnancy. In America 1985 A total of patients who were clinically suspected to have ectopic pregnancies had pelvic ultrasound examinations with serum HCG determinations on the day of the scan. There were 217 (57%) intrauterine gestations, 104 (27%) ectopic pregnancies, and 62 (16%) spontaneous abortions. Forty-one percent of patients had an HCG level above 6500 mIU/mL. the absence of intrauterine gestational sac at an HCG concentration above this level had a sensitivity of 100%, a specificity of 96%, a positive predictive value of 86%, a negative predictive value of 100%, and was 98% efficient, based on a 19.4/5 prevalence of ectopic pregnancies among this group A.

Using TVS to diagnose EP is highly sensitive (87-99%) and specific (94-99.9%). Variations exist in the criteria used for ultrasound diagnosis, Studies report that between 5 and 42% of women seen or ultrasound assessment with a positive pregnancy test have a PUL, For PUL, measurements of serum human chorionic gonadotrophin (hCG) and progesterone are used to predict pregnancy viability and therefore give an indication of the risk of an EP. Only 6-20% of PUL are subsequently diagnosed with EP. Non-tubal EPs are relatively uncommon, difficult to diagnose and result in disproportionate morbidity and mortality possible.
Related Studies:

1. Ectopic pregnancy at Ebonyi Teaching Hospital at Abakaliki.

**Methods:** this was a retrospective, descriptive study of ectopic pregnancies managed in EBSUTH during the study period (June 1, 2002 to May 31, 2012). The medical records of the patients managed for ectopic pregnancy as well as the total birth record and gynecological admission records during the period under review were retrieved, and data were collected with the aid of data-entry forms designed for this purpose. There were 4,610 gynecological admissions and 9,828 deliveries, with 215 cases of ectopic pregnancies. A total of 205 cases were suitable for analysis after excluding cases with incomplete records. The relevant data collected were analyzed with SPSS version 15.0 for windows.

**Result:** ectopic pregnancy constituted 4.5% of all gynecological admissions, and its incidence was 2.1%. the mean age of the patient was 27 ± 2 years, 196 of 205 (95.6%) had ruptured ectopic pregnancies, and the remaining nine (4.4%) were unruptured. The commonest (166 of 205, 80.0%) clinical presentation was abdominal pain, and the commonest (105 of 205, 51.2%) identified risk factor was a previous history of induced abortion. Three deaths were recorded, giving a case-fatality rate of 1.4% (three of 205).

**Conclusion:** ectopic pregnancy is a recognized cause of maternal morbidity and mortality and has remained a reproductive health challenge to Nigerian women, as well as a threat to efforts in achieving the UN’s Millennium Development Goal 5 in sub-Saharan Africa (34).

2. Prospective study was conducted to test the hypothesis that the absence of an intrauterine gestational sac when the serum level of human chorionic gonadotropin (HCG) is above 6500 mIL/mL is indicative of ectopic pregnancy. In America 1985 A total of 383 patients who were clinically suspected to have ectopic pregnancies had pelvic (33).
Ultrasound examinations with serum hCG determinations on the day of the scan. There were 217 (57%) intrauterine gestations, 104 (27%) ectopic pregnancies, and 62 (16%) spontaneous abortions, forty-one percent of patients had an HCG level above 6500 mIU/mL. The absence of an intrauterine gestational sac at an HCG concentration above this level had a sensitivity of 100%, a specificity of 96%, a positive predictive value of 86%, a negative predictive value of 100%, and was 98% efficient, based on a 19.4% prevalence of ectopic pregnancies among this group A.

