

## PUERPERAL TETANUS

by

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Puerperal sepsis is a serious and frequent complication of childbirth. Tetanus is reckoned as a rare variety of puerperal sepsis, and is regarded as one of the gravest dangers of childbirth. Expert obstetric management under the guidance of experienced personnel has considerably eliminated the risk.

The incidence of puerperal sepsis in general, and of tetanus in particular has fallen appreciably with rising standards of asepsis and obstetrical care. Unfortunately, in this country, still much remains to be done. Deliveries are still being conducted by uneducated midwives 'dais' who do not know what asepsis means. Obstetric patients are nursed on the floor, which is made up of manure and straw. Dirty rags and native medicines are employed freely for local use. In these circumstances it is surprising that many more cases of puerperal tetanus do not occur.

It is interesting to note that except one report of puerperal tetanus, no collected series of cases have been published in India, where, according to Knight, the conditions for the occurrence of post-partum tetanus would seem ideal. B. Bernard Weinstein et al, in 1941, made this comment while reviewing the literature on puerperal tetanus. Since then, however, Dave et al, have reported a

series of 103 cases of puerperal tetanus in 1955.

Review of world literature reveals that the incidence of puerperal tetanus is very low. Ramsay et al encountered, in 31 years, only one case of tetanus following delivery among 6,000 cases of puerperal sepsis. Hubner & Frendenberg in 1954 reviewed 1,894 cases of tetanus due to all causes with 930 deaths (49%). In this series, 39 cases of puerperal tetanus were reported following abortion, with 27 deaths (69%), Vinay in 1894 reviewed 106 cases of puerperal tetanus. Sepet in 1898 reported 125 cases, 48 following abortion, 77 following normal delivery. Schneider in 1926 reported 109 cases. Bosh reported 5 cases following induction of abortion, by cervical pack, in a hospital.

### *Material and Methods*

Over a period of four years, from November 1954 to October 1958, 2,007 cases of tetanus were admitted into the tetanus ward of the King Edward Memorial Hospital, Bombay 12. Of these, 67 cases were puerperal tetanus, thus giving an incidence of 3.33% of all cases. Unfortunately, we do not have an obstetric unit in our hospital, so we are unable to state what proportion of patients

TABLE I

Grade	Puerperal tetanus				Tetanus in general					
	Total no. of cases	% Incidence	Re-covered	Died	% Mortality	Total no. of cases	% Incidence	Re-covered	Died	% Mortality
I	2	3.99	2	—	0.00	211	10.51	211	—	0.00
II	5	7.46	5	—	0.00	264	13.15	247	17	6.4
III	9	13.43	8	1	11.1	407	20.23	300	107	26.3
IV	23	33.33	7	16	70.0	645	32.14	282	363	56.3
V	28	41.79	2	26	92.9	480	23.97	89	391	81.5
Total	67	—	24	43	64.2	2007	—	1129	878	43.7

TABLE II  
Tetanus following Delivery

Grade	Total no. of cases	% Incidence	Recovery		% Mortality
			Recovered	Died	
I	2	9.10	2	—	—
II	2	9.10	2	—	—
III	6	27.30	5	1	16.66
IV	8	36.32	2	6	75.00
V	4	18.18	1	3	75.00

TABLE II (A)

Grade	Delivery at home		Delivery at hospital	
	Recovered	Died	Recovered	Died
I	1	—	1	—
II	2	—	—	—
III	2	1	3	—
IV	2	6	—	—
V	—	2	1	1



with puerperal sepsis developed tetanus.

#### Grading of Tetanus

Tetanus is attended with a high mortality. Different authors have claimed usefulness of various remedies and have used different criteria for determining the severity of the disease. In order to determine the prognosis of the disease, we have devised a grading system based on five criteria and these are:

1. Lockjaw.
2. Spasms.
3. Incubation period of 7 days or less.
4. Period of onset of 48 hours or less.
5. Axillary temperature of 99°F or rectal temperature of 100°F on admission or within 24 hours of admission into the hospital.

Those cases which have all the five criteria mentioned above belong to the severest group and are termed Grade V, those having any four of the five as Grade IV, those having three as Grade III, two as Grade II, and those having one of the above five were regarded as Grade I.

The criteria used in our grading are well known and recognised by almost all workers in the field. We have shown in our paper that with

reasonable accuracy the severity of the patient's condition can be judged.

Table I shows the grading of these 67 cases of puerperal tetanus and their mortality rate as compared with the general mortality rate of tetanus from all causes.

