Original Research Paper

Gynaecology



Senior Resident, Department of Obstetrics & Gynaecology, GMC Shivpuri. Dr Deepali Jain M.P.India.

ABSTRACT

INTRODUCTION- Maternal mortality is still a significant public health problem now severe acute maternal morbidity (SAMM) has emerged as an important indicator in maternal health care to review the

cause of maternal deaths

Severe morbidity data is very important for policy planner to evaluate the quality of health care system, to know the requirement of emergency obstetrics care (EMOC) and to improve the health care system.

MATERIAL AND METHOD- This is a retrospective study done in a private maternity hospital in Gwalior (M.P.). The study was done during a period from 01/01/2017 to 01/01/2021.

In our study 4808 live birth were there during this period 59 cases were diagnosed as severe maternal morbid cases.

RESULTS- In present study the incidence of SAMM was 12.27 per one thousand live birth.

In this study – most (54.23%) of women were in the age group of 21-25, were unbooked (57.62%), primipara (38.98%), full term (47.45) and of low-income group (64.40%)

In this study we found the most common morbidity was (30.50%) hypertensive disorder of pregnancy, the second one was (23.72%) of severe hemorrhage.

In our study, severe anemia was the most frequent medical disorder present in morbid Patients.

During the study period four patients died. The most common cause of maternal death was pregnancy-induced hypertension and its associated disorders.

CONCLUSION- This study summarized that lack of awareness, lack of education, first delay in reaching to the health care system, lack of antenatal visits, preexisting chronic medical disease, inadequate use of magnesium sulphate before transferring patient of severe PIH/eclampsia, and improper use of antibiotics and delay in diagnosis and referral to higher center are the main factor contributing to severe maternal morbid cases.

Identification of SAMM cases is very useful in monitoring the quality and effectiveness of obstetrics care, it helps in improving the health care system.

KEYWORDS: Severe acute maternal morbidity, hypertensive, mortality,

1. INTRODUCTION-

Maternal mortality is still a significant public health problem now severe acute maternal morbidity (SAMM) has emerged as an important indicator in maternal health care to review the cause of maternal deaths¹.

According to WHO "a woman who survives life-threatening conditions during pregnancy, abortion, and childbirth or within 42 days of pregnancy termination, irrespective of receiving emergency medical/surgical interventions, is called maternal near miss."

Low resource countries like India carry the highest risk of maternal mortality and morbidity. Despite an increase in institutional deliveries, most pregnant women do not receive any antenatal care and are at high risk for obstetric complications.3

WHO in the year 2004 estimated that approximately 20 million women suffered from acute complications in pregnancy. Out of the above-mentioned data, 5,29,000 maternal deaths were reported. In India, about a quarter of these deaths were reported. Every year in India, roughly 30 million women experience pregnancy and 27 million have a live birth. An estimated 1,36,000 maternal deaths occur each year.^{2,3} There are various episodes of maternal morbidities for every maternal death. From 15 permanent disabilities to 100 acute episodes of morbidities for each maternal death, lies the range of maternal morbidity. These data predict that pregnancy-related mortality and morbidity continues to take a huge toll on the lives of Indian women.⁴

The underestimation of maternal deaths by the government and the use of inaccurate databases often hinders the analysis of determinants of maternal mortality and the development of targeted public policies. Severe maternal morbidity/near miss can be a more valuable and accurate indicator than maternal mortality as this condition has greater incidence all over the world and offers a good opportunity for data collection as the woman herself can be a source of information.⁵

Its routine use as an indicator, however, is still limited and restricted due to lack of uniform criteria for the identification of cases. Lack of consensus can be in part attributed to a broad spectrum of clinical severity.^{3,4} It is difficult to set a point that characterizes severe maternal morbidity somewhere between a healthy pregnancy and maternal death. Therefore, a thorough study of SAMM is a key to advance knowledge about risk factors during pregnancy and can be used as a valuable tool to identify priorities in maternal care more rapidly and monitor the delivery of obstetric care.6

Pregnancy and delivery can involve complications that entail admission to critical care facilities. Usually young and are initially healthy patients land up into critically ill obstetric patients. The management of critically ill obstetric patients is complex due to the physiological changes and pregnancyspecific diseases that require collaboration between the doctors working in ICU and obstetricians.7

