# CAESAREAN SECTION IN A NON-TEACHING HOSPITAL*

J. P. THERON, M.B., CH.B. (CAPE TOWN), DIP. O. & G. (RAND), *Bloemfontein*

During recent years the increasing safety of caesarean section has widened its indications to such an extent that the general public, as well as some medical men, have come to regard abdominal delivery as a rapid and effective method of dealing with most obstetrical complications. This trend in obstetrics has caused a tremendous increase in the incidence of caesarean section. Concern over this state of affairs has been expressed by present teachers as well as by obstetricians belonging to the older school.

In 1959 Sir Andrew Claye[1] warned against the high mortality risks of caesarean section in the United Kingdom. In this country Louw,[2] in 1955, Van Dongen,[3] in 1958, and Impey,[4] in 1962, expressed doubt as to the necessity of many of these operations.

Statistical data appearing in medical literature usually come from teaching hospitals where strict control exists and free consultation is exercised between registrars and senior staff before operation is resorted to. In private practice the entire responsibility of the decision to perform section rests on one individual, the consultant obstetrician or the medical practitioner in charge of the patient. Considering this factor only, it seems reasonable to assume that the incidence of caesarean section may be higher in private practice than in teaching hospitals. Colvin,[5] of America, in his 1952 presidential address, mentioned that the incidence of caesarean section was three times higher among private patients than among free patients. This investigation was therefore undertaken to ascertain the position in our country regarding the matter.

## CLINICAL MATERIAL

Bloemfontein is unique in that the maternity section of the National Hospital is the only institution in the city where White obstetrical patients can be treated surgically. Bloemfontein has a White population of 64,423, and in addition it drains a very large rural area for specialist obstetrical services. The maternity section is housed in a fairly modern building containing 45 beds. Four well-equipped labour wards, a modern theatre, air-conditioned nurseries and a separate unit for the care of premature infants are available. Over a 10-year period (1953 - 62) a total of 16,025 patients were admitted, of whom only 2,414 (13·32%) were free patients. The remaining 13,611 (86·68%) were 'paying' patients cared for by general practitioners or specialist obstetricians in private practice. The medical population of Bloemfontein has been drawn from various medical schools of the Republic or the United Kingdom, and is therefore fairly representative of the radical as well as the conservative outlook in obstetrics.

If consideration is given to the difficulty encountered in compiling statistics in a non-teaching hospital, where records are inadequately kept or not entered at all, allowances must be made for certain discrepancies and the impossibility of giving a complete 10-year survey as originally intended. A detailed analysis could only be done on the caesarean sections performed over a 5-year period (1958 - 62).

## INCIDENCE OF CAESAREAN SECTION

Table I shows that the total number of deliveries increased annually from 1,087 in 1953 to 1,779 in 1962. There was a steady but not marked increase during the first 6 years of the 10-year period which remained fairly constant during the last 4 years. The total number of deliveries for the 10-year period was 15,113.

TABLE I. INCIDENCE OF CAESAREAN SECTIONS, 1953—62

| *Year* | *Total deliveries* | *Total caesarean sections* | *Percentage of caesarean sections* |
|---|---|---|---|
| 1953 | 1,087 | 60 | 5·52 |
| 1954 | 1,108 | 45 | 4·06 |
| 1955 | 1,278 | 60 | 4·69 |
| 1956 | 1,561 | 80 | 5·76 |
| 1957 | 1,510 | 90 | 6·05 |
| 1958 | 1,524 | 131 | 8·53 |
| 1959 | 1,659 | 138 | 8·37 |
| 1960 | 1,816 | 112 | 6·16 |
| 1961 | 1,791 | 159 | 8·87 |
| 1962 | 1.779 | 157 | 8·77 |
| Total | 15,113 | 1,022 | 6·82 |

During the same period the incidence of caeserean sections remained more or less constant for the first 5 years, varying from 4·06% to 6·05%. It then showed a sudden increase to 8·53% in 1958, which was maintained throughout the last 5 years, except for 1960, when a record number of 1,816 deliveries were done with the relatively low section rate of 6·16%. For the entire 10-year period the total number of caesarean sections performed amounted to 1,022—an incidence of 6·82%. The Queen Victoria Maternity Hospital, Johannesburg, which only admits White patients, showed an over-all incidence for caesarean section of 2·03% for a 10-year period (1947 - 56), with an annual increase to 3·46% for 1956.

In 1961 Claye[1] stated that ministerial reports in the United Kingdom estimated the incidence of caesarean section in NHS hospitals at 3·8%. According to these figures, one can conclude that caesarean section is performed at least twice as often in private practice. Compared to world standards, however, the Bloemfontein incidence of 6·82% is only slightly higher than the incidence of 6·2% for 19 hospitals in the UK reported by Marshall[6] as long ago as 1949. American literature contains numerous reports from reputable hospitals of a higher inci-

*Paper presented at the 44th South African Medical Congress, Johannesburg, July 1963.

P.H.D.—M.N.M.

dence—Colvin[5] 14·0%, D'Esopo[7] 7·72%, while Mason's figures[8] are intermediate.

The factors which control the higher incidence of caesarean section in private practice are difficult to establish but may be enumerated as follows:

1. The individualization of the treatment in private practice means that only one doctor takes the decision, and consultation is rarely obtained from more than one specialist.
2. The glamour of the operation in the public eye has assumed such proportions that patients request abdominal delivery on the erroneous assumption that it is better for them and their offspring.
3. The convenience of the operation eliminates the attendance of the doctor through many hours of a complicated labour.
4. The remuneration for the operation compared to the time and effort required in attending the complicated labour in an efficient and ethical manner according to the 'art of obstetrics'.

