Journal of Population Therapeutics & Clinical Pharmacology

RESEARCH ARTICLE
DOI: 10.53555/4xak3654

A RANDOMIZED COMPARATIVE STUDY OF EXPECTANT, MEDICAL AND SURGICAL MANAGEMENT OF FIRST TRIMESTER MISCARRIAGE

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ABSTRACT

Introduction: Diagnosis of miscarriage has traditionally been followed by suction & evacuation of retained products of conception, on the assumption that this decreases the risk of subsequent gynecological infection. However, surgical management is not without its complications i.e. infection, uterine perforation or bowel damage.

Aim and Objective: To assess the outcome of suction and evacuation (expectant or medical) management of first trimester miscarriage for a finite period of 14 days.

Material and Methods: The present study is a randomized, prospective observational study which evaluated surgical and non surgical (expectant and medical) management of first trimester (≤12 weeks of gestation) miscarriage based on the last menstrual period. A total of 141 women were included.

Results: Incidence of first trimester miscarriage of ≤12 weeks of gestation was 23.5% in symptomatic/asymptomatic women and out of which 90.78% of patients were symptomatic. Mean age of women was 25.64±4.63, 26.64±4.73, 26.98±4.79 years, mean number of previous abortion was 0.58±0.67, 0.69±0.83, 0.84±0.89 for expectant, medical and surgical category. respectively. Mean gestation age was 9 weeks, 9 weeks + 3 days, 9 weeks + 2 days for expectant, medical and surgical management respectively. 91.48% women in the study were of 7-12 weeks of gestation. Mean AP diameter between two endometrial myometrial junction was 20.21±11.69 mm, 17.50±13.39 mm and 23.94±9.99 mm, overall success rate 66.66%, 82.22% and 96.67% for expectant, medical and surgical management respectively. 8.95% complication rate for non surgical (expectant and medical category), 3.33%, 21.62% and 6.12% respectively for expectant, medical and surgical management found. Successful outcome without complication were 64.44%, 71.11% and 90.20% in expectant, medical and surgical management respectively. Mean bleeding per vaginum days for expectant, medical and surgical management were 14.03±4.79, 9.45±3.34 and 5.24±4.38 days.

Conclusion: Suction and evacuation is a safe and effective method for management for first trimester miscarriage and women can only be offered with surgical management if emergency evacuation is

affordable and available. Single dose of 600µg misoprostol decreased the duration of bleeding per vaginum and increased the success rate as compared to expectant management.

Keywords: Outcome, Expectant, Medical Management, First Trimester, Miscarriage

INTRODUCTION

Historically used term "abortion" is now replaced by "miscarriage" which was recommended in the year 1997, is used for pregnancy loss of gestational age less than 20 weeks. Diagnosis of miscarriage has traditionally been followed by suction & evacuation of retained products of conception (ERPC), on the assumption that this decreases the risk of subsequent gynecological infection. However, surgical management is not without its complications; for example, infection, uterine perforation or bowel damage may arise from suction & evacuation.[1]

One of the largest randomized controlled trial, the miscarriage treatment trial (MIST) in 2006, conducted that the rates of gynecological infection, whatever the type of management chosen, were reassuringly low i.e. 2-3%. Success rates for expectant management reported to be between 75% and 80%. Incomplete miscarriages seem to be particularly appropriate for expectant management. Preliminary data from small randomized controlled trials found higher rates of success of expectant management in cases of incomplete miscarriage (79%) compared with the missed miscarriage group (37%).[2,3]

Medical management of miscarriage especially in those women with a missed miscarriage or empty sac, has been shown to be beneficial. In the last few years, standard management has changed with more treatment on outpatient basis and the development of more refined diagnostic technique and therapeutic intervention. Based on these mentioned facts, it would seem intuitive to offer nonsurgical (expectant or medical) management to clinically stable women diagnosed with miscarriage for a finite period, i.e. 14 days, after which surgery would be deemed appropriate.

