CASE SERIES

Manual Vacuum Aspiration (MVA) — A safe option for evacuation of first trimester miscarriage in cardiac patients

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Abstract

This case series was done at Armed Forces Institute of Cardiology, National Institute of Heart Disease, Rawalpindi, to observe safety and efficacy of manual vacuum aspiration and frequency of complications in cardiac patients with missed abortion. All cardiac patients presenting in first trimester with diagnosed early foetal demise (missed miscarriage) or incomplete miscarriage were included. Manual vacuum aspiration was done as an outpatient procedure. Cardiac and procedure related complications including arrhythmias, thromboembolism, heart failure and ischaemia were noted. A total of 34 patients were enrolled. Mean age and parity was 25.9±2.25 years and 1.18±1.02. Mitral valve was the dominant valve involved in 20(58.8%) followed by double valve replacement in 5(14.7%), dilated cardiomyopathy 4(11.76%), aortic valve involvement in 3(8.8%) and supra ventricular tachycardia in 2(5.9%) patients. Complete evacuation was achieved in 100% patients and there were no major cardiac or gynaecological complications except arrhythmia in 1(2.9%) patient. MVA seems to be a safe and cost effective intervention compared to other modalities of miscarriage management even in high risk cardiac patients.

Keywords: Cardiac disease, Pregnancy, Manual vacuum aspiration, Miscarriage.

Introduction

Miscarriage occurs in 10-20% of clinically recognized pregnancies and reported incidence in cardiac patients is the same as in general population.[1] Incidence of clinically significant cardiac disease in pregnancy is between 0.9-3.7%.[1] Need for safe miscarriage procedures compelled health care providers all over the world to move away from conventional dilatation and curettage to safer procedures like medical management and outpatient surgical techniques like Manual vacuum aspiration. Cardiac patients are unique considering they cannot be given conventional drugs and anaesthetic agents without adding to the risks.[2]

Although clinically insignificant in normal pregnant women the changes in cardiovascular status which start early in pregnancy are important in these patients with limited cardiac reserve. Drugs given for medical termination like oxytocin and prostaglandins are absorbed into systemic circulation and can lower systemic vascular resistance and blood pressure and increase heart rate which could be detrimental to their limited reserve.[2] Studies have shown that MVA is a safe and effective method of uterine evacuation and is preferable to surgical curettage being safer, less painful, highly portable, virtually silent and quicker to undertake.[3] It is according to WHO guidelines and FIGO recommendations the safest method for pregnancy termination in first trimester.[4,5] Pregnancy in woman with cardiac disease is associated with significant cardiac morbidity including endocarditis, arrhythmias, paroxysmal embolic events, heart failure, pulmonary hypertension and death.[1] Minimizing these risks with careful patient selection, monitoring and applying evidence based procedures for miscarriage management will reduce both cardiac as well as gynaecological complications.

Although safety and efficacy of MVA is established in general population, cardiac patients being high risk, pose a challenging situation. The aim of our study was to assess the effectiveness and safety of MVA following the diagnosis of first trimester miscarriage in cardiac patients.

Case Series

This was a case series done at gynecology unit of Armed forces institute of cardiology National institute of heart disease (AFIC-NIHD), Pakistan from January 2015 to June 2015. Approval for conducting the study was taken from institutional review board and 34 patients reporting with missed or incomplete miscarriage at gestational age <13 weeks were recruited in this study. Those cardiac patients undergoing termination of pregnancy and critically ill patients in New York Heart Association classification[6] 3-4 were excluded. Informed consent for the procedure was taken with detailed counseling of risks. As per protocol all women were administered 400 micro gram of vaginal Misoprostol for cervical priming two hours before the procedure, unless the procedure was planned for incomplete abortion. Prophylactic antibiotics were administered to all patients and anticoagulants were adjusted. The procedure was performed as a day care

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Table: Demographic profile and baseline characteristics.

Demographic Profile (N=34)	
Age (years)	25.9±2.25
Parity	1.18±1.029
Duration of pregnancy (weeks)	9.97±1.218
Duration of hospital stay (hours)	5.35±3.541
Pain (numeric rating scale 1-10)	1.67±1.68
Blood loss (ml)	73.82±38.29
Indication for procedure(n)	
-Missed miscarriage	22(64.7%)
-Incomplete miscarriage	12(35.3%)
Cervical Priming with misoprostal (n)	23(67.6%)

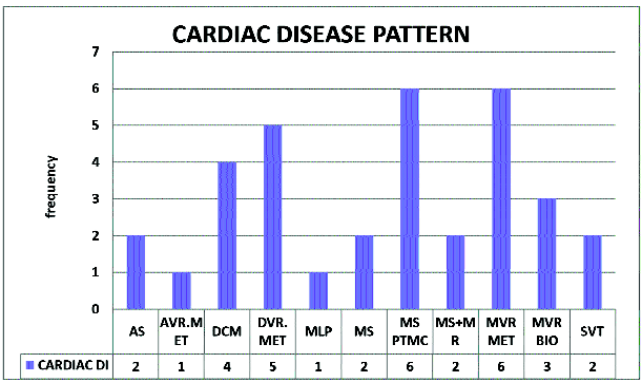
Gynecological and cardiac Complications

Major/minor complications	Percentage n =34(%)
Uterine perforation	0(0%)
Retained products	0(0%)
transfusion	1(2.9%)
fever	2(5.9%)
syncope	3(8.8%)
Arrhythmias	1(2.9%)
Ischaemia	0(0%)
Bleeding due to anticoagulants	1(2.9%)
Thrombo embolism	0(0%)
Heart failure	0(0%)

procedure with continuous haemodynamic monitoring and facilities available for cardiopulmonary resuscitation.