Morbidity during pregnancy represents a continuum between two extremes of life. One is good health and another is death,

which can be uncomplicated, complicated, severely complicated, or life-threatening and a lady may recover, may be temporarily or permanently disabled or she may die.^{2,4}

Usually, critically ill obstetric patients are taken care of in the general intensive care unit (ICU). There are a small number of obstetric ICUs available at medical centers in developed countries. Critically ill obstetric patients account for a small proportion of ICU admissions, and the proportion varies greatly from country to country. This clearly shows that many women in developing countries do not get a chance to get themselves admitted to the ICU for critical care needs during or after pregnancy.⁸

There is no internationally accepted classification for evaluating SAMM, however, various approaches have been proposed by researchers including definitions based on clinical signs and symptoms, organ system failure, management, and combined approaches. Each has its limitations and mostly requires clinicians for making a diagnosis.⁹

By WHO maternal mortality and morbidity has recently developed a uniform set of criteria for case identification based on three established approaches with clinical, laboratory, and management markers. In literature, three different criteria have been proposed to identify "near miss" cases or SAMM.

Disease-specific criteria e.g. pre-eclampsia, antepartum or postpartum hemorrhage

Organ-specific dysfunction or failure (specific criteria used for each organ-system).

Management-specific e.g. admission to ICU, hysterectomy.¹⁰ Disease-specific criteria are useful if there is a clear-cut entity but if it becomes complicated e.g multiple organ dysfunction syndromes (MODS) or disseminated intravascular coagulation (DIC) then its interpretation becomes very tough, so it is not much favored or accepted. Regarding organsystem-based criteria, this may be the most accurate definition of life-threatening complication as very severe endpoints are selected, but it depends on management received (e.g. ICU care), and also it requires technologies that may not be available in many hospitals. Lastly, the most frequently used management-specific criteria, a case is identified by admission to ICU as it is simple, has lesser variation, is easy to measure, and data collection. In addition, this also includes non-obstetrical medical or surgical conditions that may become life-threatening and lead to death e.g. acute pancreatitis, intestinal perforation, etc.^{9,8,4}

Postpartum hemorrhage (PPH), pre-eclampsia, and sepsis were the common obstetric morbidities for which women mainly seek tertiary hospital admission and treatment. These three conditions were not only the main causes of severe maternal morbidity but also found to be the major cause of maternal mortality in the studies published, nationally and worldwide. The majority of it is followed by uterine atony, which is known to be an unpredictable cause of PPH. However, multiparity and the presence of anemia in 100% of cases were the important risk factors detected in many studies. Promotion of deliveries by skilled birth attendants, ensuring active management of the third stage of labor along with the provision of cheap uterotonics like misoprostol will likely improve the prevailing situation.¹¹

Pre-eclampsia and sepsis were other important reasons for the ill health of mothers in the postpartum period requiring tertiary hospital admission. Pre-eclampsia-related morbidity and mortality of women can be lessened by advocating evidence-based low-cost interventions like identifying highrisk women and use of aspirin and calcium.⁶ Likewise promotion and practice of clean and sterilized childbirth practices including clean hands, a clean birth surface, and a clean cord-cutting will likely reduce the sepsis-related morbidity. An alarming fact of the studies done worldwide was the presence of anemia in all critically ill patients.⁴⁵

The development of complications, particularly PPH, acts in a vicious circle and further decreases their hemoglobin concentration. The high prevalence of anemia especially in Asian women of reproductive age group is evident to be secondary to illiteracy, poverty, malnutrition, and chronic infections like malaria, multiparity. Lack of antenatal care and improper use of hematinics were other important contributing factors.^{9,8}

Analysis and deep understanding of SAMM are extremely important in today's scenario as they may help the health care workers in a number of ways. It aids in identifying patterns of maternal morbidity and mortality.⁷ It helps in recognizing factors associated with maternal deaths so that proper action can be taken at various levels. Other benefits include the evaluation of the quality of health care facilities and identifying loopholes in the existing health care system. It assists in the proper monitoring of socio-demographic factors and delays at various levels which leads to maternal morbidity and mortality. Thus by collecting such data, essential steps can be taken to reduce the rate of maternal morbidity and mortality.⁷⁹

