POST-MORTEM STUDIES OF MATERNAL MORTALITY

by

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Introduction

The high maternal mortality rate in our country affords an excellent chance to study the post-mortem findings. This is possible because many of them are emergency admissions in moribund state and die within 24 hours of hospital admission.

This study deals with the post-mortem findings of 175 cases of maternal deaths out of 88,202 admissions at the Obstetric Departments of K.E.M. Hospital and Nowrosjee Wadia Maternity Hospital, Bombay from 1964 to 1968. Duration of hospital stay, age parity, and duration of pregnancy are analysed in these cases. One hundred and fifty of the 175 cases were emergency admissions. An attempt is made to analyse the probable cause of death and compare it with the post-mortem findings in retrospect. In a few cases very interesting surprises were found on post-mortem examination which should serve as a lesson for future guidance.

Inability to understand the cause of a maternal mortality is more embarrassing to the Obstetrician than death from unavoidable conditions or neglect on the part of the patient. Despite sophisticated methods, high clinical acumen and absorbing and argumentative discussions, the Obstetrician very often fails or fumbles in precisely pointing at the cause of death. To serve as a guidance for future management one has to dissect the problem to its finest fibre, though knowing the cause of death would only shower "wisdom in retrospect". Post-mortem studies will help to save many a lives in future. It is difficult to obtain permission for post-mortem examination in our country where ignorance, illiteracy and superstitions prevail. This being so, time and again various departments are forced to give the probable cause as the final cause of death.

Post-mortem studies were carefully carried out in the Pathology Department of K.E.M. Hospital. The post-mortems are analysed with reference to the type of

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emergency, age, parity, antenatal background, type of delivery, duration of hospital stay before death, probable cause of death, post-mortem findings and the correlation of the latter two.

Booked or Emergency Admission

Out of 175 post-mortems, 25 were booked and 150 (85.7%) were emergency admissions. Of the booked patients, many were like emergency admissions in the sense that they had attended antenatal clinics only once or twice. A large number died within 24 hours of admission which by hospital law necessitate post-mortem study. Chandiok and Devi (1974) reported 96 deaths in 5 years, 95% of them being on unbooked cases.

Duration of Stay

Table I shows that 110 of these patients died within 24 hours of admission, and 40 within four hours of admission. This speaks of the poor and irreversible state in which they were admitted. Thirty-two died within 25 to 72 hours, giving 81 per cent of the total deaths within 72 hours of admission. Some of the patients were gasping or transferred just before imminent death. In some of these deaths, diagnosis was obvious. Post-mortem was ordered because of death occurring soon after admission.

TABLE I
Duration of Hospital Stay

Duration	Number of cases
Within 4 hours	40
5–24 hours	70
25–72 hours	32
4–10 days	22
More than 10 days	11
Total:	175

Age and Parity

Bulk of the patients (122) were in 21-30 age group, 23 below the age of 20, 24 between 31 and 40 and 6 above the age of 40 years. Sixty-six out of 175 belonged to primipara group and the same number to 2-4 para group. This emphasises the dangers and hazards in primiparae (Table II). This is due to neglect during antenatal period, prolonged labour and a higher rate of interference.

TABLE II
Paritywise

Parity	Number of cases
I	66
II–IV	66
V–VII	34
VIII or MORE	9

Duration of Pregnancy

One hundred patients were in the last trimester of pregnancy, 40 in the first and 35 in the second trimester. A preponderance in the last trimester is easily understood as complications like toxaemia, antepartum haemorrhage and operative interference are commoner in that period. Deaths in the first trimester are mainly due to criminal abortions and tetanus.

Type of Delivery

Putting all factors on par, the course of labour, the type of delivery (operative or otherwise) and incidental operative procedures have a great bearing on maternal outcome.

Because of poverty, ignorance, poor antenatal care and associated diseases, patients are in a poor state to stand operations or complications. Out of 175, 40 mothers died before labour. This is because either the termination of preg-

nancy was not needed or general condition was too poor for termination or they came and died within a few minutes. Of the 135 deliveries only 65 had normal labour and delivery as opposed to 70 having operative delivery, exploratory laparotomy or other obstetric operations. Inclusion of significant number of operated cases can be attributed to the necessity of post-mortems on all the deaths within 24 hours of operation. These cases include 20 patients who had delivered at home and 24 cases from small maternity homes transferred in moribund state.

TABLE III

Probable Cause of Death

Probable Cause	No. of cases
I. *Haemorrhage and Shock*	
Post-abortal or post-partum	30
Haemorrhagic shock	17
Post-operative shock	21
Obstetric shock	6
Rupture uterus	4
Retained placenta	4
II. *Infections:*	
Peritonitis	7
Tetanus	6
Septicaemia	3
Gas gangrene	3
Endotoxic shock	2
III. *Toxaemia of Pregnancy:*	13
IV. *Associated medical conditions:*	
Hepatic failure	21
Congestive cardiac failure	17
Gastroenteritis	3
C N S Disease	2
Renal failure	2
Diabetic coma	1
Small Pox	1
Coronary thrombosis	1
Pulmonary Embolism	2
V. *Surgical causes:*	
Intestinal obstruction	1
VI. *Malignant Conditions:*	
Carcinoma rectum	1
Unexplained	7

Table III shows the probable cause of death given in these 175 cases. In some of them the cause was clear but post-mortem was ordered because patient died within a few hours of admission. Haemorrhage and shock was the most common cause. This is mainly because the patients are either brought or transferred late after considerable blood loss has occurred in an anaemic state. Infection ranks next on the list and occurs mainly due to poor environment besides repeated examinations and manipulations in patients who are in a poor condition to withstand them. Hepatic failure and congestive cardiac failure are among the common medical conditions found in these patients.