Keeping in view these facts, the present study was undertaken to assess the outcome of non surgical (expectant or medical) management of first trimester miscarriage for a finite period of 14 days.

AIMS AND OBJECTIVES

1. To assess the outcome of non surgical (expectant or medical) management of first trimester miscarriage for a finite period of 14 days.
2. To characterize the sonographic appearance of uterine cavity in nonsurgical management
3. To compare the relative benefits and harms of surgical and nonsurgical management options for first trimester miscarriage.

MATERIAL AND METHODS

The present study was a randomized, prospective observational study which evaluated surgical and non surgical (expectant and medical) management of first trimester (<12 weeks of gestation) miscarriage based on the last menstrual period. A total of 141 women who attended the Department of Obstetrics and Gynaecology, Al-Falah Scholl of Medical Sciences and Research Center, Dhauj, Distt. Faridabad, Haryana-121004 included in the study after informed written consent.

Inclusion criteria

1. Miscarriage of first trimester (≤12 weeks gestational) according to LMP
2. Diagnosis of incomplete miscarriage (heterogenous tissue, with or without a gestational sac, seen on ultrasound in the uterine cavity and distorting the endometrial midline echo).
3. Miscarriage (crown-rump length (CRL) ≥6mm with absent fetal heart activity.
4. Empty sac (anembryonic pregnancy)
5. Not allergic to or contraindicated to misoprostol

Exclusion criteria

1. All women presented with clinical evidence of severe vaginal bleeding, genital infections or those

with severe anemia were directly subjected to surgical management and excluded.
2. Women with live pregnancy were not included in the study and were followed as a normal antenatal.
3. Molar pregnancy, ectopic pregnancy
4. Clinically evident genital infections
5. Miscarriage >3 weeks in duration (missed miscarriage in which CRL was >3 weeks smaller than the gestational age based on last menstrual period)
6. Missed miscarriage after 12 weeks of gestation
7. Severe vaginal bleeding
8. Complete miscarriage on first scan
9. Hb <7g/dl.

A detailed history of women was recorded, taking into account the period of amenorrhea, fever, recurrent pelvic inflammatory disease, foul smelling discharge per vaginum, number of days of bleeding, passage of fleshy mass per vaginum, allergy to misoprostol or asthma. A thorough general examination followed by per speculum and bimanual examination was carried out in every subject. All other irrespective of absence or presence of symptoms like pain in lower abdomen and/or mild and moderate vaginal bleeding in the first trimester of pregnancy were subjected to initial screening by transvaginal sonography of pelvic using 7.5 MH transvaginal probe for diagnosing the type of miscarriage (Greentop guidelines No. 25, the management of early pregnancy loss, RCOG, 2006). Each woman was classified as complete, incomplete, missed or empty sac (anembryonic pregnancy). In the present study, following classification of vaginal bleeding was followed:
a. Mild vaginal bleeding was defined as bleeding less than that of menstruation
b. Moderate vaginal bleeding was defined as menstrual like bleeding
c. Severe vaginal bleeding as bleeding heavier than that of menstruation

Women diagnosed with first trimester miscarriage based on last menstrual period that fulfilled the inclusion criteria were randomly allotted to one of the three methods of intervention i.e. expectant, medical or surgical management.
All the women enrolled in study were investigated for blood group and Rh factor, Hb%, TLC, DLC, urine routine and microscopic examination. Rhesus negative patient received 150 microgram anti-D Immunoglobulin when partner was Rh positive.
All study subjects were given single dose of 1g tablet Azithromycin orally prophylactically after recruitment to one of the three category of intervention.

1. Expectant management: Expectant management means wait and watch approach was adopted for a further two weeks period after the diagnosis. This was done on the basis of outpatient checkups. Subjects were enquired about the transport facility to hospital in case of medical emergency situations like severe vaginal bleeding and severe pain, or development of fever. Severe pain is defined as pain not relieved by single dose of analgesic (diclofenac 150mg). Subjects were asked to report on day seven and day fourteen for follow up or in between in case of emergency medical situation.

