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ORIGINAL ARTICLE

EMERGENCY LAPAROTOMY AND DEATH IN ECTOPIC PREGNANCY: A RARITY NOWADAYS? A DESCRIPTIVE STUDY OF ECTOPIC PREGNANCY CASES IN A TERTIARY CARE HOSPITAL

Suja Mary George[1], Annie Soman[2], V. M. Jayasree Thankachi[3], Deepa Bavan[4]

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ABSTRACT: Pregnancy implanted outside the endometrial cavity constitutes ectopic gestation. The reproductive performance can be poor following an ectopic pregnancy. The purpose of the study is to emphasize the importance of public awareness about the need for early reporting to hospital in doubtful cases, to analyze the risk factors for ectopic, to study the role of βHCG estimation and transvaginal sonography in early detection in order to preserve the fallopian tube by medical therapy and/or to do early elective surgery preventing emergency laparotomy and death from ectopic pregnancy. **METHODOLOGY:** All cases of ectopic gestations managed in a tertiary care hospital for a period of one year is reviewed, roughly around 70 cases. The objectives were to analyze demographic characteristics, risk factors, methods of diagnosis and to evaluate the protocol for ectopic management in the hospital. **RESULTS:** The study showed that the maximum number of ectopic was seen in the 26-30 age group and more commonly among multies. Maximum number of ectopic cases is seen between 5.1 to 6 weeks and 80% of the cases are seen in ≤8 weeks. 42/70 patients showed one or more risk factors like previous history of ectopic, LSCS, infertility treatment, sterilization and use of IUCD.82.9% patients presented either with pain alone or pain along with spotting/bleeding p/v. Earlier, majority of the cases were reported after tubal rupture resulting in shock, which sometimes even lead to death. In the present scenario, however, only 2 patients developed hypotension, 11 out of 70 alone required blood transfusion and none required laparotomy. Majority of cases of unruptured ectopic (83%) showed <66% rise in βHCG in 48 hours. Pelvic ultrasound and serum βHCG estimation has revolutionized the diagnostic process of ectopic pregnancy enabling detection in the unruptured stage itself in 50% of the cases and the rest in early stages of rupture. In most cases, medical line of management with methotrexate was successful. Women with live ectopic, heterotopic pregnancy, who were not suitable or have failed medical treatment with methotrexate, or those with intraperitoneal bleed and unstable general condition, were selected for surgical management.

KEYWORDS: Ectopic pregnancy, βHCG, Transvaginal Sonography (TVS), Laparotomy, Laparoscopy, Methotrexate, Cervical pregnancy, Interstitial pregnancy, Scar ectopic, Heterotopic pregnancy.

INTRODUCTION: Zygote implanted outside endometrial cavity is called ectopic gestation.[1] The incidence of ectopic pregnancy is increased during last years all over the world, the reasons being:

1. [2]Ectopic pregnancy is diagnosed before the appearance of symptoms and signs due to availability of transvaginal sonography and serum βHCG estimation, leading to more detection rate, some of which would have gone unnoticed otherwise.

DOI: 10.14260/jemds/2015/293

2. Increase in the risk factors like
    - Increase in use of contraceptives especially IUCD.
    - Increase in ovulation induction for infertility treatment resulting in multiple ovulations.
    - Increasing incidence of pelvic inflammatory disease.

But, Death from ectopic pregnancy has declined dramatically. Death in the earlier days used to occur when undiagnosed ectopic pregnancy progressed to rupture producing intraperitoneal bleed, hypotension and shock. It necessitated multiple blood transfusions to save the patient even if detected on time. Timely detection preserves tube, reduces the need for blood transfusion and laparotomy, shock and death.

Ectopic pregnancies can have varied clinical presentations. It may remain asymptomatic or can have classical triad of symptoms i.e., a period of amenorrhoea followed by abdominal pain and/or bleeding or may present as a frank case of ruptured ectopic with hypotension and shock. Nowadays,[3] exact diagnosis can be made out with ultra sonography and βHCG estimation before the appearance of acute signs and symptoms. Pelvic ultrasound is now considered the[4] gold standard for diagnosis.[5] The advent of colour Doppler technology may even further improve the accuracy of diagnosis. Early diagnosis allows preservation of the tube and decreases the morbidity and mortality related to ectopic pregnancy. The reproductive performance can be poor after an ectopic. So early diagnosis and intervention are very important.

