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ORIGINAL ARTICLE

RECTAL MISOPROSTOL VERSUS VAGINAL MISOPROSTOL FOR FIRST TRIMESTER ERMINATION OF PREGNANCY

Garima Arora[1], Anupama Suresh Y[2], Shameem V. P. A[3], Suresh Y. V[4]

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ABSTRACT: There are various methods have been described for preoperative cervical priming prior to vacuum aspiration (VA) in first trimester pregnancy termination, to facilitate cervical dilatation and shorten the abortion procedure. Recently, misoprostol has been globally the most investigated drug for medical abortion. Misoprostol is affordable, is easily stored at room temperature, and possesses a shelf life of several years. In our prospective interventional comparative study misoprostol (800 µg) administered per vaginally was compared tomisoprostol (800 µg) administered per rectally for first trimester termination of pregnancy and were observed for spontaneous expulsion of products of conception. The complete abortion rate was 62.86% in vaginal group in contrast to 20% in rectal group which was statically significant and majority of cases in rectal group had incomplete abortions. In vaginal group, patients with < 8 weeks gestational age aborted completely comparable to the patients with gestational age 8-12 weeks while in rectal group, patients< 8 weeks gestational age had aborted completely in contrast to the patients with gestational age 8-12 weeks which was significant statistically and hence the efficacy of rectal misoprostol was found better at lower gestational ages (<8 weeks).

KEYWORDS: Mesoprostol pregnancy medical termination.

INTRODUCTION: An estimated 26 million pregnancies are terminated legally throughout the world and 20 million are terminated illegally with greater than 78000 deaths.

India legalized MTP through the MTP Act 1971 in order to enable a women opt out of an unwanted pregnancy in certain specific situations. However in spite of legalization of abortion, the incidence of illegal and unsafe abortion has increased tremendously in our country, quality and coverage of MTP services, still remains poor.[1,5]

There are medical and surgical methods of abortion.As the complications with surgical methods are more, there is rising trend of medical abortion.[1, 2, 5, 6,] Medical abortion is the induction of early abortion by means of medications alone without the need for surgical evacuation.

There are various drug regimens and combinations used for medical abortions with its own advantages, disadvantages and success rates: Mifepristone with Misoprostol, Methotrexate with Misoprostol, Tamoxifen with Misoprostol and Misoprostone alone.[8,9,11,12,13]

Misoprostol is a synthetic 15 deoxy 16-hydroxy 16-methyl analog of prostaglandin E1 and is a water soluble, viscous liquid. The commercial preparation commonly available as Cytotec tablets that contain the inactive ingredients hydrogenated castor oil, hydroxypropyl methylcellulose, microcrystalline cellulose, and sodium starch glycolate. The tablets are either 200u.g tablets or 100u.g tablets.

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The pharmacokinetic profile of misoprostol is characterized by rapid absorption, extensive metabolism, and rapid excretion. Misoprostol is primarily metabolized in the liver, and less than 1% of its active metabolite is excreted in the urine.

Pharmacokinetic studies in pregnant women show that the peak plasma levels of misoprostol are sustained for up to 4 hours after vaginal administration.[7,10,12] Misoprostol tablets are not designed for parenteral administration. There is separate formulation into for vaginal insertion as vaginal pessaries and rectal suppositories.

Common side effects include diarrhea, chills, shivering and abdominal pain. Less common side effects include headache, menstrual cramps, nausea and flatulence, and fever, all of which are dose dependent.

Several reports in the literature associated the use of misoprostol during the first trimester of pregnancy with skull defects (frontal/temporal), cranial nerve palsies, facial malformations, and limb defects. Misoprostol is listed as a pregnancy category X drug.[11]

Recently, Misoprostol has been globally isthe most investigated drug for medical abortion. Its efficacy varies depending on the gestational age and dose or administration route.[12]

Most of the available data are connected with the absorption and pharmacokinetic properties of orally or vaginally administered misoprostol, limited data are available about alternative routes.

We consider that the rectal treatment is as practical as the vaginal route, but encountered only one study in which rectal misoprostol was used for first trimester termination of pregnancy.[3,4]

Misoprostol is affordable, is easily stored at room temperature, and possesses a shelf life of several years.