The incidence, and rate of recovery of tetanus following delivery are given in Table II and II(A). Most of the cases were severe (grades IV and V). 22 cases of tetanus developed after delivery; of these 16 were delivered at home and 6 were delivered in the hospital. Of these 6 cases, vaginal manipulations were done in only 2 cases. In one case abdominal sterilisation was carried out. These 3 cases recovered. In the other three cases, delivery was normal and no manipulation was done—(whether vaginal examination was done or not could not be verified)—of these, one patient expired and two recovered. Thus mortality of tetanus following delivery in a hospital in our small series was 16.66%.

Table II(A) shows that those delivered at home were not only more in number but also had a higher mortality.

The severity of tetanus (grades IV & V) following abortion and its high mortality are shown in Table III.

TABLE III

<i>Tetanus following Abortions</i>					
Grade	Total no. of cases	% Incidence	Recovered	Died	% Mortality
I	—	—	—	—	—
II	3	6.67	3	—	—
III	3	6.67	3	—	—
IV	14	31.11	4	10	71.43
V	25	55.55	1	24	96.00

Forty-five out of 67 cases of puerperal tetanus followed after abortion. Of the 45 cases of tetanus following abortion, 34 ended fatally—mortality being 75.55% as against 45.45% mortality of tetanus following delivery. In 8 patients there was history of induced abortion; in 7, by local interference and manipulations and only in 1, by oral medication. Only in one case a foreign body was detected, a 6 inch long stick in the uterus and cervix and cotton plug in the vagina. In two cases in which abortion was mechanically induced there was definite evidence of septic abortion. In 19 cases there was no such history or evidence of artificial induction and it appeared that these were cases of spontaneous abortion. In 18 cases no history of induction of abortion was obtainable but there was scepticism about the veracity of the statement and so these cases were classified as “? induced abortion.” In none of the cases was there any evidence of injury or foreign body in the genital passages. One had spontaneous abortion but there was obvious septic complication. Four patients were unmarried and one was married but staying away from her husband for several years.

### Discussion.

Puerperal tetanus may either follow a full-term delivery or an abortion. In the present series there are 22 cases following delivery and 45 cases following abortion. This difference can be due to several reasons. People are more conscious about deliveries and, with increased facilities and more knowledge about dangers of home delivery, more and more women prefer confinement in hospital where obviously chances of infection are at minimum. This is not so with abortion. Women are reluctant to go to hospital following an abortion unless complicated by severe pain, profuse bleeding or infection. Proper care is not taken at home, and dirty rags are used as vulval pads. Also, abortion may be induced by the patient, relation of the patient or a professional abortionist — who are quite ignorant of the dangers involved.

As tetanus organisms may grow and develop in any wound it is not necessary that they may be actually introduced in the uterine cavity, a small perineal tear is quite sufficient and may be the portal of entry.

The reasons for the higher inci-

TABLE III(A)

Grade	Spontaneous abortion		Induced abortion		? Induced abortion	
	Recovered	Died	Recovered	Died	Recovered	Died
I	—	—	—	—	—	—
II	—	—	—	—	3	—
III	—	—	2	—	1	—
IV	1	5	1	2	2	3
V	—	13	—	3	1	8

Table No. III(A) shows the incidence and the grade of tetanus that followed spontaneous abortion and induced abortion.

dence of tetanus, and that of mortality, following abortion are several. Massive infection due to mechanical interference; greater negligence on



the part of the patient, and taking medical advice too late, because of guilt complex.

The mortality figure in our series of puerperal tetanus is quite high. In the series of 115 cases collected over 11 years (August 1943 to July 1954) from the same institution, Dave et al. reported a mortality of 59%. Seventy-four of their cases followed abortion and 41 followed delivery, the mortality in 2 groups being 65% and 49% respectively. The average mortality of tetanus during the same period varied from 41 to 54%. In the present study, though the overall mortality of general series was 43.2%, mortality of puerperal group remained high, i.e. 64.2%. This also indicates that puerperal tetanus is severe, and it is difficult to lower the mortality even with improved management and treatment. As could be seen from Table I, there is higher incidence of grade IV and V (75%) in puerperal tetanus as compared to occurrence of (56%) cases in the same grade in the general series.

#### Summary

1. 67 cases of puerperal tetanus were detected out of 2,007 cases admitted to the King Edward Memorial Hospital during a period of 4 years.

2. The incidence of puerperal tetanus was 3.33%.

3. The mortality of puerperal

tetanus was 64.2% in comparison to the overall mortality rate of tetanus which was found to be 43.7%. Higher mortality is due to larger number of cases being in grades IV and V.

4. Tetanus following delivery in the hospital had the lowest mortality. Tetanus following abortion had a higher mortality than that following normal delivery, whether at hospital or at home.

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