Expectant management is done in those with initial βHCG value <1000 along with falling values on follow-up. Medical management with methotrexate is effective in a good percentage of cases. Live ectopic, heterotopic pregnancy with live intra-uterine sac, intra-peritoneal bleed, unstable patient, patients unsuitable for medical therapy or failed medical therapy cases are selected for surgical management. Preservation of reproductive function is done by salpingostomy or U/L salpingectomy.[6] Salpingectomy is done in severely damaged tube, recurrent ectopic pregnancy in the same tube, uncontrolled bleeding after salpingostomy, large tubal pregnancy (>5cm), or who have completed their family.

AIM: To review all cases of ectopic gestation managed in a tertiary care hospital for a period of one year.

OBJECTIVES:

1. To analyse demographic characteristics of patients presenting with ectopic pregnancy:
    - Age.
    - Obstetric score.
    - Signs and symptoms.
    - Presentation:
        a) Ruptured.
        b) Unruptured.
        c) Tubal abortion.

2. To assess the risk factors for ectopic:
    a) LSCS.
    b) H/o previous ectopic.

DOI: 10.14260/jemds/2015/293

c) H/o ovulation induction.
d) H/o IUCD/sterilization.

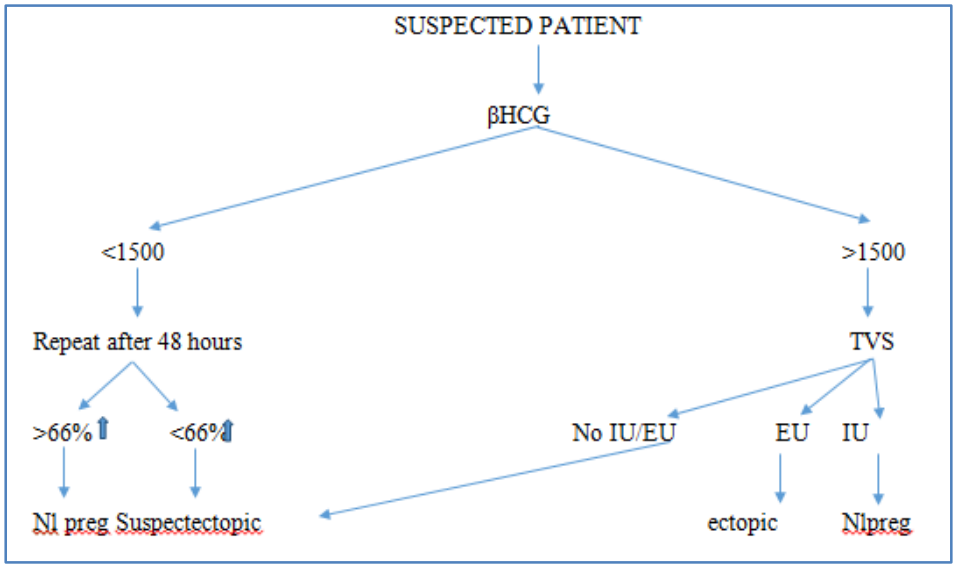
3. To analyse the diagnostic methods:
   a) transvaginal USS.
   b) βHCG.
4. Evaluation of protocol for ectopic practiced in the hospital.

METHODOLOGY: The study is conducted in the Department of O&G, M.O.S.C Medical College Kolenchery, Ernakulam, Kerala. All cases of ectopic pregnancies managed in the department from November 15th, 2013 to November 14th, 2014 are analyzed i.e., roughly around 70 cases. Review was done using designed data sheet to extract information from case sheets of patients for the desired details strictly following the hospital protocol.

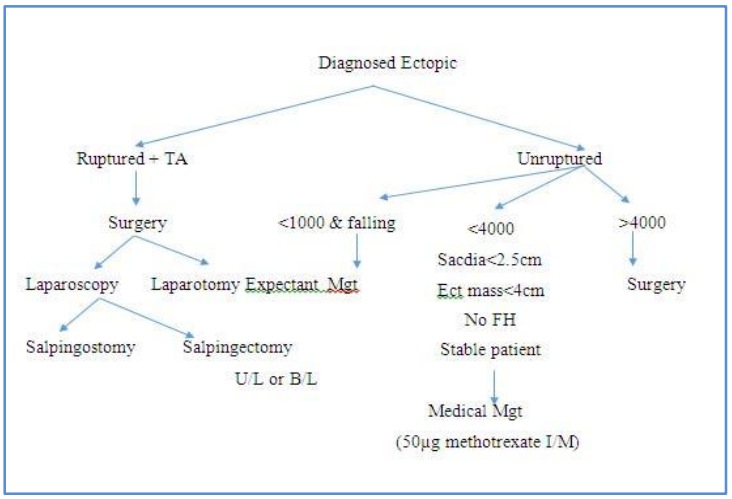
GROUPS:

a) Ruptured ectopic gestation.
b) Unruptured ectopic gestation.