2. Medical management: In medical management tablet misoprostol (600µg) was kept in posterior fornix of vagina after wetting it with normal saline for proper suspension. Patient was kept under observation for two hours and then sent home. Subjects were provided with telephone number for emergency medical situations; severe vaginal bleeding, severe pain or development of fever, and/or vaginal discharge and follow up visit was advised on day seven and fourteen for repeat TVS or earlier in case of medical emergency.

Outcome measures of nonsurgical intervention
Success i.e. complete resolution of miscarriage was defined as absence of retained products of conception (RPOC's) on follow up TVS at two weeks from the day of management offered. Complete

miscarriage was defined as tri-layered endometrium as of proliferative phase without any content in the cavity or a maximum anteroposterior diameter of ≤5mm. Women who had persistent RPOC's on TVS at two week were deemed to have failed non surgical management and underwent evacuation of RPOC's but were not included in the surgical group.

3. Surgical management: In surgical management group uterine by using suction and evacuation and histopathological examination of products was done. Serial dilation of cervical canal was done according to the gestational age with the use of Hagar dilator to a number one less than the gestation age. Suction and evacuation was carried out using Karman's cannula number corresponding to the gestational age. Patient was discharged after four hours of post evacuation observation.

Outcome measures of surgical management

Surgical evacuation was considered successful if on TVS no collection was seen in the uterine cavity and tri-layered endometrium was visualised, or maximum anteroposterior diameter of uterine content was ≤5mm after two weeks and no repeat emergency curettage was needed within two weeks. Complications like excessive bleeding greater than 250ml (in suction bottle), cervical tear and uterine perforation were considered as short term complications. Intrauterine synechiae (Asherman's syndrome) demonstrated during hysteroscopy was considered as long term complications, whenever complications like (hypomenorrhoea, dysmenorrhoea or amenorrhea) was suspected on clinical grounds, hysteroscopy was performed after three months of follow up.

Duration of clinical symptoms was based on patient self reported symptom as recorded in their diary i.e. number of days of bleeding, amount of bleeding, foul smelling discharge, pain in lower abdomen, fever, dyspareunia and details of menstruation (hypomenorrhoea, dysmenorrhoea or amenorrhoea) following management given.

In the present study pain was defined mild pain if like dysmenorrhoea and no analgesic required. Pain is moderate if analgesic required and relieved on medication and pain is severe when not relieved on oral medication. All subjects were followed up till first normal menstrual cycle after surgical or non surgical management and complications were noted. For long term complications follow up was done for a period of six months.

STATISTICAL ANALYSIS

At the end of the study, the data was collected and analysed statistically by using SPSS version 16.0. Chi-square test, unpaired t-test, ANOVA (analysis of variance) were used as applicable. A p value of <0.05 was considered as significant.

RESULTS

The present study was a randomized, prospective observational study which evaluated surgical and non surgical (expectant and medical) management of first trimester (<12 weeks of gestation) miscarriage based on the last menstrual period. A total of 1089 consecutive women at ≤12 weeks of gestation based on last menstrual period with or without sign and of miscarriage presented to Department of Obstetrics and Gynaecology, Al-Falah School of Medical Sciences and Research Center, Dhauj, Distt. Faridabad, Haryana-121004 included in the study over a period of from November 2023 to January 2025 Out of these women, only 256 were diagnosed with miscarriage based on TVS findings. The remaining 833 women had diagnosis such as viable intrauterine pregnancy, molar or ectopic pregnancy. Further out of 256 women diagnosed with miscarriage 81 were ineligible for the study and excluded. Of these 81 cases, 31 were hemodynamically unstable, 12 were having missed miscarriage for Crown rump length ≥3 weeks, 32 were complete miscarriage, three were molar pregnancies and three were having pelvic infection on examination along with incomplete abortion. Eligible women were 175 out of which 25 denied for participation and 150 women included finally. Nine women were lost to follow up and nine women were of non surgical category that quit from the study and opted surgical management. But these women nor those who were failure cases of non surgical management category included in surgical category. Thus, finally

141 women included in the study.