The study of risk factors associated with SAMM can provide important contributions to improve the quality of the available health care system to reduce maternal morbidity and mortality. Not only availability of healthcare services is enough to achieve a reduction in SAMM, but it must be accessible and affordable also. Proper antenatal care, skilled trained birth attendants (TBA), institutional deliveries, access to emergency obstetric care, and a functional referral system are necessary to reduce it, apart from ICU.¹²

2. METHOD-

This is a retrospective study done in a private maternity hospital in Gwalior (M.P.). The study was done during a period from 01/01/2017 to 01/01/2021. The medical record of all critically ill obstetrics patients was collected from the record book of the patients. For each case, age, parity, literacy, socioeconomic status, booked/unbooked, referred or self refer, reason for admissions, nature of obstetrics complications, dieses responsible for critical illness, presence/absence of organ dysfunction, blood transfusion requirement, surgical intervention to save the life of women, treatment given, details of delivery and any prenatal & maternal mortality & recovery within 42 days of termination of pregnancy & other relevant information were collected.

In the study the criteria use for diagnosing SAMM cases is as follow.

1- Hypertensive emergencies are identified according to BP>170/110, proteinuria > lgm/dl., dearranged LFT, RFT, thrombocytopenia, deep Jaundice, anuria, oliguria, hematuria, pulmonary edema, coagulation failure, evidence of circulatory collapse and other organs dysfunction.

2- Sever sepsis:- It includes the cases of puerperal sepsis, and postabortion sepsis presented with septicemic features. Signs and symptoms of sepsis are; 1. Fever (two or more temperature readings of >38°C) 2. Tachycardia (heart rate >100 beats/min) 3. Hypotension (blood pressure <100/60 mm of Hg) 4. Resporatory rate >20/min 5. White blood cell >17×10L or <4×10 6. Bacteremia (positive blood culture or positive swab).

3- Vary severe anemia:- hemoglobin < 6gm/dl who require

VOLUME - 10, ISSUE	- 09	, SEPTEMBER - 2	2021	• PRINT ISSN No.	2277	- 8160 •	DOI :	: 10.36106/gjra
--------------------	------	-----------------	------	------------------	------	----------	-------	-----------------

 \geq 3 units of PRBC or blood and multiple doses of injectable Iron.

4- Hemorrhage:- results in shock, requiring emergency hysterectomy, internal iliac artery ligation and B-lynch brace sutures or leads to coagulation defects or requirement of > 2 liters of blood transfusion.

3. RESULTS-

In our study 4808 live birth were there. 59 cases were diagnosed as a near miss.

We calculated incidence of SAMM cases in the hospital (number of severe maternal morbid cases per 1000 live birth).

The incidence of sever acute maternal morbidity cases was 12.27 per 1000 live birth.

Table	1-	Socio-demographic	variables,	parity,	and
gestati	on	al age of study population	on.		

Variables	Numbers	Percentages
Age of mother (year)		
15-20	3	5.08
21-25	32	54.23
26-35	17	28.81
>35	7	11.86
Total	59	100
Parity		
0	23	38.98
1	21	35.59
2	9	15.25
>2	6	10.16
Total	59	100
Gestational age		
<12 weeks	6	10.16
13-28 wks	3	5.08
29-36 wks	15	25.42
37-40 wks	28	47.45
>40 wks	4	6.77
Postpartum	3	5.08
Total	59	100
Booked	25	42.37
Unbooked	34	57.62
Total	59	100
Literacy		
Illiterate	29	49.15
Literate	30	50.84
Total	59	100
Socioeconomic status		
Low	38	64.40
Middle	18	30.50
High	3	5.08
Total	59	100
Residence		
Urban	21	35.59
Rural	38	64.40
Total	59	100
Referral status		
Self	32	54.23
Referred from a health facility	27	45.76
Total	59	100

In this study – most (54.23%) of women were in the age group of 21-25, were unbooked (57.62%), primipara (38.98%), full term (47.45) and of low-income group (64.40%)

 Table 2- Causes of SAMM of study population Causes of near-miss cases n=159.

	Diagnosis		-
Hypertensive	Chronic hypertension. severe PIH,	18	30.50
disorders in	severe preeclampsia with signs of		
pregnancy	organ dysfunction/eclampsia with		
	organ dysfunction, HELP syndrome.		