PROTOCOL FOR MANAGEMENT OF ECTOPIC PREGNANCY IN MOSC HOSPITAL:



DOI: 10.14260/jemds/2015/293



ANALYSIS AND RESULTS:

Age	Frequency	Percent
20-25	17	24.3
26-30	30	42.9
31-35	17	24.3
>35	6	8.6
Total	70	100.0

Table 1: Age distribution In Ectopic Pregnancy

Maximum number of ectopic pregnancies was seen between 26-30years (42.9%).

	Frequency		Percent
Primi	20		28.6%
P_0 (primi,G_2A_1, G_3A_2, G_4A_3, G_2E_1, $G_3E_1A_1$)	28		40%
P1	21		
P2	20	42	60%
P3	1		

Table 2: Ectopic and Obstetric score

Ectopic cases were more in multies (60%) than in nullipara (40%).

Wks of gestation		Frequency	Percent
1	4-5	13	18.6
2	5.1-6	19	27.1
3	6.1-7	14	20.0
4	7.1-8	10	14.3
5	8.1-9	6	8.6
6	>9	8	11.4
	Total	70	100

Table 3: Distribution of ectopic cases according to period of gestation

DOI: 10.14260/jemds/2015/293

Maximum number of ectopic cases was seen between 5 to 6 weeks (27.1%). 80% of the cases are seen in ≤ 8 weeks (56 out of 70 cases).

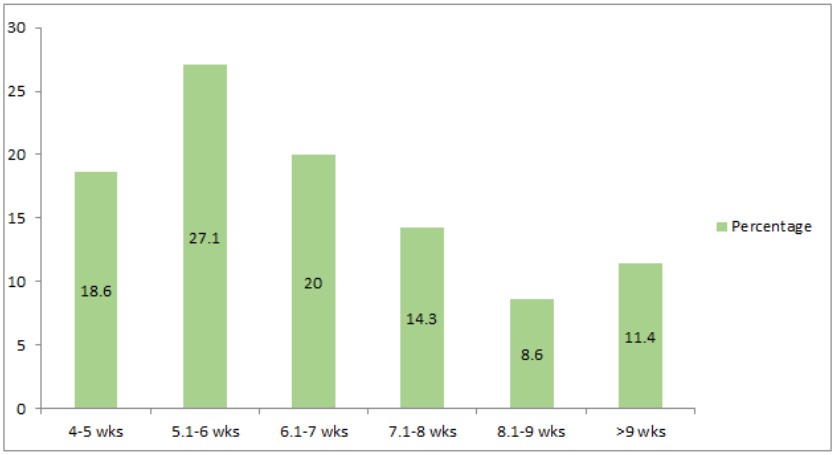


Fig. 1: Ectopic & Period of Gestation

RISK FACTORS: One or more risk factors are present in 42/70 patients (60%). Risk factors include:

1. Previous H/o ectopic.
2. H/o LSCS.
3. H/o IUCD.
4. H/o sterilization.
5. H/o infertility treatment.

Two risk factors were found to be present in 17 patients. (24.3%).

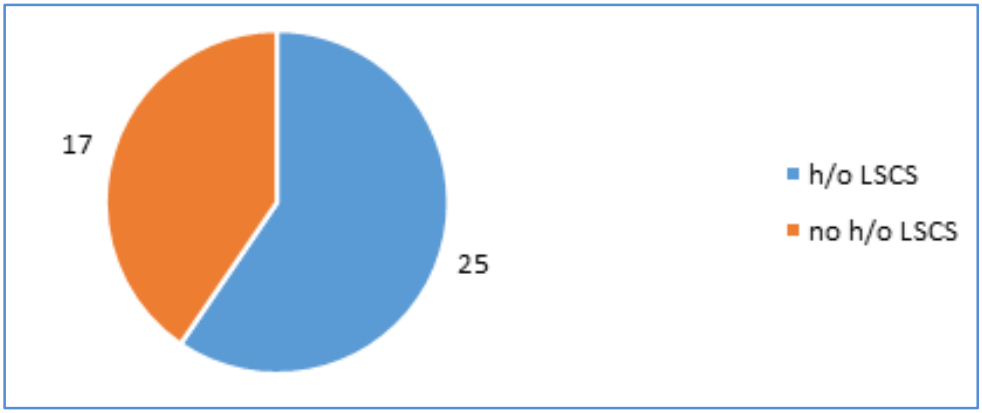


Fig. 2: Previous h/o of LSCS in Ectopic

Most of the multies with ectopic had a previous h/o LSCS (25/42 i.e., 60%).