In the present study, majority of subjects i.e. 74.47% were in the age group of 20-29 years. There was only one teenage pregnancy in the study and two women of age more than 40 years, one each in expectant and medical category. Most of the women, 75.85% were multigravida while 19.15% were primi gravida and only seven women in the study were grand multigravida. Majority of women miscarry for the first time during their twenties. Those who were parous also miscarried in same age group while grand multigravidas were evenly distributed in all ages (p >0.05, NS).

Most women 85.81% had history of either one or no history of miscarriage. Only 14.18% women had recurrent miscarriages. A total of 91.5% women with miscarriage under study were symptomatic. All women with incomplete miscarriage were symptomatic and only 17.39% of missed / anembryonic miscarriage cases were asymptomatic. Rest 82.61% had either bleeding per vaginum or pain as presenting complaint. These 12 asymptomatic cases presented to hospital for various reasons such as previous miscarriage, ectopic, molar pregnancy and maternal anxiety and for confirmation of pregnancy. Mean number of days of bleeding per vaginum on presentation was 3.8±3.23, 3.55±3.32 and 5.03±3.55 for expectant, medical and surgical categories respectively (p=0.18).

In the present study, no significant difference found according to period of gestation. For different management category (p=0.44), 91.48% of women in the study were of 7-12 weeks of gestation which was distributed as 33.33% 31.78% and 34.88% was expectant, medical and surgical categories, respectively. A total of 77.30% women were having 6 or 8 weeks uterine size out of which 52.48% had 6 week size and 24.82% had 8 weeks size uterus. There was only one subject of 12 weeks uterine size in surgical group (p>0.05, NS).

In women with incomplete miscarriage 84.72% had heteroechoic collection in the uterine cavity and 42.55% of all subjects were missed miscarried. On TVS maximum anteroposterior diameter was noted on every visit between the two endometrial myometrial junctions of uterus in saggital section. Complete miscarriage was defined as trilayered endometrium as of proliferative phase without any content in the cavity or a maximum anteroposterior diameter of ≤5mm (p=0.005).

In 94.44% of women having incomplete miscarriage had more than 10mm of maximum AP diameter of uterine content on TVS and only 26.38% had >25mm of maximum AP diameter (p=0.18).

Success rate of 66.66%, 82.22% and 96.67% in expectant, medical and surgical management respectively was observed in women with first trimester miscarriage with statistically significant difference.

Seven subjects 935%) were having maximum AP diameter of <15mm out of which there were no failure cases (success rate 100%). 12 subjects (60%) were having maximum AP diameter of >20mm out of which there were two failures (success rate 83.33%) (p>0.05, NS).

In medical management, 11 women with incomplete miscarriage (68.75%) were having maximum AP diameter of less than 15mm out of which 2 landed up in failure while three women (18.75%) were having maximum AP diameter of >20 mm and no failure was observed in these subjects. The two failure cases with maximum AP thickness <15mm had excessive bleeding per vaginum, were subjected to surgical evacuation and HPE report showed products of conception (p>0.05, NS).

Table 1 Expectant management distribution of outcome of women with incomplete miscarriage according to AP diameter on TVS at day 0

Maximum AP diameter	Group I (Success/Failure)	Group 2 (Success/Failure)	Group 3 (Success/Failure)	Total	Chi-square value	P value
5 to <10mm	1/0	1/0	0/0	1	No p value can be calculated	
10 to <15mm	1/0	4/0	1/0	6	-	-

15 to <20mm	0/0	1//0	0/0	1	0.47	0.79
20 to <25mm	1/0	4/1	1/0	7	0.83	0.36
>25mm	2/0	2/1	0/0	5	-	-
Total	4/0	12/2	2/0	20	-	-
Chi square	No p value can be calculated	2.02/0.73	No p value can be calculated	-	-	-
P value	-	-	-	-	-	-

In hypoechoic and hyperechoic endometrial pattern all subjects had successful outcome irrespective of the maximum AP diameter and all women had successful outcome in heteroechoic group also, if maximum AP diameter was less than 20mm.