Our study was on 800 µg misoprostol administered per vaginally was compared to 800 µg misoprostol administered per rectally for first trimester termination of pregnancy.

MATERIALS AND METHODS: It was a prospective interventional comparative study.In the study, 70 Pregnant Women with Intrauterine pregnancies upto 12 weeks gestational age were taken .All the patients were explained about the procedure and risks involved. Written and informed consent was taken.

All the women above the age of 18 years, who wanted abortions (as per MTP act) up to 12 weeks of pregnancy, missed abortions, or pregnancies following the use of teratogenic agents were included in the study. Anaemic patient (Hb is <10 gm%), bleeding disorders, patient with history of bronchial asthma, cerbovascular disorder, Diastolic BP of >100 mm of Hg etc were excluded from the study. Also patients refusing surgical evacuation, in case medical methods fail were excluded.

All the patients were explained about the procedure and risks involved and were given the option of surgical termination of pregnancy.

Written and informed consent was taken.

Hemoglobin and blood grouping including Rh typing was done before the procedure. 50ug Anti D intramuscularly was given to patients with negative Rh type before administration of misoprostol.

Out of 70 pregnant ladies, 35 received 800ug misoprostol by vaginal route (Group 1) and 35 received 800ug misoprostol by rectal route (Group 11) [After moistening the tablets with 3 drops of distilled water per tablet] and they were observed for spontaneous expulsion of products of conception.

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In case of failure of medical methods after 24 hours, patients were taken up for dilatation and evacuation, if required.

Results were grouped as:

1. Complete abortion- requiring no further treatment
2. Incomplete abortion- clinical/ USG signs of incomplete abortion
3. Complete failure- cases with closed cervical os 24 hrs after misoprostol administration.

For patients with complete abortion by medical methods, a confirmatory ultrasonographic examination was performed before discharging the patient from the hospital.

Date was collected using a performan and centered in computer in excel form.

Data analysis was done using SPS package (statistical package of social sciences).

The data obtained were analyzed by the "unpaired 't' test" & "chi square test", wherever applicable. A 'p'value of less than 0.05 was considered significant and 'p' value of greater than 0.05 was considered significant and 'p' value of greater than 0.05 was considered not significant.

OBSERVATIONS AND RESULTS: No statistically significant differences were observed in the demographic characteristics between the two groups.

A statistically significant difference was obtained in the complete abortions rates between the two groups. The complete abortion rate was 62.86% in vaginal group in contrast to only 20% in rectal group. Majority of cases in vaginal group had complete abortion in contrast to rectal group, where most of the patients had incomplete abortions.[Table 1, Fig.1]

In vaginal group, there were 13 patients with gestational age less than 8 weeks and 22 patients with gestation age ≥ 8 weeks, 29.23% of patients under 8 weeks gestational age aborted completely compared to 59.29% of patients with gestational age 8-12 weeks. This difference was not significant statistically. [Table 2, Fig. 2]

In rectal group, there were 14 patients with gestational age less than <8 weeks and 21 patients with gestation age ≥8 weeks, 35.71% of patients under 8 weeks gestational age had complete abortion in contrast to only 9.52%patients with gestational age 8-12 weeks. This difference was significant statistically. Hence the efficacy of rectal misoprostol was better at lower gestational ages (<8 weeks) in present study.[Table 3, Fig. 3]

Out of 35 pregnant ladies in vaginal group, 10 had sono graphically proven missed abortion. 8 (80%) out of these, aborted completely with vaginal misoprostol; while only 14(56%) out of rest 25 patients aborted completely. But this difference was not significant statistically.

Out of 35 pregnant ladies in rectal group, 10 had sonographically proven missed abortion. 4 (40%) out of these, aborted completely with rectal misoprostol. On the other hand, only 3(12%) of the rest of 25 patients had complete abortion. But this difference was not significant statistically.

In cases of missed abortions, higher success rates were achieved with vaginal misoprostol compared to rectal misoprostol.