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3. An appraisal of the management of ectopic pregnancy in a Nigerian Tertiary Hospital

This was a cross-sectional study with retrospective data collection of all the cases of ectopic pregnancy managed at the Nnamdi Azikiwe University Teaching Hospital, Nnewi, south-east Nigeria between 1st January, 2002 and 31st December, 2011 (cover a ten year period). All the cases of ectopic pregnancy were identified from the records in the gynecology ward, operating room and accident and emergency unit. Their case files were retrieved from the Medical Record department of the hospital. The information on the age, parity, marital status, highest level of education and gestational age at presentation were extracted from the case files. The other information extracted include the risk factors, clinical presentation, treatment modalities (whether surgical or medical), intra-operative findings and outcomes of ectopic pregnancy. The inclusion criteria for medical management of ectopic pregnancy was haemodynamic stability, gestational size less than 4 cm by transvaginal ultrasound, serum beta hCG level less than 10,000 µ/ml, absence of free fluid in the pelvic cavity and the desire of the patients for future fertility.(10) Permission to conduct this study was sought from and granted by the study hospital’s Ethical Committee. The data obtained were put in percentages, mean, and standard deviation. Data analysis was done using Epi Info 2008 (v 3.5.1: Epi Info, Centers for Disease Control and prevention Atlanta, GA).

Over the 10-year review, there were a total of 98 cases of ectopic pregnancies out of 8,811 deliveries and 1884 gynecological admissions, giving an incidence of 1.1% or 1 in 90 deliveries or 11.1 per 1,000 deliveries and 5.2% of all gynecological admissions (34).

Their ages ranged from 24 to 43 years with mean age of 30.1 (0.7) years. The peak age was 26 – 30 years. Seventy eight of the 93 patients (83.9%) were less than 35 years old. All the patients were Nigerians from Igbo tribe.

The parity ranged between 0 and 8. The multiparous patients were the largest 51 (54%). The mean gestational age at presentation was 7.4 weeks with a range of 5 -2 weeks. Sixty two point four percent (58/93) of the patients were married while 37.6%
(36/93) were single. Majority, 67.3 (71/93) had secondary level of education, 22.6% (21/93) tertiary, while 8.6% (8/39) were primary and none of the patients had no formal education.
Objectives

1. General objective:

To study ectopic pregnancy at Wad Medani obstetrics and gynaecology teaching hospital during 2014.

2. Specific objective:

1) To determine incidence of ectopic pregnancy at Wad Medani obstetrics and gynaecology teaching hospital during 2014.

2) To determine methods of diagnosis of ectopic pregnancy at Wad Medani obstetrics and gynaecology teaching hospital during 2014.

3) To determine methods of management of ectopic pregnancy at Wad Medani obstetrics and gynaecology teaching hospital during 2014.

4) To determine complications of ectopic pregnancy at Wad Medani obstetrics and gynaecology teaching hospital.
Chapter Two

Methodology
**Study design:**

Descriptive (observational) prospective hospital-based study.

**Study area:**

Wad Medani is the capital of Al Gezira state, Sudan. The city is situated on the western bank of the Blue Nile River. WMOGTH Hospital is a big maternity hospital in Sudan (after Omurman maternity Hospital) which is the largest, specialized hospital for obstetric care in Sudan, it’s a tertiary level referral hospital which provides obstetric services for around three million people, it consist of an outpatient clinic, antenatal, postnatal labor wards, theatres, blood bank, laboratory, ultrasound departments, intensive care unit, referred clinic, family planning clinic and statistics department. The staff consist of consultant obstetrician and gynecologists, anesthetists neonatologist, registrars, medical officers, house officers, midwives and nurses. Daily around 200 patients are seen in the outpatient clinic, around 1200-1500 deliveries per month, 350-500 emergency c/s per month. Cold cases are seen in the referred clinics for booking and management. All these facilities facilitate the diagnosis and treatment and improvement of the outcome in the management of ectopic pregnancy. Wad Medani hospital has 340 beds, 20 consultants, 30 registrars, 5 theater rooms and 2 vaginal delivery rooms and nursery units of 20 beds and covered 24 hours by 2 consultants and registrar of pediatrics.

**Study population:**

The study was carried out on all patients admitted to the gynecological casualty with vaginal bleeding in early pregnancy and agreed to be included in the study.

**Study sample:**

All patients with vaginal bleeding in early pregnancy who agreed to be included in the study.
**Data collection:**

Data was collected using pre-designed questionnaire that composed of 13 questions, statements to gather relevant socio-demographic characteristics of these patients (age, occupation, education, marital status, source of living, parity, gestational age). Then the clinical presentation (presenting symptoms, Examination at presentation, diagnosis) management, type of surgical procedures and complication.

