

SOCIAL AND CLINICAL ASPECTS OF SEPTIC ABORTIONS

by

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Septic abortion is a world-wide problem of immense medico-social importance and is responsible for considerable maternal mortality and morbidity.

Abortion forms 10-25% of all pregnancies (Shah, 1957; Belvalgidad, 1963; Anand 1965; Eastman and Hellman, 1966; Mudaliar and Menon, 1968). In Government Erskine Hospital, Madurai, it was seen in 23.3% of all obstetric admissions. During the period, 1st July 1964 to 31 December 1969, 950 septic abortions (forming 11.3% of all abortions or 2.2% of all pregnancies) were admitted for treatment into our hospital. Following preliminary clinical examination, these patients were carefully interviewed by our social worker to study the social aspects of the problem of illegally induced abortions in this area.

Seventy-three per cent of septic abortions gave history of induction and the remaining denied any interference, though 5 of them died due to severe sepsis. Most of them (86.3%) were married women; widows and those not staying with their husbands formed 9.9%, and the rest (3.8%) were unmarried adolescent girls. Most of those in their teens in this series were unmarried. Septic abortion was found more common in women at 35 years and over. Ten per cent of cases were nulliparous and 44% grandmultiparae. The main reasons for induction seemed to be an unwanted pregnancy, too many

children, last child still too small and breastfed; or the last child long ago and the patient was having grand children (Table 1). This group formed 43.0% of cases compared to the economic reasons or ill health noted in 30%. Pregnancy out of wedlock etc. formed a third large group of 27%.

TABLE I.

Reasons for Induction of Septic Abortions

	<i>Per cent</i>
1. Many children	28.7
2. Economic poverty, unemployment	21.0
3. Last child too young	9.8
4. Last child long ago or grand children	4.5
5. Ill health	9.0
6. Unmarried. extramarital conception etc.	27.0
	100.0

In 60.4% induction was attempted when pregnancy was less than 12 weeks and in 27.2% between 12 to 16 weeks. Only 12.4% were over 16 weeks' pregnant at the time of induction. The favourite method of induction in this series was insertion of sticks of the shrub, *Calotropis gigantea*, into the cervix (Fig. 1). Pastes and injections locally were tried in 7.3%. Tubes, rods, plastic catheters, feathers were also amongst the articles used for this purpose (Table II). One out of 5 patients said she had been induced with only oral medicines, yet there were 9 deaths, 4 of them due to tetanus, in this group. As stated earlier, 27% stoutly denied even this though 5 of them died due to severe sepsis. The induction was by untrained persons in 70% and by nurses or doctors in 20%. In 10% the patients herself was responsible for it.

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TABLE II.
Methods of Induction of Septic Abortions

	No.	Per cent
1. Sticks (<i>Calotropis gigantea</i>)	364	(38.8)
2. Tubes rods, instruments: (40) (21)	61	(6.3)
3. Pastes: injections . . .	72	(7.3)
4. Plastic catheters, feathers	3	..
5. Oral medicaments
6. Denies induction	203	(21.3)
	247	(26.0)
	950	

Clinical Grading of Septic Abortions: Depending on the extent of the lesion, they were divided into 3 groups. Type I, where the uterus was tender, due to endometritis; type II, where there was tenderness in the fornices in addition, due to adnexitis; and type III, which showed clinical evidence of peritonitis, septicaemia, septic shock or renal and other complications. Nearly half the cases were in type I, 27.4% were grouped in type II and 21.6% in type III. Most cases of severe infection gave history of induction (Table III).

TABLE III.
Clinic Grading of Septic Abortions (950 cases)

Type of abortion	Type of septic abortions	With history of induction	Denies history of induction
Type I ..	51.0%	63.5%	37.4%
Type II ..	27.4%	79.6%	20.6%
Type III ..	21.6%	88.0%	12.0%

Treatment and Results: The patients were treated conservatively with antibiotics and antisera (tetanus or gas gangrene). Whenever necessary cases of peritonitis had gastric suction, drainage and intravenous fluids; cortisones and vasoconstrictors were used to combat septic shock. Blood transfusion was given only when there was anaemia or associated blood loss. If the cervix was open and the conceptus easily removable it was

emptied digitally. Curettage was done only after the infection was controlled and under cover of antibiotics. Hysterectomy was done in 5 multiparous women with uterine perforations associated with sepsis and also in one case of inversion. In cases complicated with bowel injury, laparotomy was done and if it was found gangrenous it was resected, followed by end-to-end anastomosis.

Out of 950 septic abortions, 63 or 6.6% died. Eight of them were admitted moribund. In 24.5% of cases, complications were seen (Table IV). Most important

TABLE IV.
Complications of Septic Abortions

	No.	Deaths
1. Septic shock	102	46
2. Peritonitis	96	2
3. Tetanus	14	9
4. Uterine perforation with prolapse of bowel or omentum	7	1
5. Gas gangrene	3	3
6. Oliguria, anuria	5	2
7. Jaundice	3	..
8. Coagulation failure	1	..
9. Inversion uterus	1	..
10. Tear of posterior fornix	1	..
	253	63

amongst these was septic shock which was seen in 10.7% of patients but was responsible for 73% of deaths. Out of 102 patients who developed septic shock 45% died. Amongst other complications, tetanus, uterine perforations, bowel injury, gas gangrene and renal failure are important. Pelvic abscess was noted in 26 (2.7%) cases and was drained by posterior colpotomy. Amongst delayed complications were pelvic cellulitis in 32 and thrombophlebitis in 6 patients. The average duration of stay in the hospital was 8.6 days for this series.