Total		59	100%
Violence, etc.			
Trauma,			
iatrogenic,			
including			
Surgical			
Disorders E.g.			
Accidental		9	
Incidental /	1	1.6	
complications	failed intubation		
Anesthetic	Allergic reaction, total spinal and	2	3.38
disorders	crisis		
Endocrine	Diabetic ketoacidosis, Thyroid	1	1.69
dysfunction	eclamptic seizures,		
Neurological	Intracranial hemorrhage, non-	1	1.69
dysfunction	others		
Hepatic	Acute fatty liver of pregnancy and	1	1.69
dysfunction			
Coagulation	DIC	1	1.69
dysfunction	diuretics/dialysis acute renal		0.00
Bengl	Oliquiria needed multiple dosos of	2	3 38
	respiratory failure		
	others.		
	Post-operative pneumonia and		
dysfunction	Pulmonary edema		
Respiratory	ARDS	3	5.08
r dysfunction	cardiomyopathy, infarction,		
Cardiovascula	Valvular disease, arrhythmia,	1	1.69
anemia	multiple doses of iron sucrose		
Very severe	(>3 blood transfusion / PRBCs and	6	10.16
	Medical disorders		
collapse	of the uterus, Pal emboli		
Postpartum	Amniotic fluid embolism, inversion	2	3.38
	and others.		
disorders	with complications, Rupture uterus,		
Labor-related	Prolonged and obstructed labor	3	5.08
	removal of placenta, and others.		
	laparotomy, evacuation, manual		
Schara	infection (E.g. Cesarean section		
sensis	Puerperal sepsis		
systemic	Chono amnionitis		
Severe	Septic abortion	3	5.08
	hematomas		
	Genital tract injuries and large		
	placenta		
	Hemorrhage due to retained		
	Severe postpartum hemorrhage		
	Rupture uterus		
	Intraoperative hemorrhage		
	Placental abruption		
	nuplurea ectopic pregnancy with		
nemorrnage			
Severe	Hemorrhage due to RPOC and	14	23.72

In this study he found the most common morbidity was (30.50%) hypertensive disorder of pregnancy, the second one was (23.72%) of severe hemorrhage.



GJRA - GLOBAL JOURNAL FOR RESEARCH ANALYSIS ☎ 27

with SAMM.

In our study, severe anemia was the most frequent medical disorder present in morbid Patients.



Figure 2. showing causes of maternal morality in study population.

During the study period four patients died. The most common cause of maternal death was pregnancy-induced hypertension.

4. DISCUSSION-

A number of studies have reported the characteristics and outcomes of critically ill obstetric patients in developed countries, but there is limited literature on this subject in developing countries. Although maternal mortality ranges from only six to twenty per 100,000 deliveries in developed countries, it is higher in developing countries. Critically ill obstetric patients account for as much as 7% of the ICU admissions in developing countries, while they account for a much smaller proportion in developed countries.⁶

In our study the incidence of SAMM was 12.27 per 1000 live birth which is comparable with the study of Moraes et al¹³, (15/1000), Roopa PS et al¹⁴ (17.8/1000), Kanan A yelikar et al¹⁵ (11.69/1000) Waterston et al¹⁶ (12/1000).

In this study most (54.23%) of women were in the age group of 21-25, were unbooked (57.62%), primipara (38.98%), full term (47.45) and of low-income group (64.40%). This study was comparable with one another study, in which 53.3% of women with a near-miss in their hospital were in the age group of 21-25 year, 66.6% was primipara, 73.3% were term and 60% were from low 67.85% were the age of $<\!\!25$ years, 64.28% were unbooked and were admitted in an emergency, the literacy rate was low and majority from low social-economic group¹⁷.

In the present study he found the most common morbidity was (30.50%) hypertensive disorder of pregnancy, the second one was (23.72%) of severe hemorrhage. Upadhyaya and Chaudhary¹⁸. Mridu Sinha¹⁹, Huseyin et al²⁰, Moracs et al²¹, also reported hypertensive disorder in pregnancy as the leading cause of severe maternal morbidity. In the Study of Souza JP et al²², the incidence of severe preeclampsia was 36.3%, Eclampsia 9.7% HELLP syndrome 5.6% severe hemorrhage 10.5% severe sepsis 6.4%.¹

This study was not in agreement with the study of Roost et al²³ and Taly et al²⁴, they reported hemorrhage 48% and 60% as the most common cause of severe acute maternal morbidity respectably. In our study, severe anemia was the most frequent medical disorder present in morbid Patients. Various other studies from our country have also reported that anemia is an important cause for severe maternal morbidity and mortality.