DOI: 10.14260/jemds/2015/293

	Frequency	Percent
No History	62	88.6
H/oEctopic	8	11.4
Total	**70**	**100.0**

Table 4: Previous h/o ectopic in the study group.

Out of 70cases, 8 cases showed previous history of ectopic i.e., 11.4%. Of this, 3(4.3%) were managed medically and 5(7.1%) surgically. Of the 8, one patient had two previous ectopic. Excluding primies (20 patients), 8/50 i.e., 16% had previous h/o ectopic.

H/o IUCD insertion: 5 of 70 cases had h/o IUCD insertion. Excluding patients with no children (28 cases), 5 out of 42 (11.9%) showed h/o IUCD insertion. Excluding 12 sterilized patients, 5 out of 30 eligible cases (16.67%) gave h/o IUCD insertion.

H/o abortion: 30.2% of all cases of ectopic had at least one instance of abortion before, of which 8.8% were para 0 and 21.4% were multi.

	Frequency	Percent
No sterilisation	58	82.9
Sterilised	12	17.1
Total	**70**	**100.0**

Table 5: H/o sterilization among ectopic cases

There were12 cases of sterilization failure (17.1%). Of this, majority [9] were cases of LSCS with sterilization. Excluding primies, 12/50 (24%) had h/o sterilization.

	Frequency	Percent
h/o treatment	60	85.7
No h/o treatment	10	14.3
Total	**70**	**100.0**

Table 6: Previous H/o Infertility treatment in study group

10 out of 70 patients (14.3%) showed h/o infertility treatment.

LSCS +Ectopic	4
LSCS +Sterilisation	9
LSCS +IUCD	2
Infertility Rx + IUCD	1
Infertility Rx + Ectopic	1
TOTAL	**17**

Table 7: Two risk factors present in 17 patients (24.3%)

DOI: 10.14260/jemds/2015/293

	Frequency	%
No symptoms	3	4.3
Bleeding alone	7	10
Pain alone	27	38.6 ┐ 82.9
Pain and bleeding	31	44.3 ┘
Abd pain & shoulder pain	2	2.9
TOTAL	**70**	**100**

Table 8: Symptoms in ectopic pregnancy

82.9% patients presented either with pain alone or pain along with spotting/bleeding p/v.

	Frequency	**%**
No signs	25	35.7
Tenderness P/A, P/V	26	37.14
Tenderness P/A,P/V + pallor	11	15.7
P/A,P/V + pallor+ tachycardia	6	8.57
P/A,P/V + pallor+ tachycardia+ hypotension	2	2.85
TOTAL	**70**	**100**

Table 9: Signs in ectopic pregnancy

Majority of patients (97.15%) were diagnosed before reaching the stage of hypotension. Only 2 patients (2.85%) had reached the stage of mild hypotension that too only up to 80/60mm of Hg. Tachycardia present in 7 other patients and pallor in 10 patients. So evidence of blood loss was seen only in 19 patients clinically (27.1%), of which 11 needed blood transfusions. No patient needed laparotomy and there was no death.

	Frequency	**%**
No transfusion	59	84.3
1 pt	7	10
2pts	3	4.3
4pts	1	1.4

Table 10: Blood transfusion in study group

Transfusion given in 11 patients out of which 8 patients were cases of ruptured ectopic and 3 tubal abortions.