Discussion

The incidence of induced abortions varies from one country to another. Mehlan (1967) reports a rate ranging from

15% of all pregnancies in Brazil to 75% in Uruguay. Abortion rate in India is estimated at 13 per 1000 of the population—5 spontaneous and 8 induced. Thus over 4 million induced abortions are estimated to occur annually in our country (Report of committee on legalisation of abortions, 1967). The exact figures will never be available because these abortions are reported only when they are forced to seek hospital care in the presence of complications. The true incidence is therefore higher than the reported figures. In a sample survey near Madurai, it was found that out of 100 conceptions 25 terminated in abortions—10 spontaneous and 15 induced. The septic abortions form 5 to 25% of all abortions (Knapp *et al.*, 1960; R. C. O. G. report, 1966; Rosario, 1970). In our hospital 11.3% of abortions were septic and over 73% of these were induced.

Illegally induced abortions are more common in the married than in the unmarried in England (Stallworthy, 1948) Sweden (Borell 1967) and in Brazil (Fernandes, 1967); but is more common in the unmarried in Peru (Bedoya-Hevia, 1967) and in the United States (Knapp *et al* 1960; Lewis, 1969). Anderson *et al* (1966) reported 2 to 4 fold increase in the incidence of pregnancy in the unmarried adolescent girls in U.S.A. In our series 86% were married women and four per cent were unmarried adolescent girls. Twenty-five per cent of the unmarried were below 20 years and most of them were less than 25 years in the series published from Sweden (Borell, 1967). Kimbell (1970) stated that most unwanted pregnancies in women in the late thirties were due to contraceptive failure. We had a high incidence of induced abortions in this age group mainly due to their failure to adopt contraception. Unlike in the series reported by Neuwirth and Friedman

(1963), Goodno *et al* (1963), where the average parity in septic abortions was 3, in our series 44% were grandmultiparae. Those with 10 or more children were thrice as common in the septic abortion group than amongst our controls.

Most septic abortions are due to socio-economic reasons. It is practised in all social classes and is a problem facing the sociologists, gynaecologists, churchmen and administrators. In Sweden, it might be due to the anxiety to look after the baby in relation to her job or employment opportunities during pregnancy and later (Borell, 1967). In Latin American countries it is mainly due to poverty and ignorance (Bedoya-Hevia, 1967). In our experience poverty and unemployment, however, accounted for only 21% of them. In most cases, it was due to too many children or the last child being too young. A woman over 35 years often resorted to it as her last child was long ago or because she was already a grand mother and considered herself too old to bear the responsibility of bearing one more child. Extramarital conception was the cause in 27% of our material. Timely family planning advice and practice would have prevented most of these abortions.

Abortions carry more risks after the 12th week (Kuch, 1969). Though most resorted to induction early in pregnancy, one out of 8 septic abortions in our series was over 16 weeks' pregnant on admission. Unlike in England and Wales (Confidential Enquiry Report, 1966) where abortions were induced with injection of pastes etc., into the uterus, in our series it was mostly with twigs from the shrub Calotropis or some with ordinary sticks to which an abortifacient or irritant powder was applied. All sorts of articles including hairpins and feathers have been used.

Several workers have studied the or-

ganisms involved in septic abortions (Ramsay *et al*, 1955; Knapp *et al* 1960; Deane and Russel, 1960; Neuwirth and Friedman, 1963; Goodno *et al*, 1963). They conclude that coliform groups are most frequently met with in this condition and are responsible for most cases of septic shock. Besides these, *Cl. welchii* and *Cl. tetani* are also involved (Lee *et al*, 1966; Saxena *et al*, 1966; Patel *et al*, 1962). Compared to other workers we had more patients with severe grades of infection (Table V), probably because

TABLE V.

Severity of Septic Abortions According to Different Workers

Authors and year	Type I	Type II	Type III
1. Ramsay <i>et al</i> (1955)	45%	45%	10%
2. Knapp <i>et al</i> (1960)	67%	25%	8%
3. Goodno <i>et al</i> (1963)	74.8%	14.9%	10.3%
4. Present series (1970)	51%	27.4%	21.6%

most of these women had clandestine abortions at the hands of barber midwives under grossly septic conditions and were admitted several days after infection had become clinically obvious at home. Hospitalisation was resorted to in these cases only when the condition became serious or alarming. Septic shock, first described by Laennec (1831) and more recently by Studdiford and Douglas (1956), is a well known complications of septic abortion and is the most important cause of death in these cases. It was seen in 14.5% to 36.6% of cases (Neuwirth and Friedman, 1963; Deane and Russel, 1960). In this series 10.7% developed septic shock. The mortality in cases of septic shock varies from 40 to 70% (Mahur. Dantuono, 1955; McBride, 1961; Weil, 1961). We lost 45% of 102 cases who developed shock. Tetanus was the next im-