Table 2 Medical management distribution of outcome of women with incomplete miscarriage according to AP diameter on TVS at day 6

Maximum AP diameter	Group I (Success/Failure)	Group 2 (Success/Failure)	Group 3 (Success/Failure)	Total	Chi-square value	P value
5 to <10mm	0/0	1/0	0/0	1	No p value can be calculated	-
10 to <15mm	1/0	7/2	0/0	10	0.28	0.60
15 to <20mm	1/0	0/1	0/0	2	2.0	0.16
20 to <25mm	0/0	1/0	0/0	1	No p value can be calculated	-
>25mm	0/0	1/0	1/0	2	0.85	0.65
Total	2/0	10/3	1/0	16	-	-
Chi square	No p value can be calculated	4.24/0.38	No p value can be calculated	-	-	-
P value	-	-	-	-	-	-

All cases of failure were seen in group 2. Three cases out of 13 (23.08%) were failure in group 2 with AP diameter from 10 to 20mm. There were all successful cases in group 1 and 2.

In the present study, 100% success rate was seen in all the three management options for normal size, 10 weeks and/or 12 weeks uterine size, 67.86%, 84% and 100% women in expectant, medical and surgical category respectively had successful outcome if their uterine size was 6 weeks. In women with 8 weeks uterine size 40%, 75% and 89.47% success rate was seen in expectant, medical and surgical management respectively. Statistically significant higher success with surgical followed by medical, followed by expectant management method for uterine size of 6 and 8 weeks.

Success rate in women with incomplete miscarriage was 90% in expectant and 81.25% in medical category. For missed miscarriage and anembryonic pregnancy, expectant management was successful in 48% cases and in medical management the success rate in them was 82.75%.

In missed miscarriage, the success rate was significantly higher in surgical followed by medical followed by expectant method of management. In cases of group 2 (heteroechoic appearance) successful outcome was significantly higher in surgical category and non-surgical category but the

difference among expectant and medical management was not significant.
Those 23 subjects who were subjected to surgical evacuation after two weeks i.e. AP diameter of ≥5mm) followed up in non surgical category revealed that only two cases with heteroechoic collection in uterine cavity did not had any missed products of conception.

Table 3 Distribution of women according to success on follow up visits in expectant category

Shadow of uterine content	Number of women	Day 7	Day 14	Failure
Group 1 (hypoechoic)	4	6	4	-
Group 2 (hetero echoic)	14	4	12	2
Group 3 (hyper echoic)	2	1	2	0
Group 4 (missed)	22	3	10	12
Group 1 (blighted ovum)	3	0	2	1
Total	45	11	30	15

Chi-square=14.40, p=0.07

24.44% of all women with first trimester miscarriage had successful outcome by day 7 and 66.66% of cases were successful by day 14 if they were given expectant management. If women had incomplete miscarriage then the success rate was 40% by day 7 and 90% by day 14, but if they had either missed miscarriage or anembryonic pregnancy, then the success rate was only 12% by day 7 and 48% by day 14 (p=0.07).

Table 4 Distribution of women according to success on follow up visits in medical category

Groups	Number of women	Day 7	Day 14	Failure
Group 1	2	0	2	0
Group 2	13	6	10	3
Group 3	1	1	1	0
Group 4	26	2	21	5
Group 1	3	1	3	0
Total	45	10	27	8