**Data analysis:**

The data was analyzed by computer program (SPSS) and was presented in tables and figures.
Chapter Three

Results
Results

The total number of patients admitted to the gynecological wards with early pregnancy bleeding were 7851 ladies during 2014, out of them 81 with ectopic pregnancy with a rate of 1%. 63 pt (77.7%) were hemodynamic stable at presentation, 18 pt (22.3%) were unstable and transfused. At presentation 53% of them complained of vaginal bleeding, while 47% with vaginal bleeding associated with abdominal pain, 80 pt (98.8%) were managed surgically which is salpingectomy (77.5%), salingoopherectomy (18.8%) and salpingestomy (3.7%), while 1 pt (1.2%) treated medically with methotrexate, 64 pt (79%) were urban and 17 pt (21%) were rural.

Table (1) showed distribution of women with ectopic pregnancy at Wad Medani teaching hospital during 2014 according to occupation, 71 pt (87.7) were house wifes, 6 pt (7.4%) were labors, 4 pt (04.9%) were employers.

Table (2) showed distribution of women with ectopic pregnancy at Wad Medani teaching hospital during 2014 according to education 38 pt (46.9%) were primary school, 20 pt (24.7%) were secondary school. 14 pt (17.3%) were university, 9 pt (11.1%) were lliterate.

Figure (1) showed distribution of women with ectopic pregnancy at Wad Medani teaching hospital during 2014 according to age 51 pt (63%) were in group (20 – 30)years old, 19 pt (23.5%) were in group (31 – 40) years old, 10 pt (12.3%) were in age group less than (19) years, 1 pt (1.2%) were more than 40 years.

Figure (2) showed distribution of women with ectopic pregnancy at Wad Medani teaching hospital during 2014 according to parity 47 pt (58.0%) were multipart, 24 pt (29.6%) were primigravida, 10 pt (12.4%) were Grandmultipara.

Figure (3) showed distribution of women with ectopic pregnancy at Wad Medani teaching hospital during 2014 according to length of gestational age in 53 pt (65.4%) the length of gestational age less or equal 6 weeks in 27 pt (33.4%) the length of gestational
age was between 6 – 13 weeks in 1 pt (1.2%) the length of gestational age more than 13 weeks.

Figure (4) showed distribution of women with ectopic pregnancy at Wad Medani teaching hospital during 2014 according to method of diagnosis, (59.3%) by TVS, while (40.7%) by TAS.

**Table (1): Distribution of women with ectopic pregnancy at Wad Medani teaching hospital during 2014 according to occupation**

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>House wife</td>
<td>71</td>
<td>87.7</td>
</tr>
<tr>
<td>Labor</td>
<td>06</td>
<td>07.4</td>
</tr>
<tr>
<td>Employer</td>
<td>04</td>
<td>04.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>81</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>
Table (2): Distribution of women with ectopic pregnancy at Wad Medani teaching hospital during 2014 according to education

<table>
<thead>
<tr>
<th>Educational level</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary school</td>
<td>38</td>
<td>46.9</td>
</tr>
<tr>
<td>Secondary school</td>
<td>20</td>
<td>24.7</td>
</tr>
<tr>
<td>University</td>
<td>14</td>
<td>17.3</td>
</tr>
<tr>
<td>Illiterate</td>
<td>09</td>
<td>11.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
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<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>
Figure (1): Distribution of women with ectopic pregnancy at Wad Medani teaching hospital during 2014 according to age
Figer (2) Distribution of women with ectopic at Wad Medani Obstetrical & Gynecology Teaching Hospital during 2014 according to parity
Figure (3): Distribution of women with ectopic pregnancy at Wad Medani teaching hospital during 2014 according to length of gestational age
Figure (4) Distribution of women with ectopic pregnancy at Wad Medani teaching hospital during 2014 according to method of diagnosis
Chapter Four