Out of 35 patients in vaginal group, 13 patients (37.14%) had side effects compared to 8 patients (22.86%) in rectal group. But this difference was not significant statistically. [Table 5, Fig. 4]

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DISCUSSION: Medical methods of abortion, by providing more privacy and avoiding the surgical risk, could have a positive impact on public health by encouraging the women to approach doctors for termination of pregnancy rather than succumbing to illegal abortion.

Creinin et al in[14] 1997 compared the efficacy of 400ug oral misoprostol with 800ug vaginal misoprostol for uterine evacuation of early pregnancy failure and found 800ug vaginal misoprostol to be more effective.

In 1999, Jain, Meckstroth& Daniel et al[8]compared the abortifacient effect of intravaginally administered moistened misoprostol tablets with that of combined regimen of mifepristone and oral misoprostol in pregnancies less than or equal to 8 weeks gestational age and found similar abortion rates.

In 2003, T. Okman –Kilic et al,[4] compared the efficacy of vaginal and rectal misoprostol, 800µg in either group for first trimester termination of pregnancy and found vaginal misoprostol to be more effective.

In the present study 800µg vaginal misoprostol was compared with 800µg rectal misoprostol for first trimester termination of pregnancy.

In vaginal misoprostol group, the results of our study were comparable with previous studies. Slightly higher percentage of success in the study of Jain et al might be attributable to the gestational age of ≤8weeks in all the subjects as previous studies have shown higher success rates with lesser gestational age; even though our study has not shown statistically significant effect of gestational age on the outcome in vaginal misoprostol group. [Table 4, Fig. 4]

In the study of T, okman-kilic, the success rate of rectal misoprostol (40%) was higher than present study (20%). But our study had more number of cases with incomplete abortions (74.29%) i.e. ripened cervices compared to the study of T, okman-kilic who had higher number of failures (27%) compared to our study (5.75%).In the study of T, okman-kilic, overall success rate of rectal misoprostol (40%) was significantly less than the success rate of vaginal misoprostol (70%), as in our study. [Table 5, Fig. 5]

The incidence of side effects was much less in our study compared to the study of Jain et al. [Table 6, Fig. 6]

Also most of the studies done so far selected patients with pregnancies less than 8 weeks duration for attempting medical methods of abortions as less success rate was found at higher gestational ages. But in our study, in the vaginal group there was no significant difference in the clinical efficacy in relation to gestational age.

Out of 35 patients in vaginal group, 22(62.86%) expelled their products completely with misoprostol compared to 7(20%) in rectal group, which was found to be statistically significant. The mean insertion-expulsion interval was 10.09 hrs in vaginal group and 9.28 hrs in rectal group. Even in the failed group of 13 patients in vaginal group, 10(76.92%) showed favorable cervical changes and of 28 failed cases in rectal group, 26(92.86%) showed favorable cervical changes which made subsequent evacuation much easier without dilatation.

The mean insertion-expulsion interval was 10.09hrs in vaginal group and 9.28 hrs in rectal group which was not significant statistically.

The mean insertion-bleeding interval was 3.73hrs in vaginal group and 5.76 hrs in rectal group, but this difference was not significant statistically.

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It was observed that most of the patients who were going to have successful abortion started having bleeding per vaginum within 1-4 hrs after administration of misoprostol.

Patients who do not start bleeding per vaginum within 6-8 hrs are may be the ones going for failure.

10 patients in vaginal misoprostol group had incomplete abortion but in all of these patients, cervical os was open (mean Hegar's dilator no. 10) and ovum forceps could be introduced without the need to dilate the cervix.

Majority of the patients i.e. 26(74.29%) in rectal group had incomplete abortion but in 21 of these patients, Hegar's dilator no.8 or higher could negotiate the internal os without resistance and hence ovum forceps could be introduced without dilatation of cervix.[13]

SUMMARY:

Medical abortion are one of the safest method of termination of early pregnancy. It can be done either by vaginal or rectal insertion of misoprostol. The vaginal group, had better results by expelling the products of conception completely (62%) in comparison to rectal group (20%). Even in the failed group, favorable cervical changes are observed which made subsequent evacuation much easier.