The causes of death as found on post-mortem examinations are tabulated in Table IV. Of the 23 patients who died of haemorrhagic shock, 9 had placenta praevia, 3 accidental haemorrhage, 2 renal failure and the remaining 11 had post-partum haemorrhage. Many of these patients were severely anaemic with haemoglobin concentration of 3 to 5 gms. per cent. Twenty patients had obstetric shock following obstetric trauma, operative manipulation or lacerations. Five of them were admitted after unintentional, unsupervised trial of labour at home.

Infections formed the next important group of patients. Of the 24 patients, 15 followed criminal abortions. Four cases of septicaemia had associated renal failure.

There were 8 cases of severe toxaemia of pregnancy. Of these 2 had associated

TABLE IV
Post Mortem Cause of Death

Cause on Post-Mortem	No. of cases
I. *Haemorrhage and Shock*	
Haemorrhagic shock	23
Obstetric shock	20
Post Abortal shock	10
Post Operative shock	8
II. *Infections*	
Septicaemia	10
Tetanus	8
Endotoxic shock	3
Schwartzmann phenomenon	3
III. *Toxaemia of Pregnancy*	8
IV. *Anaesthesia*	2
V. *Associated Medical Conditions*	
Hepatic necrosis	20
Severe anaemia	15
Cardiac failure	6
Renal failure	5
Pulmonary oedema	3
Respiratory failure	3
Miliary tuberculosis	3
Pulmonary tuberculosis	2
Pneumonia	3
Gastroenteritis	3
Typhoid Enteritis	1
Myocarditis	1
Meningitis	1
Cerebral oedema	2
Cerebral haemorrhage	1
Pontine haemorrhage	1
Diabetic coma	1
Pulmonary embolism	3
VI. *Surgical Conditions*	
Perforative peritonitis	2
Purulent peritonitis	2
VII. *Malignancy*	
Carcinoma rectum	1

pulmonary oedema, 3 had renal failure and 1 hepatic failure.

Hepatic necrosis is the commonest among the medical disorders. Most of the cases followed infective hepatitis which is quite common in our country and carries a very poor prognosis for pregnant women. Four of the patients who died of cardiac failure were transferred cases with valvular lesions in the heart and the remaining 2 had severe anaemia with haemoglobin of 3 to 4 grams per cent.

Discussion

Despite all advances, maternal mortality has remained strikingly high in our country. This is not because the Institution lacks clinical acumen of Obstetricians or inferior operative techniques nor due to inavailability of antibiotics and blood transfusions, put because women without prenatal care reach the hospital in an irreversible condition or with irrepairable damage. In certain situations despite prompt, energetic and scientific line of treatment, a woman does not survive and the Obstetrician is intrigued as to the cause of her death. Sometimes, more than one condition may have contributed to death and again final diagnosis is lacking. Besides this, it is very well known that at post-mortem one may be completely surprised and shaken with the findings and diagnosis. Hinkely and Miller (1969) showed that 30 out of 59 maternal deaths were preventable. However, etiological factors in their series are far different than problems in our country. Menon (1968) in a letter from India wrote that 20% of deaths in our country were due to anaemia and 95% of deaths due to haemorrhage were in women with irreversible shock. Hence the present analysis is definitely an eye-opener as it reflects on happenings in our country.

Table V is a revealation about the need of demanding post-mortem on a woman

TABLE V
Unexpected Postmortem Findings and Corelation

Probable Clinical Diagnosis	Post-mortem Surprise
1. Post-abortal shock	1. Miliary tuberculosis 2. Purulent peritonitis 3. Gas gangrene.
2. Congestive Cardiac Failure	1. Tuberculosis
3. Toxaemia	1. Cerebral infarction 2. Hepatic and cerebral necrosis 3. Massive intracranial haemorrhage 4. Nephritis.
4. Haemorrhagic Shock	1. Suture given way.
5. Gastroenteritis	1. Miliary tuberculosis 2. Perforated peritonitis
6. Operative Shock	1. Tuberculosis 2. Purulent peritonitis 3. Pulmonary embolism
7. Pulmonary embolism	1. No embolism in 4 cases
8. Unexplained	1. Cerebral and pulmonary infarction 2. Miliary tuberculosis 3. Haemangioma of spleen
9. Peritonitis	1. Cerebral sinus thrombosis 2. Intestinal haemorrhage 3. Miliary tuberculosis 4. Meningitis
10. Hepatic Failure	1. Chorio-carcinoma with secondaries.

who dies without definite cause. At post-mortem one is surprised to find unexpected conditions like miliary tuberculosis, cerebral infarction, perforated peritonitis, and even haemangioma of spleen.

Summary

1. One hundred and seventy-five post-mortems of maternal mortality cases are ...d in detail.

...uration of hospital stay, age and ...re analysed.

3. Duration of pregnancy showed that majority of cases (100) were in the last trimester and 40 in the 1st trimester.

4. Post-mortem outcome is compared and studied in relation to the probable cause of death. Surprise diagnosis and the need for post-mortem are emphasized.

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