DOI: 10.14260/jemds/2015/293

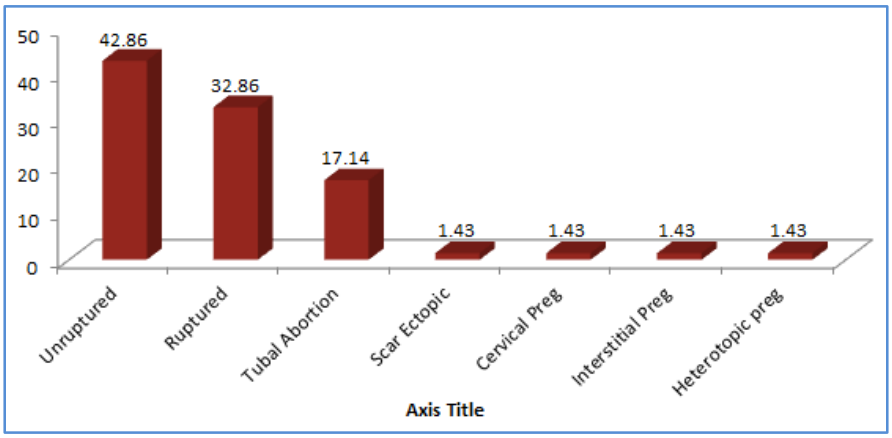


Fig. 3: Various presentations among ectopic cases pregnancies

The most common type of ectopic is tubal pregnancy. We had 5 special cases, one each of interstitial pregnancy, scar ectopic, cervical pregnancy and 2 cases of heterotopic pregnancies. 35(30Tubal+5Special) presented in unruptured stage, 23 after rupture and 12 as tubal abortions.

	Frequency
EU sac alone	31
EU +Intra peritoneal bleeding	21
No IU/EU	1
No IU/EU with Intra peritoneal bleeding	8
EU with FH	2
EU with FH + Intra peritoneal bleeding	2
Cervical pregnancy	1
Scar ectopic	1
Interstitial pregnancy	1
Heterotopic pregnancy	2
TOTAL	**70**

Table 11: USS findings in ectopic pregnancy

USS helped to detect more than half (38 Cases-54.2%) of cases in unruptured stage itself giving a chance for medical management and hence preservation of tube. Only in 1 case USS failed to give a definite finding suggestive of ectopic (1.4%).

βHCG ESTIMATION:

INITIAL βHCG:

- βHCG was estimated in 40/70 (57.1%) cases. Others were taken for surgery directly.
- Of the 40 cases, 33 had βHCG ≤4000 making them ideal for expectant/medical management.

DOI: 10.14260/jemds/2015/293

EXPECTANT	4
MEDICAL	20
SURGICAL • Live • symptomatic • sterilised • late reporting	9 1 6 1 1

Table 12: Management of 33 patients with βHCG≤4000

Surgical	5
Scar ectopic (Medical)	1
Falling βHCG (Medical)	1

Table 13: Management of 7 patients with βHCG>4000

βHCG AFTER 48 HOURS:

- In normal pregnancy, βHCG doubles or at least increases by> 66% after 48 hours.
- In this study, 22 patients were subjected to βHCG estimation after 48 hours.

• Fall	7
<20% Increase	3
20-50%	7
50-60	2
60-70 i.e., 68%	1
>70	2
• <66% Increase	19
• >66%Increase	3
Total	**22**

Table 14: βHCG after 48 hours

MANAGEMENT: All cases of ruptured ectopic and tubal abortion were managed surgically (35 cases-50%).

EXPECTANT MANAGEMENT	4
MEDICAL MANAGEMENT	20
SURGICAL MANAGEMENT • Needed sterilization • Initial βHCG>10,000 • Live ectopic • Large ectopic mass • Heterotopic with 1 live I/U preg	11 5 3 1 1 1

Table 15: Management of 35 cases which presented as un ruptured ectopic

DOI: 10.14260/jemds/2015/293

	Frequency	Percent
Single Methotrexate	15	75
Double Methotrexate	1	5
2 Rescue Regime	1	5
2 Rescue regime +KCL	1	5
1 Rescue regime following –ve lap	1	5
Methotrexate+ S.E	1	5
TOTAL	**20**	**100**

Table 16: Classification of medical management

EXPECTANT	4
MEDICAL	20(16+4Special)
SURGICAL	46(45+1FailedMedical)