portant complication. Out of 40 cases of puerperal and postabortal tetanus reported by Saxena *et al* (1966), the mortality was twice as high in postabortal group (54.5%) compared to postpartum group (27%). We lost 9 (64.3%) out of 14 cases of postabortal tetanus. Uterine perforation and injury to the bowel in cases of induced abortion has been reported in 19 cases from Delhi by Gupta *et al* (1970) with 5 deaths. We had 7 such cases with one death. Gas gangrene in induced abortion carries a mortality of 50 to 85% (Decker and Hall, 1966). We lost all 3 cases of gas gangrene. Renal failure was the cause of death in 2 of our cases.

Management of septic abortion is mostly conservative. The place for hysterectomy is limited to cases of (1) uterine perforation in multiparous women with or without prolapse of the bowel. (2) gas gangrene of the uterus (Decker and Hall, 1966) and (3) persistent shock associated with low urinary output probably due to decidua and myometrium containing large number of coliform organisms forming a source of endotoxins (Reid, 1967). Intravenous corticoids are useful to combat septic shock. Renal failure should always be managed in a well equipped renal unit.

Mortality in septic abortions: Illegal abortions account for 30 to 50% of maternal deaths (Mehlan 1967). In 1963, complications of abortion were responsible for 45% of maternal deaths in New York City (Decker and Hall, 1966). In England and Wales, it was the leading cause of maternal deaths in 1961-1963 (Confidential enquiry report, 1966). In Brazil too, it is the commonest cause of maternal mortality (Fernandes, 1967). It accounted for 1 out of 4 maternal deaths in Delhi (Rozario 1970). In our hospital, 18.4% of maternal deaths occurring during the last 5 years were due to septic abortions. How-

ever, as deaths due to rupture of the uterus and other causes decreased, septic abortion was the single leading cause of maternal deaths in 1969. The mortality in septic abortions was higher in single women (20%) compared to the married (6.5%). We lost 25% of the unmarried adolescent girls admitted for this condition.

Septic abortion is essentially a public health and social problem. Liberalisation of abortion laws in some countries are aimed at reducing this appalling morbidity and mortality. However, with the introduction of this measure there has been an 8 to 12 fold increase in the number of abortions in England mostly due to "social problems of unwanted pregnancy" (Lewis, 1969). The legalisation of abortion had not led to any decrease in the number of illegal or septic abortions in Hungary, Czechoslovakia (R. C. O. G. Report 1966) and in Sweden (Huldt, 1968). In Japan, Kobayashi (1967) has reported that since legalisation of abortions, seldom do they see a "severe septic case of criminal abortion". Yet in that country one-third of married women had one or more induced abortions and 50% of patients returned in one to one and half years for another induced abortion, though a legal one. Legalised abortions too have got some risks as reported from Yugoslavia, Czechoslovakia, Hungary and Japan (Kuck, 1969; Jurukorski 1969; Potts, 1970). Mortality due to illegal abortions may vary from 1000 per 100,000 such abortions, when performed by untrained persons ignorant of asepsis, to 50 to 100 per 100,000 when it is done by qualified personnel. Compared to this with legalised abortions the death rate is 3 to 4 per 100,000 (Tietze, 1970). Apart from somatic complications, psychiatric sequelae may be noted in 10-50%. In Sweden, abortion is available but the

cases are screened more carefully. Besides social reforms and financial assistance, a good home with moral and religious education helps in reducing this problem (Haefeli, 1966). Sex-education (teaching of fundamentals of physiology of menstruation and reproduction etc.,) in high schools is an urgent necessity even in our country. Information on oral contraceptives and sterilisations should be easily available to all women especially in the vulnerable or high risk social groups in places other than the family planning clinics.

Summary

1. During 5 1/2 year period, 1 July 1964 to 31 December, 1969, 950 septic abortions (forming 11.3% of all abortions or 2.2% of pregnancies) were admitted for treatment into the Erskine Hospital, Madurai.

2. Most of them (86.3%) were married, 9.9% were single women and 3.8% were unmarried adolescent girls. Forty-four per cent were grandmultiparous women.

3. Seventy-three per cent of patients gave history of induction mostly for unwanted pregnancies (43%). Other reasons were poverty, ill health and extramarital conceptions. In 90% induction was done by others and in 10% it was self-induced.

4. The favourite method of induction was by insertion of a stick from the shrub *Calotropis gigantea*. Pastes and injections were used only in 7.3 per cent.

5. The mortality rate was 6.6% and was mainly due to septic shock. It was seen in 10.7% of patients but was responsible for 73% of the deaths. The mortality was three times higher in single women compared to the married group.

6. The social and clinical aspects of the problem of induced abortion is discussed.

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See Fig. on Art Paper I