

## Puerperal Sepsis: An Outcome of Suboptimal Obstetric Care

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### ABSTRACT

**OBJECTIVE:** To determine the frequency, causative factors and outcome of delivery by trained or untrained personnel.

**STUDY DESIGN:** Descriptive study.

**SETTING:** This study was done in the Gynaecology / Obstetric Unit-II, Liaquat University Hospital, Hyderabad Pakistan from 1<sup>st</sup> January 2006 to 30<sup>th</sup> December 2006.

**PATIENTS AND METHODS:** All the patients who developed puerperal sepsis, delivered outside the university hospital were included in this study, while those who were referred as a case of retained placenta, other obstetric related postpartum morbidities like anaemia, puerperal psychosis, breast abscess, UTI, or who developed postoperative surgical problem delivered at university hospital were excluded from study.

**RESULTS:** Out of total 2885 maternal admissions 135 patients had various postpartum problems, 61 patients had puerperal sepsis. Majority (67.2%) was less than 30 years of age and 52.5% of low parity. Among study population 67.2% belonged to low socio-economic group and 96% were illiterate. Majority (67%) of women did not receive any level of care, only 9.8% had level 3 care. Patients who had vaginal delivery were 93.4% while 6.6% had caesarean section. In majority of patients (57.4%) high grade fever was the major symptom followed by distension of abdomen in 26.2%. Evacuation of uterus and laparotomy were done in 39.3%, only evacuation of uterus was carried out in 24.6% and 3.3% had hysterectomy. One third (32.8%) had prolonged hospital stay and other one third (32.8%) died in spite of all possible measures.

**CONCLUSION:** The study concludes that in majority of women sepsis as well as maternal death was preventable. It can be reduced by proper counseling of women about importance of antepartum, intrapartum and postpartum care and training of Dais and refreshing courses of trained birth attendants (TBAs).

**KEY WORDS:** Postpartum infection, Puerperal sepsis, Obstetric care.

### INTRODUCTION

Puerperal sepsis is an important cause of postpartum morbidity and mortality both in developed and under developed countries. It is one of the leading causes of preventable maternal death<sup>1</sup>, ranked third after haemorrhage and hypertensive disorders in Pakistan<sup>2</sup>. Puerperal sepsis is defined as a rise of temperature of 38°C or more after 24 hours of delivery upto 10<sup>th</sup> day of delivery<sup>3</sup>, while postpartum period is taken as a beginning one hour after the delivery of placenta continue until 6 weeks (42) days after the birth of infant. Various predisposing factors responsible for puerperal sepsis are low socio-economic conditions, sexual intercourse during last week of pregnancy and pelvic examination during pregnancy<sup>4</sup>. Un-hygienic home delivery, anaemia, prematurity, prolonged rupture of membranes, prolonged labour, multiple vaginal examinations and instrumental deliveries are also contributory factors. According to maternal and child health challenges<sup>1</sup>, in Pakistan 4-5 million deliveries

take place each year. Latest estimates from the government shows that 76% of deliveries are conducted at home, almost 90% of them are delivered by untrained birth attendants specially in rural areas<sup>5</sup>. Therefore maternal mortality is high in rural as compared to urban areas. About 10-15% of women suffer from sepsis<sup>5</sup>. This is because of the use of un-washed hands or non-use of antiseptic medicines by untrained birth attendants as compared to trained birth attendants<sup>6</sup>. This study was conducted to see the frequency of puerperal sepsis in women admitting at Liaquat University Hospital, to identify associated risk factors, place of delivery and conducted by skilled or unskilled personnel. So this morbidity and its mortality can be reduced by rectifying the avoidable factors.

### PATIENTS AND METHODS

This study was conducted at Gynae Unit –II, Liaquat University Hospital, a tertiary care centre at Hyderabad, receiving patients from interior Sindh and even

Balochistan. All the patients who developed puerperal sepsis and delivered out side the university hospital were included in the study. These patients were admitted through casualty in emergency. The patients who had retained placenta, other postpartum complications, operative surgical problems delivered at university hospital, were excluded from the study. All the relevant data were recorded on the pre-designed proforma regarding age, parity, socio-economic status, educational status, place and type of delivery, personnel conducting the delivery, duration of symptoms and any treatment received, its outcome in the form of morbidity and mortality.

**Data Analysis:** The data were evaluated in statistical program SPSS version 11.0. Simple frequencies and percentage were calculated among the categorical parameters. As it is descriptive study therefore no any statistical test was applied.

**RESULT**

Total number of admission during one year were 2885. Among them 135 were admitted with postpartum problems, 61(45.1%) patients had puerperal sepsis. Table-I shows socio-demographic data revealing that out of 61, 41 (67.2%), belonged to low socio-economic group. Educational status was assessed and showed that 59(96%) women were uneducated, only 2(3.2%) had primary schooling. When education of husband was assessed, 50% of husbands were uneducated, 50% had schooling till class 8<sup>th</sup>. Fifty three (86%) were referred from rural area while 8 (13%) belonged to urban area. The age ranged between 15 and 42 years, 41 (67.2%) were less than 30 years, 6(10.1%) were more than 40 years of age, 32 (52.5%) were of low parity while 9 (14.7%) were grand multipara (**Table I**). The level of care at nearest health facility was found to be 41 (67%) were delivered by un-trained birth attendant at home, 14 (23%) delivered at hospital (both government and private clinic), 9.8% were delivered by trained birth attendants at local hospitals and home. Fifty seven (93.4%) had vaginal delivery while 4 (6.6%) women had caesarean section. High grade fever was the major symptom in 35 (51.4%), followed by distension of abdomen in 16 (26.2%). Open abdominal wound after caesarean section was noticed in 2(3.2%) women 24 (39.3%) needed evacuation of the uterus and laparotomy. Dilatation and evacuation alone was required in 15 (24.6%). However 2 women had hysterectomy due to gangrenous uterus and severe infection (**Table II & Table III**). Prolonged hospital stay was in 20 (32.8%) patients who were hospitalized for more than 15 days,

14(23.0%) responded to the treatment within a week however 07(11.4%) developed psychosis during hospital stay. Out of 61, 40(65.6%) women delivered alive babies while 13(21.3%) had stillbirth and 08(13.1%) babies died after birth. Out of 61, 20(32.8%) patients died inspite of all measures; majority had home deliveries and had delivered dead babies. Septicemia, renal failure, cardiopulmonary failure and disseminated intravascular coagulation disorders were the reason of death.