	GROUP I (vaginal) N=35	GROUP II (rectal) N=35
Complete abortion	22 (62.86%)	7 (20%)
Incomplete abortion	10 (28.57%)	26 (74.29%)
Failure	3 (8.57%)	2 (5.71%)

TABLE 1: OUTCOME MEASURES

Gestational age	Total number	Complete abortion	Incomplete abortion	Failure
< 8 weeks	13	9 (69.23%)	3 (23.07%)	1 (7.69%)
≥ 8 weeks	22	13 (59.29%)	7 (31.81%)	2 (9.09%)

TABLE 2: OUTCOME WITH RESPECT TO GESTATIONAL AGE IN VAGINAL GROUP (GROUP I)

Gestational age	Total number	Complete abortion	Incomplete abortion	Failure
< 8 weeks	14	5 (35.71%)	7(50%)	2 (14.28%)
≥ 8 weeks	21	2 (9.52%)	19 (90.48%)	0

TABLE 3: OUTCOME WITH RESPECT TO GESTATIONAL AGE IN RECTAL GROUP (GROUP II)

	Jain, Meckstroth & Mishell 1999 (<8weeks) [n=100]	T.Okman-kilic, M.kucuk, 2003 (<12 weeks) [n=30]	Present study (<12 weeks) [n=35]
Complete abortion	73%	70%	62.86%
Incomplete abortion	19%	23%	28.57%
Failure	8%	7%	8.5%

TABLE 4: COMPARISON OF OUTCOME IN VAGINAL MISOPROSTOL GROUPAMONG VARIOUS STUDIES

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	T, okman-kilicM.kucuk, 2003 [n=30]	Present study [n=35]
Complete abortion	40%	20%
Incomplete abortion	33%	74.29%
Failure	27%	5.75%

TABLE 5: COMPARISON OF OUTCOME IN RECTAL MISOPROSTOL GROUPWITH PREVIOUS STUDY

	Jain, Meckstroth& Mishell, 1999[n=100]	Present study [n=35]
Fever or chills/shivering	68%	31.4%
Diarrhoea	44%	5.7%
Heavy bleeding	5%	5.7%

TABLE 6: COMPARISON OF INCIDENCE OF SIDE EFFECTS IN VAGINAL GROUP WITH PREVIOUS STUDY

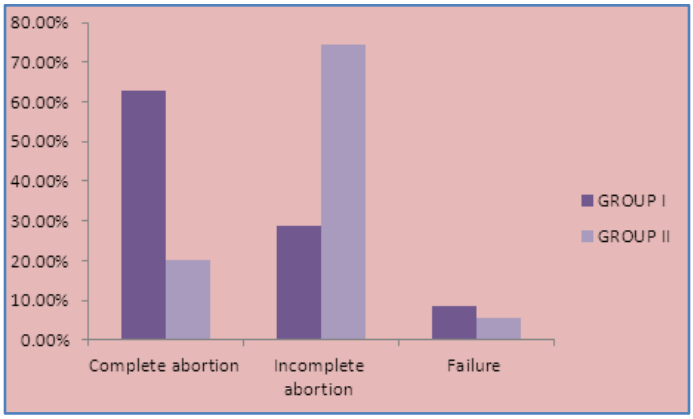

Fig. 1: Outcome measures

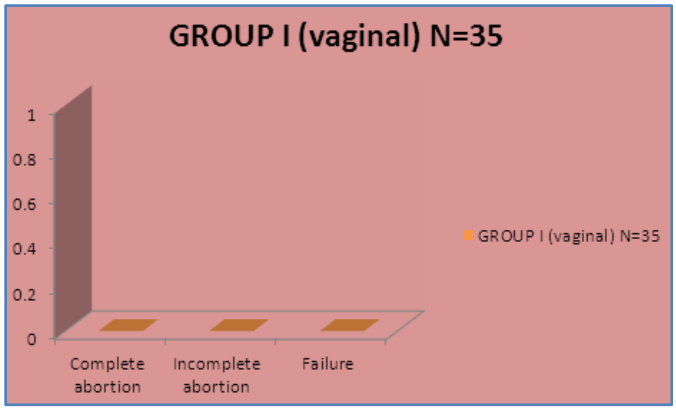

Fig. 2: Outcome with respect to gestational age in vaginal group (group I)