Chi-square=0.72, p=5.38

31.11% of women with miscarriage were successful by day 7 and 82.22% were successful by day 14 after medical management. Success rate was 44% by day 7 and 81.25% by day 14 in women with incomplete miscarriage who were given medical management but it was 20.69% by day 7 and 82.75% by day 14 in women with either missed miscarriage or anembryonic pregnancy (p>0.05, NS).
In the present study, maximum number of patients i.e. 86.66% of expectant category had bleeding per vaginum for a period less than three weeks. After medical management, maximum number of patients 91.89% had bleeding per vaginum for less than two weeks and after surgical management 73.46% of patients had bleeding for less than one week. There was one woman of surgical category who bled for more than three weeks after evacuation and was later diagnosed dysfunctional uterine bleeding. Mean duration of bleeding per vaginum after initiating management in all successful cases were 14.03±4.79, 9.45±3.34 and 5.24±4.38 days in expectant, medical and surgical category respectively (p=0.001).
8.95% was the complication rate in women who were given non surgical (expectant and medical category) management and 6.12% was the complication rate in surgical management. Three cases of pelvic inflammatory disease, one encountered in expectant category and two in medical category, were missed miscarriage and only one case of incomplete miscarriage of surgical category developed pelvic inflammatory disease.

DISCUSSION

Present study was undertaken on 141 subjects for comparison of expectant, medical and surgical

management of first trimester miscarriage of ≤12 weeks of gestation by LMP.

Wieringa-de Ward et al[4] (2004) compared future treatment preferences in women who were randomized to expectant or surgical management and women who were managed according to their choice. They found that 84.88% of women treated according to their preference held on to their initial option, compared with 55-74% of women who accepted randomization. So, a strong treatment preference was found to be an important factor in the counselling process. Keeping this in mind we excluded 25 women from the study who were eligible but denied for randomization and also nine women who initially agreed for randomization but later quitted from the study before complete followup. Incidence of first trimester miscarriage of <12 weeks of gestation was 23.5% in women of the present study.

Casikar et al[5] collected data of all women of first trimester miscarriage who attended emergency clinics while we included all symptomatic and asymptomatic cases of first trimester miscarriages, thus a lower incidence is justified, but our hospital is a tertiary care centre, which may be the reason of a higher incidence as compared to studies based on general population.

In the present study mean age of women was 25.64±4.63, 26.64±4.73, 26.98±4.79 years for expectant, medical and surgical category of management respectively. Majority of subjects 74.47% in the study were in age group of 20-29 years (p=0.36, NS). Mean age of women in study done by Chung et al[6] was 31.3±5.9 years and 30.8±6.3 years for surgical and medical management category respectively that may be because of custom of early marriages and sooner pregnancies in India.

Most women under observation were third gravida. 75.85% of the women in the study were multigravida while 19.15% were primigravida and only seven women in the study were grand multigravida but there was no significant difference in gravidity for different management options (p=0.22). Mean parity of women of first trimester miscarriage in the study done by Nielsen et al was 1.03±0.99 and 0.77±1.15 for medical and expectant treatment respectively while it was 1.27±1.37, 1.44±1.01 and 1.44±1.20 for expectant, medical and management respectively in our study.

There was no significant difference in distribution of subjects according to number of previous miscarriages when women were randomized for three management categories (p=0.696). mean of number of previous miscarriages in medical management category was 0.21±0.44 and in expectant management category was 0.29±0.66 in a study of Nielsen et al[7], comparable to 0.69±0.83 and 0.58±0.67 for medical and expectant management categories in the present study.

Women with recurrent miscarriages were less in the present study as mean age of the subjects was only 26.45 years while it was 32.2 years in Spanish study and 31.1 years in Chinese study. It was concluded by Anderson et al[8] that there is an important increase in the risk of spontaneous miscarriage and other types of fetal loss among women aged more than 40 years and that the increase is already considerable among those in their 30s. This increase is observed irrespective of a women's reproductive history.

91.5% women with miscarriage in present study were symptomatic and 8.51% of subjects were asymptomatic who presented to hospital for various reasons such as previous miscarriage, ectopic pregnancy, molar pregnancy, maternal anxiety and for confirmation of pregnancy.

Casikar et al[5] observed 59% symptomatic women at the time of presentation. This difference might be because of less attention towards women's health and lower socioeconomic status of women of our country. They seek medical advice generally when they become symptomatic, 90.78% of women become worried to seek advice when they noticed bleeding per vaginum with or without other symptoms.