MVA was performed under Para cervical block by Ipas Easy Grip Cannula. Need for anaesthesia was assessed by intolerability to pain and difficulty in performing the procedure. Patients were discharged 2-hour post-MVA, if they were clinically well, haemodynamically stable and fully mobilized. They were instructed to report immediately if they developed any symptoms like palpitations, difficulty in breathing, chest pain, dizziness, fever, abdominal pain or heavy bleeding. All women were offered a follow-up appointment after four weeks.

Primary outcome measure assessed was success rate of procedure defined as complete uterine evacuation. Secondary outcome was mean blood loss, hospital stay and pain perception. Procedure related complications included uterine perforation, haemorrhage, infection and syncope. Cardiac complications including arrhythmias, ischaemia, thromboembolism, bleeding due to anticoagulants and heart failure were noted. Data was collected and analyzed using SPSS version 20. Descriptive statistics were used to describe the data, and frequency and percentages were calculated. A total of 34 patients fulfilling the criteria were enrolled. Demographic profile, base line characteristics and frequency of cardiac and procedure related complications



AS-Aortic stenosis, AVR. MET-Aortic valve replacement metallic, DCM-Dilated cardiomyopathy, DVR.MET-Double valve replacement metallic, MLP-Mitral leaflet prolapse, MS-Mitral stenosis, MS PTMC-Percutaneous transluminal mitral commissurotomy, MS+MR-Mitral stenosis+regurgitation, MVR MET-Mitral valve replacement metallic, MVR BIO -bioprosthetic, SVT-Supraventricular tachycardia.

Figure: Types of cardiac lesion amongst study population.

are shown in Table. There were varieties of cardiac lesions amongst the study population with Mitral valve lesions dominating. Mitral valve replacement, Percutaneous Transluminal Mitral Commisurotomy, Mitral Leaflet Prolapse and mixed mitral lesions were present in 20(58.8%) patients. Double valve replacement, Dilated cardiomyopathy were 5(14.7%) and 4(11.76%) respectively, 3(8.8%) had aortic valve involvement and 2(5.9%) had rhythm disorders as shown in Figure. Nearly 27(79.4%) patients were on anticoagulant and anti platelet therapy.

Efficacy of MVA was assessed by complete uterine evacuation in all the patients. Mean hospital stay and pain perception assessed by Numeric pain rating scale 1-10 is shown in Table. No major morbidity and mortality was observed. At follow up 30(88.2%) were asymptomatic, laparotomy was performed in one patient for incidental ruptured ovarian cyst and 3(8.8%) were lost to follow up.

Discussion

Miscarriage is a distressing emotional experience. Treatment offered should be safe and humane with no effects on future fertility. Cardiac patients in spite of being high risk should also benefit from evidence based practices of miscarriage management. Frequency of reported adverse cardiac events during pregnancy varies from 3-60%[7] depending on risk factors.

The commonest cause of heart disease is still rheumatic in developing countries like Pakistan, as is the result in our study and also, in other similar studies.[8] Miscarriage is a huge burden on gynecological services and is encountered at all levels of health care. Manual vacuum aspiration in the procedure room setting was found equally safe in managing these high risk

cardiac patients as in normal low risk population and need for referral of all cardiac patients to a tertiary care hospital is not justified. Most of the studies done on normal population show comparable results in terms of age, parity, period of gestation, duration of hospital stay, safety and efficacy.[8,9] In a retrospective analysis of abortion management in cardiac patients over twelve years the first trimester abortion was done by electric suction evacuation and the complication rate was 1.8% only and there was no major morbidity and mortality.[10] Safety in our study as assessed by the amount of blood loss which was comparable to other studies done on patients not receiving any anticoagulants as their usage was amongst the exclusion criteria[11] and also in a study in patients receiving anticoagulants.[12] So carefully adjusting anticoagulants reduces the blood loss.

Efficacy of procedure was assessed through complete evacuation by doing transvaginal ultrasound before discharge as it is 100% sensitive in diagnosing retained products of conception. In another study sharp curette was used to confirm complete evacuation but due to bleeding risk and pain this was not an option in our patients.[11]

Overall MVA is effective in 99.5% patients in first trimester pregnancy loss.[11] In a large multicentre randomized controlled trial of expectant, medical and surgical management MIST trial in normal obstetric population the results showed no statistically significant difference amongst the three modalities. In this study also, women on anticoagulants were amongst the exclusion criteria.[13]

The idea of outpatient management by MVA is relatively new and experience in cardiac patients is limited. MVA use increased dramatically by 70-90% in Pakistan in 2010-2013 after Pakistan joined FIGO initiative. Training and continuous support resulted in a persistent positive change in medical practices recognizing short term and long term advantages of shifting from conventional dilatation and curettage to MVA and Misoprostol.[14]

Limitation of this study is a small study cohort. Major contribution is giving confidence in performing MVA as a day care procedure with minimal hospital stay in a stable cardiac patient with drug dosage adjustment and proper monitoring.

Conclusion

MVA has gained acceptability amongst majority of gynecologists in Pakistan due to its safety and cost effectiveness yet we still have a long way to go to replace D&C by safer options like MVA and medical methods and challenge the traditional thinking that curettage is necessary to prevent infection. Majority of cardiac patients can be managed for abortion as day care procedure according to evidence based miscarriage guidelines. Careful patient selection by cardiac risk scoring will enable these patients to be managed promptly and safely.

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Details of Ethics Approval: The study was approved by the institutional ethical and review board of AFIC-NIHD according to AFIC-IERB-SOP-15 on 19 Dec 2014.

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