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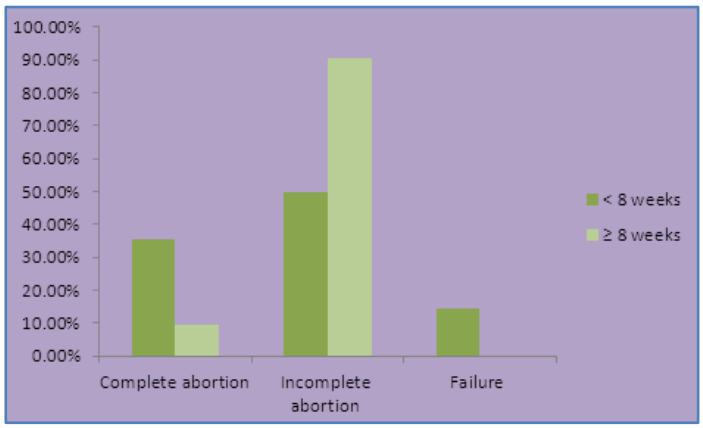

Fig. 3: Outcome with respect to gestational age in rectal group (group II)

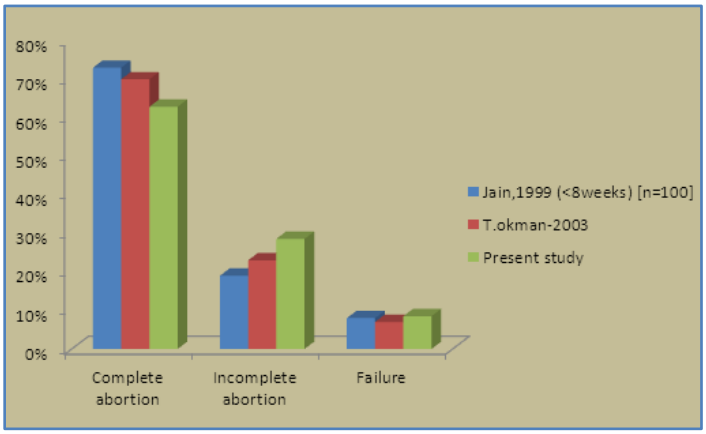

Fig. 4: comparison of outcome in vaginal misoprostol groupamong various studies

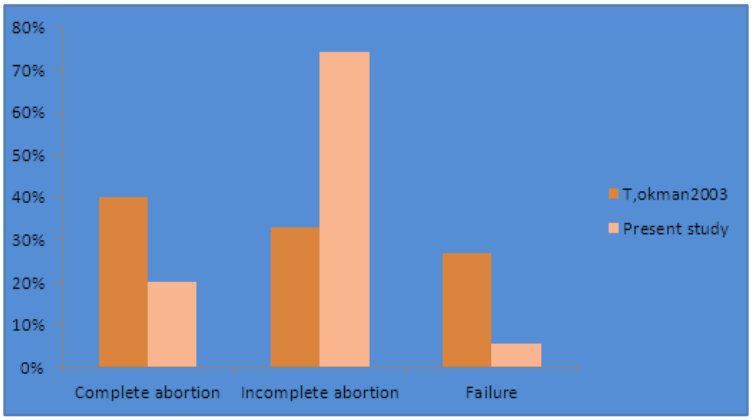

Fig. 5: Comparison of outcome in rectal misoprostol groupwith previous study

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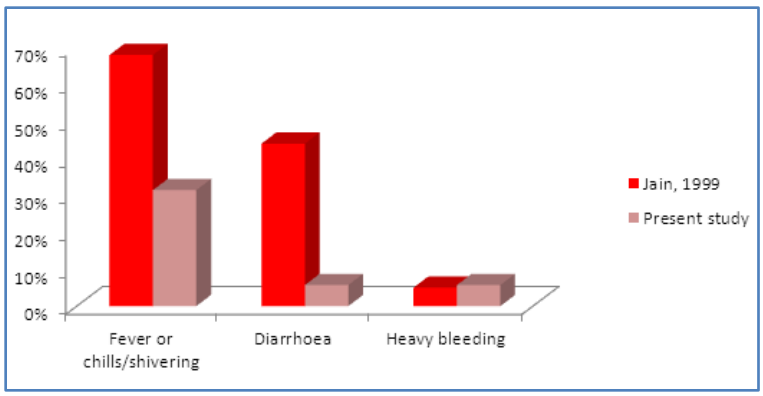