Discussion
Ectopic pregnancy is a life-threatening gynecological emergency, and a significant cause of maternal morbidity and mortality worldwide (12). The study showed the rate of ectopic pregnancy 1% that similar to study in U.K (12). However this rate is lower than study in Nigeria 2.1% (32), this low rate in WMOGTH hospital because its tertiary hospital, also, the high index of suspicion and better diagnostic facilities, such as the transvaginal ultrasonography and laboratories as contributory factors. A number of factors have been identified that increase the individual risk of ectopic implantation. The incidence of ectopic pregnancy is three times higher in women aged (20-30) compared with those in the age group (31-40) because of reproductive age group lie between (20 – 30). The occupation has no role in the incidence of the ectopic pregnancy, house wives 87.7%, employer 4.1%, labor 7.4%. we found that the more educated patients have the lower incidence (17.3%) because the have high index of suspicion and awareness. the incidence of ectopic pregnancy in urban area is higher than rural area because the majority of rural hospital covered by obstetricians. The big group of the incidence related to parity found in the group of multipara (58%). 53% of the patients presented complain of vaginal bleeding, while 47% with vaginal bleeding associated with abdominal pain. 59.3% ectopic pregnancy were diagnosed by TV scan while study in America all diagnosis of ectopic pregnancy via TV scan because it available investigation and they found that TVS was highly sensitive (87 – 90%) and specific (94,99.9%) (33).

Majority of patient 98% managed surgically (laparotomy), this may be due to lack of expert in dealing with emergency laparoscopic surgery or it is not available during emergency time. The study showed no mortality rate this related to early diagnosis and treatment, but there is morbidity of (22.3%) which were un stable and transfused (blood, blood product), while study in Nigeria showed mortality rate of 1.4% (34).

Incidence of ectopic pregnancy in England – Wales is reported as 12.4pr 1000 reported pregnancy between 1994 -1996. It has been estimated that in the United States, about 40 women die annually as a result of ectopic pregnancy, about 0.8 deaths pr 1000 cases. Moreover these relative risk of death is 10 time the risk of death from childbirth and 50 times the risk of legally induce abortion.
Conclusion

-Clinical examination and TVS are the gold keys in detecting ectopic pregnancy compared to other method of diagnosis.

-Surgical management is the corner stone in treating ectopic pregnancy with minimal morbidity.
Recommendations

- FMOH to establish a center of ectopic pregnancy to facilitate early diagnosis and management and hence reduce morbidity and mortality rate, unit services should be comprehensive and ideally suited with appropriate staffing, there should be direct access and free for the patients.
- Health education about early pregnancy complications.
- Early pregnancy assessments via TV scan.
- Introduce the use of laparoscopy in the management of ectopic pregnancy (diagnosis and treatment).
- Training of the Junior staff.
Reference:


Appendix
1. Age:
   a, <=19  b, 20 – 30  c, 31- 40  d, > 40

2. Residence:
   a, ruler    b, urban

3. Occupation:
   a, house wives    b, employer    c, labor    d, professional

4. Education:
   a, illiterate    b, primary school
   c, secondary school    d, university

5. Marital status of the patient:
   a, married    b, unmarried
   c, separated (divorced)    d, widow

6. Parity:
   a, primigravida    b, mltipara (2 – 4)
   c, grandmultpra (> = 5)

7. Estimated length of gestational:
   a, = < 6 weeks    b, 6 – 13 weeks    c, > 13 weeks

8. Presenting symptom:
9. Examination at presentation:
   a, stable  □  b, unstable  □

10. Diagnosis:
   a, TVS  □  b, TAS  □

11. Management:
   a, medical  □  b, surgical  □

12. Type of surgical:
   a, laparoscopy  □  b, laparotomy (salpingectomy)  □
   c, laparotomy salpingoostomy  □  d, salpingoopherectomy  □

13. Complication:
   a, shock (hemorrhagic)  □  b, death  □
أنا: .................................................................

ألقى توقيع: ...........................................................

التاريخ: .................................................................

توقيع الطبيب: ...........................................................