Outcome of pregnancy in a case of atrial fibrillation

Kavita Mevada1*, Nilesh A. Shah2, Hafsa M. Vohra3

1Resident, 2Professor and Head, 3Assistant Professor, Department of Obstetrics and Gynaecology, B.J.M.C. Civil Hospital Ahmedabad

ABSTRACT
Cardiac disorders of varying severity complicate approximately 1-3% of pregnancies and contribute significantly to maternal morbidity and mortality. Rheumatic heart disease is the leading cause of maternal heart disease in developing world. Mitral stenosis is the most common valvular heart disease complicating pregnancy. The physiological changes during pregnancy may exacerbate their cardiac symptoms. They may present with complications like congestive cardiac failure, pulmonary edema, atrial fibrillation, or pulmonary thromboembolism during the antenatal, intrapartum, or postpartum period. Atrial fibrillation occurring in patients of mitral stenosis, predispose to mural thrombus formation and cerebrovascular embolization, leading to stroke so they are to be treated aggressively. Here we discuss a patient, known case of rheumatic heart disease with moderate mitral stenosis since 8 year referred to us with full term pregnancy with previous caesarean section, developed atrial fibrillation with uncontrolled ventricular rate.

Keywords: Mitral stenosis, atrial fibrillation, pulmonary thromboembolism

INTRODUCTION
Rheumatic mitral stenosis is common in developing countries and can complicate up to 88% of pregnant patients with heart disease1. As in our case, many of them present for the first time in the third trimester when cardiac symptoms worsen because of the physiological changes of increased cardiac output, heart rate, oxygen consumption, and hemodilution2. The preferred mode of delivery in these patients is the vaginal route with labour analgesia to alleviate the increased demand on the heart. Caesarean section is reserved for obstetric indications. The maternal complications that may occur are pulmonary edema, tachyarrhythmia, pulmonary thromboembolism, stroke, cardiac arrest, or death3. Acute atrial fibrillation in valvular heart disease has a high risk of heart failure, stroke, and death. So these patients require intensive monitoring as well as multidisciplinary team approach for management.

CASE REPORT
History: A 28 year old antenatal patient known case of rheumatic heart disease with moderate mitral stenosis since 8 year referred to our emergency department as a case of full term pregnancy with previous caesarean section. She was 4th gravida patient with previous 1 full term vaginal delivery, 1 full term lower segment caesarean section for foetal distress and 1 spontaneous abortion. She was having 38 weeks of gestation and cephalic presentation.

She had undergone balloon mitral valvotomy 6 years ago. She was on oral Metoprolol 25 mg once a day, oral Torsemide 5 mg once a day and penicillin prophylaxis since past 7 years.

Examination: On admission her pulse was irregularly irregular and ECG showed atrial fibrillation with a ventricular rate varying from 110-160/ min. Her blood pressure (BP) was 106/60mmHg. Her respiratory rate was 32/min and saturation was 100% with oxygen by face mask at 6-8 l/min. On auscultation of the heart, she had a mid-diastolic murmur in the mitral area and loud P2.

Investigation: An intravenous access was secured with a 16G cannula. Her haemoglobin was 11.7g%. She had a normal coagulation profile with INR 1 and platelet count 210×109/litre. A 2D echocardiography done which revealed moderate mitral stenosis with mitral valve area of 1.2 cm², mild mitral regurgitation, severe tricuspid regurgitation, mild aortic regurgitation, moderate pulmonary artery hypertension and ejection fraction 55%. The arterial blood gas analysis showed pH 7.5, PO2 98mmHg, PCO2 30mmHg, HCO3 20 mmol/L, Na+ 134mmol/L, and K+ 3.8mmol/L.

Management: Inj. Diltiazem 15 mg intravenous stat followed by Inj. Amiodarone 150 mg in 500 cc normal saline started at rate of 4 ml / hour. On control of ventricular rate she was started on oral Diltiazem 30 mg gid, oral Amiodarone 200 mg tds, oral Metoprolol 25 mg od, oral Torsemide 5 mg od. Inj Unfractioned Heparine 3500 IU intravenous 6 hourly started with APTT monitoring 12 hourly. After 24 hours oral Amiodarone was stopped. As she was having 38 weeks of gestation with previous caesarean section she was planned for elective caesarean section.
caesarean section after 4 days. Inj Heparine was stopped 6 hours prior to surgery. Combination of epidural and general anesthesia given. Patient delivered healthy child of 3 kg, baby cried soon after birth with no any gross congenital anomaly. Post operatively patient was shifted to ICU for monitoring. Patient was given higher antibiotics and injection Furosemide 20 mg bd. 4 hours after caesarean section patient’s pulse vary between 130-180/min. Cardiologist advised Injection diltiazem 12.5 mg intravenous slowly over 10 min and Injection Metoprolol 1.5 mg intravenous stat. Still her ventricular rate was not controlled so Injection Amiodarone 150 mg in 500 cc normal saline started at rate of 4 ml/ hour. After 6 hours of infusion her ventricular rate controlled to 96/min. Patient started on oral Metoprolol sustained release 50 mg bd, oral Diltiazem 60 mg qid through ryle’ tube. After 24 hours patient was extubated. Amiodarone infusion was stopped and patient was started on amiodarone 200 mg oral od. After 48 hours Injection unfractioned heparine started at 4000 IU 6 hourly and monitored with aPTT 12 hourly. On 3rd postoperative day her heart rate was controlled so amiodarone was stopped patient was shifted on oral diltiazem sustained release 120 mg od and oral metoprolol sustained release 50 mg od. Oral acitrom 2 mg was started on 3rd post operative day and overlapped with unfractioned heparine. On achieving INR between 2- 3 unfractioned heparine was stopped. Rest of her post operative period was uneventful and patient was discharged on 10th post operative day after removing skin stitches. Baby was well and vaccinated.

DISCUSSION
Women with rheumatic heart disease may have significant hemodynamic consequences if they develop atrial fibrillation. Pregnant women with atrial fibrillation are at increased risk of systemic embolism. Here, we discuss the case of a 38 week antenatal patient with moderate mitral stenosis who presented in emergency with acute atrial fibrillation (AF). First we decided to control her AF as she was not in labour. Direct-current (DC) cardioversion should be performed for women with hemodynamic compromise. Direct current cardioversion can be performed safely during any stage of pregnancy. If women are hemodynamically stable, pharmacologic cardioversion can be attempted. As our patient was hemodynamically stable her ventricular rate was controlled with Amiodarone, Diltiazem, Metoprolol. The fetal risk of the antiarrhythmic medication needs to be discussed with the mother. After controlling her ventricular rate, decision for elective caesarean section was taken as her previous delivery was conducted through caesarean section. Because pregnancy is a pro-thrombotic state, thromboprophylaxis is recommended in women with atrial fibrillation. Thromboprophylaxis was started immediately with UFH and stopped 6 hrs before surgery. UFH was again started after 24 hrs when risk of bleeding was minimal. The factors that abetted a favourable maternal outcome in our case were good left ventricular ejection fraction (55%), hemodynamic stability in the face of acute atrial fibrillation.

REFERENCES