Table 17: Management of Ectopic Pregnancy

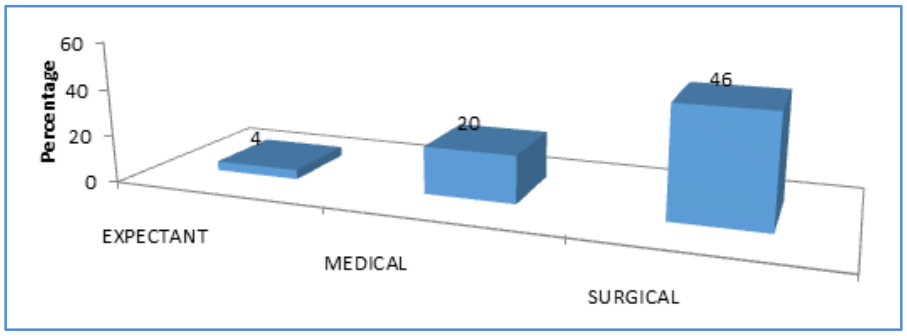


Fig.4: Management of Ectopic Pregnancy

Tubes were preserved in 30 cases (42.85%).

- Lap Milking-4.
- Lap Salpingotomy-2.
- Expectant management-4.
- Medical management-20.

Fall 4th&7th Day	11	55%
Rise4th& Fall 7th Day	7	35%
Rise 4th and 7th Day	2	10%
Total	**20**	**100**

Table 18: Follow-up of medically managed cases by βHCG on 1st, 4th & 7th day

DOI: 10.14260/jemds/2015/293

- Two patients showed rise of βHCG titre on the 4th and 7th day; one was managed with a second dose of methotrexate and one with rescue regime with methotrexate and folinic acid.
- A patient after receiving methotrexate was posted for surgery as she became symptomatic.

SPECIAL CASES:

1. A patient had 3 ectopics for consecutive pregnancies-Lost both tubes.
2. Cervical pregnancy-Managed by 2 cycles of Rescue Regime+ KCL.
3. Initial negative laparoscopy later Interstitial Pregnancy managed by Rescue Regime.
4. Scar Ectopic – managed by Rescue Regime.
5. Two cases of Live Ectopic-managed surgically.
6. One Salpingectomy Specimen showing Molar changes on histopathology followed up by normal beta HCG Regression curve.
7. Heterotopic Pregnancy: 2nos.
   i. Both IU Pregnancy and ectopic showed cardiac activity. Ectopic was managed by laparoscopic salpingectomy FTND For IU Pregnancy.
   ii. IU Pregnancy was missed abortion managed by S.E and ectopic by lap salpingotomy.

SUMMARY: The peak age of incidence was between 26-30years (42.9%). Ectopic cases were seen more in multies than in nulliparas. Maximum number of ectopic cases are seen between 5 to 6 weeks (27.1%). 80% of the cases are seen in<8wks. One or more risk factors were present in 42/70 patients (60%). Risk factors include previous h/o ectopic, h/o LSCS, h/o IUCD, h/o sterilization, h/o infertility treatment etc. Two risk factors were found to be present in 17 patients (24.3%). There was significant association between previous history of LSCS and ectopic pregnancy. Out of 42 cases of multi, 25 had history of LSCS (60%) Out of 70 cases, 8 cases showed previous history of ectopic i.e., 11.4%. Of this, 3 (4.3%) were managed medically and 12.5(7.1%) surgically. Of the 8, one patient had previous 2 ectopics. 5 of 70 cases had h/o IUCD insertion. Excluding patients with no children(28 cases), and 12 sterilized patients, 5 out of 30 eligible cases(16.67%) gave h/o IUCD insertion.30.2% of all cases of ectopic had at least one instance of abortion before,10 out of 70 patients (14.3%) showed h/o infertility treatment. There were12 cases of sterilization failure(17.1%). Of which, 9 were cases of LSCS with sterilization. Two risk factors present in 17 patients (24.3%).[7]But many women can develop an ectopic without any of the risk factors.82.9% patients presented either with pain alone or pain along with spotting. Majority of patients (97.15%) were diagnosed before stage of hypotension. Only 2 patients had reached the stage of mild hypotension that too only upto 80/60 mm of Hg. Tachycardia was present in 7 other patients and pallor in 10 patients. So evidence of blood loss was seen only in 19 patients clinically, of which 11 needed blood transfusion. No patient needed laparotomy and no death was reported. Transfusion given in 11 patients out of which 8 patients were cases of ruptured ectopic and 3 tubal abortions

35(30Tubal+5Special) cases presented in unruptured stage, 23 after rupture and 12 as tubal abortions Special presentation include 1 scar ectopic, one cervical pregnancy, one interstitial pregnancy, USS helped to detect more than half (38 cases in unuptured stage itself giving a chance for medical management and hence preservation of tube. βHCG was estimated in 40/70 cases. Remaining 30 were taken for surgery directly. Of the 40 cases, 33 had βHCG ≤4000 making them ideal for expectant/medical management. Of the 33 cases 22 were managed medically and expectant

DOI: 10.14260/jemds/2015/293

management was applied in 4 cases and rest taken for surgery. Of the 7 cases with βHCG ≥ 4000, 5 underwent surgery, one was a case of scar ectopic managed medically with rescue regime +KCL and one showed a downward trend and hence was managed medically.