During the study period, 4 patients (2 due to hypertensive disorders, 1 due to antepartum hemorrhage and 1 due to

severe anemia and with CCF) died. The most common cause of maternal death is pregnancy-induced hypertension, which was not in agreement with other studies in which the most common cause of maternal death was hemorrhage. Mehta M^{25} , Jain U^{26} and the study of Mridu Sinha¹⁹ in which the most common cause of maternal death was sepsis. After concluding from our study, we want to recommend few changes to consider.

- 1- Essential and emergency obstetrics of neonatal care facility should be in place. It should be fully functional and accessible and skilled manpower should be available there. Health care services must be affordable.
- Availability of Magnesium sulfate, blood transfusion facilities, facilities for emergency cesarean section should be available throughout the country. Continuous supply of essential drugs and consumables should be in the hospital.
- 3-No delay in diagnosis treatment and referral (if needed) of SAMM cases by health staff and doctors should be there and the referral system should be strengthened. Proper management of obstetrics emergencies at referring hospitals, poor referral practices & poor assessment of the utilization of health care services are some of the most frequent preventable factors.
- 4- Auditing of NMM Cases at PHC, CHC, district, and tertiary care centers should be there to improve the further quality of obstetric care. Reporting of SAMM cases to state and national level should be there so that health care policy making can be enhanced. Auditing of the same cases helps to improve the quality of present available health care system.

5. CONCLUSION-

This study summarized that lack of awareness, lack of education, first delay in reaching to the health care system, lack of antenatal visits, preexisting chronic medical disease, inadequate use of magnesium sulphate before transferring patient of severe PIH/eclampsia to higher center, delay in diagnosis and referral to higher center were the contributing factor associated with increase severe maternal morbidity cases. Our study is in agreement with various other studies that identification of SAMM cases is very useful in monitoring the quality and effectiveness of obstetrics care. It helps in diagnosing various contributing factors of maternal death so that prevental action can be taken at various level, pattern and trend of maternal morbidity and mortality can be recognized. It helps in the evaluation of the quality of health care facility in terms of human resources, infrastructure, and intervention facilities. It shows that Severe morbidity data is very important for policy planner to evaluate the quality of health care system, to know the requirement of emergency obstetrics care (EMOC) and to improve the health care system.

6. REFERENCES-

- Souza JP, Cecatti JG, Parpinelli MA, Serruya SJ, Amaral E. Appropriate 1. criteria for identification of near-miss maternal morbidity in tertiary care facilities: A cross sectional study. BMC Pregnancy childbirth. 2007;7:20 PMC free article. Pubmed. Google Scholar.
- Akker T, Rhenen JV, Mwagomba B, Lommerse K, Vinkhumbo S, Roosmalen JV. Reduction of severe acute maternal morbidity and maternal mortality in thyolo district, malawi: the impact of the obstetric audit. PLoS One. 2011;6(6):e20776.
- Senanayake H, Dias T, Jayawardena A. Maternal mortality and morbidity: 3. epidemiology of intensive care admissions in pregnancy. Best Pract Res Clin Obstet Gynaecol. 2013;27(6):811-20
- Say L, Pattinson RC, Gulmezoglu AM. WHO systematic review of maternal morbidity and mortality: the prevalence of severe acute maternal morbidity 4. (near-miss). Reprod Health. 2004;1(1):3.
- Bibi S, Memon A, Sheikh JM, Qureshi AH. Severe acute maternal morbidity and intensive care in a public sector university hospital of Pakistan. J Ayub Med Coll Abbottabad. 2008;20(1):109-12.
- Pollock W, Rose L, Dennis CL. Pregnant and postpartum admissions to the 6. intensive care unit: a systematic review. Intensive Care Med. 2010;36(9):1465-74
- Pattinson RC, Buchhman E, Mantel G, Schoon M, Rees H. Can inquiries into 7. severe acute maternal morbidity act as a surrogate for maternal death enquiries? British J Obs Gynae. 2003;110(10):889-3. 8.
 - Singh S. Hospital admissions resulting from unsafe abortions: estimates from

VOLUME - 10, ISSUE - 09, SEPTEMBER - 2021 • PRINT ISSN No. 2277 - 8160 • DOI : 10.36106/gjra

13 developing countries. Lancet. 2006;368:1887-92.