Fig. 6: Comparison of incidence of side effects in vaginal group with previous study

BIBLIOGRAPHY:

1. Rajlakshmi Srinivasan, Usha B Saraiya. Mifepristone - Misoprostol: Medical Abortion: Experience in India. Obs. And Gynae. Today. 2002. Vol VII No 12:716-719.
2. Sharda Jain, Jyoti Agarwal. Medical Abortion: The early option for a safe abortion. Obs and Gynae Today 2002. Vol VII No.7:395-399.
3. Bamigboye AA. Hofmeyr GJ, Merrell DA. Rectal misoprostol in the prevention of postpartum hemorrhage: a placebo- controlled trial. Am J Obstet Gynecol 1998;179:1043-1046.
4. T, Okman - Kilic, M. Kucuk. Rectal misoprostol VS. Vaginal misoprostol for first trimester termination of pregnancy. International Journal of GynecologyandObstetrics85 (2004);64-65.
5. Use of RU - 486 with Misoprostol for Early Abortion in India. Guidelines for Medical officers. WHO-CCR in Human Reproduction, Department of Obstetrics and Gynecology, All India Institute of Medical Sciences 2003.
6. Creinin MD, Grimes D. Medical options for early abortion. Contemporary OB/GYN, April, 1994:85-90.
7. Bugalho A, Faundes A, Jamisse L, Usfa M, Maria E, Bique C. Evaluation of the effectiveness of vaginal misoprostol to induce first trimester abortion. Contraception 1996;53:243-6.
8. Jain JK, Meckstroth KR, Mishell DR. Early Pregnancytermination with intra vaginally administered sodium chloride solution moistened misoprostol tablets: historical comparison with mifepristone and oral misoprostol. Am J ObstetGynecol 1999:181: 1386-9 I.
9. Jain JK, Meckstroth KR, Park M, Mishell DR. A comparison of tamoxifen and misoprostol to misoprostol alone for early pregnancy termination. Contraception 2000;60:353-6.
10. Zieman M, Fong SK, Benowitz NL, et al. Absorption kinetics of misoprostol with oral or vaginal administration. ObstetGynecol1997;90:88-92.
11. Creinin MD, Vittinghoff E, Schaff E, et al. Medical abortion with oral methotrexate and vaginal misoprostol. ObstetGynecol 1997;90: 611-616.
12. Schaff EA, Eisinger SH, Stadalius LS, et al. Low-dose mifepristone 200 mg and vaginal misprostol for abortion. Contraception 1999;59: 1-6.
13. Singh K, Fong YF, Dong F. A viable alternative to surgical vaccum aspiration: repeated doses of intravagina! Misoprostol over 9 hours for medical termination of pregnancies up to eight weeks. BJOG 2003;110:175-180.

DOI: 10.14260/jemds/2014/2517

14. Creinin MD, Moyer R, Guido R. Misoprostol for medical evacuation of early pregnancy failure. ObstetGynecol 1997;89:768-772.

AUTHORS:

1. Garima Arora
2. Anupama Suresh Y.
3. Shameem V. P. A.
4. Suresh Y. V.

PARTICULARS OF CONTRIBUTORS:

1. Senior Resident, Department of Obstetrics and Gynaecology, Kasturba Medical College Mangalore A Unit of Manipal University.
2. Associate Professor, Department of Obstetrics and Gynaecology, Kasturba Medical College Mangalore, A Unit of Manipal University.
3. Associate Professor, Department of Obstetrics and Gynaecology, Kasturba Medical College Mangalore ,A Unit of Manipal University.
4. Associate Professor, Department of Anaesthesiology, Kasturba Medical College Mangalore, A Unit of Manipal University.

NAME ADDRESS EMAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Anupama Suresh Y,
Flat No. 203,
Divya Enclave,
M. G. Road, Kodialbail,
Opposite Canara College,
Mangalore – 575003.
E-mail: dranupamasureshy@yahoo.co.in

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