In normal pregnancy, βHCG doubles or at least increases by >66% after 48 hours. In this study, 22 patients were subjected to βHCG estimation after48Hrs. 12 cases showed <66% increase in βHCG, of which 2 were cases tubal abortions and hence required surgical management. The rest 10 were managed medically: 3 cases had >66% increase in βHCG even though they were ectopic pregnancies, one was handled with second dose of methotrexate and one was managed surgically. Last case after rise had downward trend and was managed expectantly. All cases of ruptured ectopic and tubal abortion were managed surgically(35 cases).Out of 35 unruptured cases 11 were managed surgically, the reasons being: 5 cases needed sterilization3 cases had high beta HCG titres of > 10000, one was live ectopic, one with large ectopic mass and one case of heterotopic pregnancy with live IU Pregnancy.

Of the remaining 24 unruptured cases, 20were managed medically and 4 expectantly. Medical management was done with injection of methotrexate -50microgram I/M. If there is <15% reduction between 4th and 7th day second dose is given. 20patients medically managed were followed up with βHCG estimation on the 1st, 4th and 7th day.11 cases showed fall on all 3 days. Fall in βHCG between. The 4th and 7th day was in the range of 19-46%. 7cases had a rise on the 4th day followed by a fall on the 7th day. 2 cases had a rise both on the 4th and 7th days-one of them were managed with a second dose of methotrexate and the other with rescue regime. One other patient needed surgery after giving methotrexate because she became symptomatic (failed medical).

DISCUSSION: In our study peak age of incidence was 26-30yrs. It is comparable to other Indian study of Shetty Vishma et al[8] and Arup et al. Multies were affected more than primies especially para2.This finding is different from recent study of Shetty Vishma et al[8] where 2nd gravida were the most sufferers. Risk factors are seen 60% of our study. This is consistant with study of Shetty Vishma et al[8] (60%) and Arup et al. Study done by Naseem et al[9,] sensitivity and specificity of USS was 100% in diagnosing Ectopic. Our study diagnosed 99% of cases. Hypotension was seen in only 2 patients in our study, which is much less than the study by Shetty et al[8] (14%), may be because of better awareness among public and there were no mortality which is similar to study of [10]Uzma Shahab, Haleema A et al. Right tube was affected more (55% Vs. 45%) in our study, same as in the study of Shetty Vishma et al[8] (60% Vs 40%).

CONCLUSION: Ectopic pregnancy should be considered in differential diagnosis of all patients presenting with abdominal pain and or bleeding in first trimester. Reproductive performance can be poor after an ectopic and it is one of the obstetric emergencies with high maternal morbidity and mortality. So physicians should have high index of suspicion for ectopic pregnancy. Early diagnosis and management allows preservation of tube with better reproductive performance and reduction in mortality and morbidity. TVS and βHCG help in early dectection. In our study, of the 70 cases 40 could be diagnosed in unruptured stage, 24 managed without surgery (34.28%), 2 cases (2.8%) developed hypotension all surgical management was with laparoscopy, no laparotomy was done and no death occurred.

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AUTHORS:

1. Suja Mary George
2. Annie Soman
3. V. M. Jayasree Thankachi
4. Deepa Bavan

PARTICULARS OF CONTRIBUTORS:

1. Associate Professor, Department of Obstetrics & Gynaecology, MOSC MC, Kolenchery, Ernakulam.
2. Professor, Department of Obstetrics & Gynaecology, MOSC MC, Kolenchery, Ernakulam.
3. Professor & HOD, Department of Obstetrics & Gynaecology, MOSC MC, Kolenchery, Ernakulam.
4. Senior Resident, Department of Obstetrics & Gynaecology, MOSC MC, Kolenchery, Ernakulam.

NAME ADDRESS EMAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Suja Mary George,
Associate Professor,
Department of Obstetrics & Gynecology,
MOSC Medical College, Kolenchery, Ernakulam.
E-mail: augustinebenny43@yahoo.com

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