- Kushwah B, Singh AP, Natung P. Analysis of various criteria for identification of severe acute maternal morbidity in a rural tertiary health care center: a prospective one year study. Int J Med Sci Public Health. 2014;3(3):330-334.
 Say L, Souza JP, Pattinson RC. WHO working group on maternal mortality and
- Say L, Souza JP, Pattinson RC. WHO working group on maternal mortality and morbidity classifications. Maternal near-miss towards a standard tool for monitoring quality of maternal health care. Best Pract Res Clin Obstet Gynaecol. 2009;23:287-96.
- Lawton B, Macdonald EJ, Brown SA, Wilson L, Stanley J, Tait JD, et al. Preventability of severe acute maternal morbidity. Am J Obstet Gynecol. 2014;210:557-6.
- Leung NY, Lau AC, Chan KK, Yan WW. Clinical characteristics and outcomes of obstetric patients admitted to the intensive care unit: α 10-year retrospective review. Hong Kong Med J. 2010;16(1):18-25.
- Moraes AP, Barreto SM, Passos VM, Golino PS, Costa JA, Vasconvelos MX, Incidence and main causes of severe maternal morbidity in Sao Lusis, Maranhao, Brazil: A longitudinal study Sao Paulo Med J. 2011;129:146-52.
- Maranhao, Brazil: A longitudinal study Sao Paulo Med J. 2011, 129:146-52.
 Roopa PS, Verma S, Rai L, Kumar P. Murlidhar V. Pai, et. Al "Near Miss" Obstetric Events and Maternal Deaths in a Tertiary care Hospital: an Audit Journal of Pregnancy. (2013).
- Kanan A yelikar, Sonali S Seshpande, Shubhangi F Deshmukh, Severe Acute Maternal Morbidity in a Tertiary Care Centre With Basic Intermediate Respiratory care Units Setup, DOI: 10.17354/ijss/2015/343.
- Waterstone M, Bewley S, Wolfe C. Incidence and predictors of severe obstetric morbidity: a case-control study. MBJ. 2001;322(7294):1089-4.
- Kaur N, Aryal S. Pattern of Severe Acute Maternal Morbidity in Tertiary Care Institute: J. Lumbini Med. Coll, 2015;3(2):45-9.
- 18. Upadhyaya I, Chaudhary P Severe acute maternal morbidity and intensive care in Paropkar maternity and women's hospital. NJOG. 2013;8(2):38-41.
- Mridu Sinha, J.K. goel, Shanti Sah, Ruchica Goel, Rajani Chaurasia, Severe acute maternal morbidity: A study of epidemiology
 Huseyin C, Cihan K, Ramzan A, Ziya YY, Murat E, Levent Y. Near miss
- Huseyin C, Cihan K, Ramzan A, Ziya YY, Murat E, Levent Y. Near miss obstetric cases: 4-year experience of a tertiary center. Gynecol Obstet Reprod Med, 2013;19(1):19-22.
- Moraes AP, Barreto SM, Passos VM, Golino PS, Costa JA, Vasconcelos MX. incidence and main causes of severe maternal morbidity in sao Luis Maranhao, Brazil: A longitudinal Study. Sao Paulo Med. J. 2011;129(3):146-52.
- Sauza JP, Cecatti JG, Parpinelli MA, Serruya SJ, Amaral E, Appropriate criteria for identification of near-miss maternal morbidity in tertiary care facilities: A cross-sectional study BMC pregnancy and childbirth. 2007;7(1):20.
- Roost M, Altamirano VC, Lilijestrand J, Essen B. Priorities in emergency obstetric care in Bolivia – maternal mortality and near-miss morbidity in metropolitan La Paz, BJOG. 2009;116(9):1210-7.
- Taly Å, Gupat S, Jain N. Maternal intensive care and near-miss mortality in obstetrics. J Obstet Gynecol India. 2004;54(5):478-82.
- Mehta M, BĂvarva N, Facility base maternal Death Review at Tertiary care Hospital: A small Effort to Explore Hidden facts. Appl Med Res. 2016;1(4):126-9.
- Jain U, A study on maternal near-miss cases in government Medical college Shivpuri, India. Original Research Article. DOI: http://dx.doi.org/ 10.18203/ 2320-1770.ijrcog 20193149.