**TABLE I:  
DEMOGRAPHIC DATA (n=61)**

Variable	No. of patients	Percentage
<b>Age</b>		
15 – 31	41	67.2
31 – 40	14	24.6
> 40 years	06	10.16
<b>Socio Economic Condition</b>		
Low	41	67.2
Middle	20	32.78
<b>Educational status</b>		
Uneducated	59	96
Primary schooling	02	24
<b>Catchment Area</b>		
Rural	53	86
Urban	08	13
<b>Parity</b>		
Para 1 – 3	32	52.5
Para 4 – 7	20	32.78
Para 7 +	09	14.75

**TABLE II:  
SYMPTOMS (n = 61)**

Symptoms	No. of Patients	Percentage
High-grade fever	35	57.4
Distension of abdomen	16	26.2
Open perineal wound	14	23
Foul smelling vaginal discharge	08	13.1
Open abdominal wound	02	3.2

**TABLE III:**  
**MANAGEMENT OPTIONS (n = 61)**

Management	No. of Patients	Percentage
D&E + Laparotomy	24	39.3
EUA + D&E	15	24.6
Re-suturing of perineal wound	10	16.4
Re-suturing of abdominal wound	06	9.8
Colpotomy	04	6.6
Hysterecotmy	02	3.3

EUA = Evacuation under Anesthesia

D & E = Dilatation and Evacuation

## DISCUSSION

Although sepsis is an important public health problem contributing to maternal morbidity and mortality but the information on the global record of this problem is limited. The reasons are various including limited data availability, lack of information from primary, secondary, tertiary care level due to limited resources. Incidence of puerperal sepsis shows wide variation among published data range from 1% to as high as 17%<sup>7</sup>. The Signs of sub-involution of the uterus, a foul smelling vaginal discharge and open cervix with signs of sepsis (temperature, tachycardia and tachypnoea) make the diagnosis of puerperal sepsis. In our study 135 women had postpartum complications, among them 61 (45.18%) had puerperal sepsis. The more or less same frequency is shown in a study at India where out of 200 women, 51% had puerperal sepsis<sup>16</sup>. Puerperal sepsis is among the leading causes of preventable maternal death. In a study of maternal mortality in a tertiary care hospital in Abbotabad, deaths due to p-sepsis were 19.2% and it was third leading cause of death<sup>8</sup>. In our set up 32.8% out of 61 died because of puerperal sepsis. A big proportion of our women in rural areas deliver at home with or without care during pregnancy as well as at the time of delivery. They are malnourished and anemic so more prone to infection. Majority of women died in our study were delivered by Dia at home and delivered dead babies, interval between symptoms and admissions at our hospital was more than 7 days, therefore mortality rate is high. Postpartum puerperal morbidity after caesarean section in our study was 6.6% out of 61 women, which is more than the study of Pothinam S, where it was 5.5% in 506 patient having caesarean section<sup>9</sup>. Though in our setup the rate of infection is high as most of the patients were delivered in un-

hygienic environment by un-trained personnel at home so this may underestimates postpartum infection. This is because of the selective referral of women requiring tertiary hospital and limited use of antibiotic medicine at all level care. The similar result of study by Nguyen T.N at Veitnam showed postpartum infection in 1.7% due to prophylactic use of antibiotics<sup>11</sup>. This was prospective study which identified infections after vaginal delivery by clinical and laboratory examination prior to discharge from hospital and again at 6 weeks postpartum in Ho Chi Minh city, Viet Nam. This study showed that postpartum infection particularly severe infection is greatly underestimated. In our study majority 67% of women who developed infection delivered at home, similar observations are made in neighboring developing countries such as in Bangladesh 91% delivered at home by untrained birth attendants<sup>10</sup>. In India too observation made by Chhabra Shakuntula showed more trained home deliveries by Indian rural women<sup>8</sup>. Each year 60 million women give birth with the help of an un trained traditional birth attendants or family member<sup>11</sup>. The age range in present study was between 15-48 years of all postpartum admissions, 20 out of 61 (67.2%) were between 15-30 years. It reflects that large number of births takes place within this age group. This is similar to study made by Lisa Valley where most of patients were in age group 15-29 years<sup>12</sup>. Maternal mortality rate in developing countries varies from 585/100000 births and among this 15% is because of serious maternal infection while in Veitnam where maternal mortality rate is 160 /100,000 births the minimum rate of serious maternal infection is 0.02%<sup>13</sup>. While the study in our unit showed maternal mortality in 20(32.8%) out of 61, and postpartum infection was 45.18%; a very high infection and mortality rate. This could be because Liaquat University Hospital receives patients from whole province, at the same time reason was delay in seeking medical help as well as timely referral.

## CONCLUSION

The study conclude that in majority of women sepsis as well as maternal death was preventable. It can be reduced by proper counseling of women about importance of antepartum, intrapartum and postpartum care and training of Dais and refreshing courses of trained birth attendants (TBAs).

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