Mean gestation age was 9 weeks, 9 weeks +3 days, 9 weeks +2 days for expectant, medical and surgical management respectively based on LMP. Minimum 91.48% of women in the study were of 7-12 weeks of gestation. There was no significant difference in distribution of subject according to gestation age from LMP for different categories of management (p=0.437). Median of gestational age at presentation in different studies was 8-10 weeks reported by Chipcase J et al and Bar-Hava I et al.[9,10]

In present study, majority of subjects 77.30% were having 6 weeks uterine size and 24.82% had uterine size of 8 weeks while the mean gestational age was nearly 9 weeks in each category. This

difference was because of cases of incomplete miscarriages and missed miscarriages in the study population who were having gestational age more than the uterine size. There was no significant difference in distribution of subject according to uterine size on per vaginum examination (p=0.13) for different categories of management.

As the distribution of subjects in different categories of management was statistically insignificant for age, parity, education status, history of previous miscarriages, presenting complaints or uterine size, the observation is not biased and results are true and valid.

TVS findings of all women on day 0 were noted and distribution of subject according to echogenic pattern of endometrial content was found to be statistically significant (p=0.005) but it was not significant with different management options (p>0.05, NS). 51.06% of subjects were incomplete miscarriage and 84.72% of incomplete miscarriage had heteroechoic appearance in uterine cavity and 42.55% of all subjects were missed miscarriage.

On TVS maximum AP diameter of uterine content was noted and distribution of subjects according to maximum AP diameter was statistically significant (p=0.028) but it was insignificant for each category of management option (p>0.05). Mean AP diameter between two endometrial myometrial junction was 20.21±11.69 mm, 17.50±13.39 mm and 23.94±9.99 mm for expectant, medical and surgical management respectively.

No prior studies have established an ultrasound measured uterine cavity thickness, that is considered significant after expulsion of uterine gestational contents and would require further treatment. Chung et al[6] used five cm^2 as their criteria for a significant amount of tissue in which women early pregnancy failure had TVS 24 hours after a suction aspiration. They found that the uterine contents after suction aspiration did not vary by gestational age.

In our study overall success rate for expectant management was 66.66% as compared to other studies. Success rate of wait and watch policy for two weeks was similar for missed miscarriage in the study by Luise et al[11] and overall success rate may be higher as they have used a higher cut off of maximum AP diameter of uterine cavity of 15mm.

Success rate reported by Noge et al[12] was highest 94.6% among all the studies but they did not clarify whether the successful outcome was based on clinical grounds or ultrasound findings. Success rate of medical management in our study was found to be 82.22%.

Overall success rate of surgical management was 92.22% in present study. There were two failure cases based on TVS findings but only one was true case in surgical management category i.e. evacuation of product of conception by manual vacuum aspirator in the present study as out of these two only one repeat evacuation analysis showed products of conception on histopathological examination as compared to Chung et al[6] and Waard et al[4].

Overall success rate on day 14 was comparable in both the studies but it was just 44.44% in present study by seven days as compared to 40% in the study conducted by Luise et al[11].

Complication rate in present study was found to be 8.95% in non surgical category i.e. expectant and medical management. For surgical it came out to be 6.12%. In present study the occurrence of pelvic infection was 3.33%, 8.11% and 2.04% respectively for expectant, medical and surgical management. Success rate was highest 96.67% with the surgical management i.e. evacuation of the cavity with manual vacuum evacuation 96.67% and tissue retrieval was 100%. Duration of bleeding per vaginum was minimum after surgical management but hospital facility, manual vacuum aspirator and most importantly expertise was required for surgical management.

CONCLUSION

Manual vacuum aspirator is a safe and effective method for management for first trimester miscarriage and women can only be offered with conservative management if emergency evacuation is affordable and available. Single dose of 600 ug misoprostol decreased the duration of bleeding per vaginum and increased the success rate as compared to expectant management. Present study recommends that full range of therapeutic options (expectant, medical and surgical) should be available to women who miscarry. Apart from certain specific clinical circumstances, women should be able to choose their preferred method of management.

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