

ANAESTHETIC MANAGEMENT OF 25 YEARS OLD
PATIENT WITH TWIN PREGNANCY IN ACUTE
PULMONARY OEDEMA FOR EMERGENCY
CAESAREAN SECTION

PRESENTER:

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CHIEF COMPLAINTS

A 27-year-old female, G2P1L1 with 36 weeks gestation with twin pregnancy

Came with complaints of fever, cough and shortness of breath since 2 to 3 hours

HISTORY OF PRESENT ILLNESS

Fever associated with

Cough and expectoration, serous frothy

Shortness of breath NYHA grade IV

Aggravated on lying down, relieved on sitting

No history of paroxysmal nocturnal dyspnea, chest pain, epigastric pain, hemoptysis

No history of pain abdomen, bleeding per vaginal, decreased fetal movements

No history of burning micturition

PAST HISTORY

Diagnosed with **gestational hypertension** at 30 weeks of gestation

On tab labetalol 100 mg thrice a day

No h/o diabetes mellitus, tuberculosis, bronchial asthma, epilepsy, CVA, CAD, allergies, thyroid disorder

SURGICAL HISTORY:

Previous LSCS 2 years back in view of non progression of labor under spinal anaesthesia (uneventful)

PERSONAL AND FAMILY HISTORY

PERSONAL HISTORY:

Mixed diet, adequate appetite, normal bladder and bowel habits, non alcoholic and non smoker

FAMILY HISTORY:

No relevant family history

GENERAL EXAMINATION

Conscious, oriented to time place and person

Height 158 cm, weight 62 kg

BMI 24.8 kg/m²

Mild pallor +, bilateral pedal edema +

No icterus, clubbing, cyanosis, lymphadenopathy

JVP not elevated

Flushed skin, sweating

VITAL SIGNS:

Febrile, 100 degree Fahrenheit

Pulse 120/min, regular

BP 170/120 mm Hg in sitting position

RR 32/min

SPO2 85% on room air

AIRWAY EXAMINATION:

Adequate mouth opening, Mallampati classification II, adequate neck movements

FETAL HEART RATE:

(recorded by obstetrician)

170/min

182/min

RESPIRATORY SYSTEM:

Inspection:

Bilateral symmetrical chest rise

Respiratory rate of **32 breaths per minute**

Thoracoabdominal breathing

Use of **accessory muscles of respiration** +

Palpation:

Midline trachea

Tactile vocal fremitus increased

Palpable rales

Percussion: Dull notes bilateral lung fields

Auscultation: Coarse crepitations heard all over lung fields bilaterally

PER ABDOMEN:

Inspection:

Distended, umbilicus everted

Skin stretched and shiny, **striae gravidarum**, fetal movements present

No dilated veins, scars, sinuses or hernias

Palpation:

Non tender

Uterus **full term** size

Cephalic presentation of both twins

Percussion: Dullness present

Auscultation: 2 separate fetal heart sounds heard

CARDIOVASCULAR SYSTEM:

Inspection:

Normal precordium

No dilated veins

Palpation:

Apex beat normal

No parasternal heave, thrills

Percussion: normal boundaries of heart

Auscultation: S1S2 heard, with **grade III/IV systolic murmur at mitral area**

CNS EXAMINATION:

Conscious, oriented to time place and person

Higher motor function normal

PROVISIONAL DIAGNOSIS

27 year old female with G2P1L1, 36 weeks gestation with twin pregnancy, in severe preeclampsia with pulmonary edema in fetal distress posted for emergency LSCS

PREOPERATIVE INVESTIGATIONS

Hb 10.1 g/dl

TLC 12500/ul

Platelets 145000

Urea/creatinine 22/1.0

Serology negative

2D ECHO (**30 weeks** of gestation)

LVEF 60%

Mitral valve prolapse with moderate mitral regurgitation

Mild pulmonary artery hypertension

IN THE LABOR ROOM

Pulse 120/min, regular

BP 170/120 mm Hg

RR 32/min

SPO2 85% on room air

O2 supplementation

20 G IV access taken on right hand

Inj Labetalol 20 mg IV

Inj Furosemide 40 mg IV

Inj Magnesium sulphate 4gm IV and 5 gm IM in each buttock

In view of **fetal distress, severe preeclampsia** and **pulmonary edema**

Patient was shifted to operation theatre and emergency LSCS was planned under general anaesthesia

IN THE OPERATING ROOM

Oxygenation with head end elevation

All standard monitors including:

5 lead ECG

Non invasive BP monitoring

Pulse oximeter attached

IV fluid Ringer's lactate was started

INDUCTION OF ANAESTHESIA

Rapid sequence induction done with Inj Etomidate 0.3 mg/kg IV and Inj succinylcholine 2 mg/kg IV

Intubated with a 7.5 mm ID cuffed ETT

Confirmed by chest rise, auscultation and capnography

Bilateral coarse crepitations heard throughout the lung fields

Pink frothy secretions noted post intubation and

Adequate suctioning was done through ETT

Anesthesia was maintained with O₂: Air 50:50 Isoflurane 0.6%

Non depolarizing neuromuscular blocking drug -Vecuronium 0.1 mg/kg



Simultaneously

Central venous access gained via right IJV cannulation with 7 F triple lumen

Central venous catheter and CVP monitoring was started

Invasive BP monitoring- Left radial artery was cannulated

ABG was suggestive of metabolic acidosis

Ventilator settings:

In view of high peak and plateau pressures (38-44 cm H₂O) on volume control mode

Pressure control mode was selected

Low tidal volume 300 ml targeted

Frequency 16

PEEP 10 cm H₂O

Fio₂ 60-80%

ETCO₂ maintained (30-38 mmhg), monitored with capnography

TIME	PULSE	BP	SP02	CVP	U/O	IVF	Peak and plateau pressures	DRUGS
Baseline	120/min	170/120 mmhg	88% on 5 liters O ₂		20 ml			Inj furosemide 40 mg
Post induction	108/min	160/110 mmhg	95%	15	20 ml	50 ml	44- 48 cm H ₂ O	Inj NTG infusion 5mcg/min Inj Labetalol 20 mg
Delivery of twins	92/min	150/100 mmhg	98%	12	100 ml	100 ml	32- 36 cm H ₂ O	Inj Morphine 3 mg IV
End of surgery	84/min	130/90 mmhg	98%	9	250 ml	400 ml	32- 36 cm H ₂ O	

2 male babies were delivered

IV oxytocin 20 units over 10-15 minutes given in 100 ml NS

2.30 kg, APGAR score 7 at birth and 8 at 5 minutes

2.25 kg, APGAR score 6 at birth and 8 at 5 minutes

Shifted to NICU for further management and observation

INTRAOPERATIVE MANAGEMENT

DURATION OF SURGERY: 55 minutes

IV FLUIDS:

100ml of colloid and 300 mL of Ringer's lactate

Around 200ml of pink frothy fluid suctioned from
ETT

Urine output 250 ml

Blood loss 450 ml



POSTOPERATIVE MANAGEMENT

In view of pulmonary edema, frothing from ETT, high peak and plateau pressures and

Severe preeclampsia, metabolic acidosis on ABG

Decision was made to electively ventilate the patient in ICU

Volume control mode:

Tidal volume 300 ml

Respiratory rate 16/min

PEEP 10 cm H₂O

FiO₂ 60%



POD-0



POD-1

Chest radiograph: Bilateral pulmonary infiltrates

2D ECHO:

LVEF 60%

Mitral valve prolapse with moderate mitral regurgitation

Mild pulmonary artery hypertension

Serial ABGs: Improvement in the acid–base status

Gradually weaned and extubated on POD1

Transferred to the general ward on POD 3

DISCUSSION

Pulmonary edema life-threatening condition associated with preeclampsia

Seen in 0.08% cases of preeclampsia and in 2.9% cases of severe preeclampsia

Challenges:

Severe preeclampsia

Twin gestation

Mitral valve prolapse

Leading to Pulmonary edema

The patient came to with fetal distress giving no time for optimization making it an anaesthetic challenge

Goals:

Avoid hypoxia and treat pulmonary edema

Minimise aortocaval compression

Safe delivery of the fetus

Blood pressure control

Reduce left ventricular preload and afterload

Prevent myocardial ischemia

Choice of anaesthesia: General anaesthesia with rapid sequence intubation

Lung protective ventilation, low tidal volume and low peak pressures

Invasive BP monitoring and central venous access for CVP monitoring

Fluid restriction

Correction of acid-base status

Cardiac distress becomes evident in later stages of pregnancy after which the patient decompensates

Diagnostic tools like 2D ECHO done earlier can be of enormous help

Urgent delivery of the fetus under general anaesthesia prevents maternal and fetal morbidity and mortality

Post operative management in ICU elective ventilation, diuretic, antihypertensive therapy leads to resolving of pulmonary edema and overall clinical improvement

REFERENCES

Miller's Anesthesia

Chestnut's Obstetric Anesthesia: Principles and Practice

Acute pulmonary oedema in pregnant women (review article, A. T. Dennis and C. B. Solnordal)

THANK YOU