That these factors apply to this series no less, but certainly no more, than anywhere else in the country can be judged from the more detailed analysis of caesarean sections performed in the 5-year period 1958 - 62.

*Age*

During 1958-62 697 patients were delivered by caesarean section (Table II). Only 17 (2·4%) were less than 20 years

TABLE II. AGE DISTRIBUTION OF 697 PATIENTS SECTIONED (1958—62)

| | |
|---|---|
| Under 20 years of age | 17 (2·4%) |
| 20—29 years | 425 (60·8%) |
| 30—39 years | 220 (31·5%) |
| 40 years or over | 35 (5·0%) |

of age, and 35 (5·0%) were over 40 years of age. The greatest number of sections, 425 (60·8%) were done on patients between the ages of 20 and 29 years.

*Parity*

The 697 caesarean sections included 261 (37·4%) primiparae and 436 (62·5%) multiparae. Of the multiparae 130 patients had had a previous caesarean section. It is impossible to state the number of previous classical caesarean sections, but the impression gained was that very few were encountered.

*Duration of Pregnancy*

Judging from the birth weights of infants weighing less than 5 lb., it would appear that only 28 (4·0%) caesarean sections were done before the 36th week of pregnancy. Severe toxaemia accounted for 12 of these sections and placenta praevia for 9.

*Time of Section in relation to Labour*

Owing to poor recording it was impossible to determine this in the majority of patients. The longest labour recorded was 75½ hours in a primipara of 21 years who had poor uterine action and was delivered of a live infant weighing 6 lb. 11 oz. Where the duration of labour was better recorded during the later few years, there were at least 12 primiparae under 30 years of age, who were subjected to caesarean section because of cephalopelvic disproportion, without having been allowed the initiation of labour.

INDICATIONS

In 95 cases no indication for the caesarean section was recorded, so that only 602 sections could be considered (Table III). As in all studies of this kind, *cephalopelvic dis-*

TABLE III. INDICATIONS FOR CAESAREAN SECTION IN 602 CASES (1958–62)

| | No. of cases | % |
|---|---|---|
| 1. Disproportion | 152 | 25·2 |
| 2. Previous caesarean section | 131 | 21·7 |
| 3. Placenta praevia | 95 | 15·7 |
| 4. Abnormal presentations | 50 | 8·3 |
| Breech presentation | 24 | 3·9 |
| Transverse presentation | 19 | 3·1 |
| Face presentation | 3 | |
| Brow presentation | 4 | |
| 5. Abnormal uterine action | 47 | 7·8 |
| 6. Foetal distress | 47 | 7·8 |
| 7. Severe pre-eclampsia and eclampsia | 36 | 5·9 |
| 8. Elderly primiparae | 10 | 1·6 |
| 9. Abruptio placentae | 8 | 1·3 |
| 10. Diabetes | 7 | 1·1 |
| 11. Prolapsed cord | 3 | 0·5 |
| 12. Miscellaneous group | 16 | 2·6 |

*proportion* was the most common indication and occurred in 152 cases, or approximately one-quarter of the patients. (This is a lower incidence than reported in Johannesburg.) Included in this category are 86 patients simply labelled as having a contracted pelvis. Our White women do not have a high incidence of contracted pelvis, and for this reason these 86 cases were included in the disproportion group.

*Previous caesarean section* formed the next group comprising 131 cases (21·7%). Here it is interesting to note that whereas there were 15 repeat sections in 1958, this figure had risen to 38 by 1962. Van Dongen[3] emphasized that although abdominal delivery may have become the easiest way out of a large number of obstetrical difficulties, it creates fresh obstetrical problems for the future, the most important of which is that more repeat sections will have to be done. The onus of undertaking the first caesarean section on a patient is a responsible one and due care should be taken that the indication is justified.

*Placenta praevia* ranks third on the list of indications. In spite of practising the expectant treatment in an endeavour to obtain a viable infant, in order to avoid the prolonged and costly hospitalization of the mother, or repeated haemorrhages, or as a matter of convenience, the private practitioner occasionally resorts to premature section as illustrated in the 9 cases where infants under 5 lb. in weight were delivered.

Breech presentation was the most common *abnormal presentation* for which section was done. In 24 cases this was considered necessary. Most obstetricians today agree that where the weight of the foetus is estimated to be over 8½ or 9 lb. abdominal delivery is indicated, especially in primiparae. However, 11 of these infants had a birth weight of under 8 lb., and 7 weighed less than 7½ lb. In 19 cases a transverse presentation necessitated the section. Where the foetus is in good condition and the position is transverse, caesarean section is the treatment of choice. With internal version too many infants are lost. Three cases of face presentation—all mentoposterior—and 4 cases of brow presentation were sectioned.

*Abnormal uterine action* caused abdominal delivery in 47 cases (7·8%). The majority of these patients were of the hypertonic lower-segment type, as far as could be judged. It is impossible to say what number of these had occipito-posterior presentations or minor degrees of disproportion. An important aspect to remember in a primipara with abnormal uterine action, is that an endeavour should be made to get the cervix more than half-dilated before section is resorted to. Jeffcoate[9] maintains that if the section is done earlier the chances are that the patient will have a similar abnormal uterine action in a future labour.

*Foetal distress* was given as the major, or only, indication for caesarean section in 47 cases (7·8%). Louw[2] has stated: 'This is a most unsatisfactory indication for caesarean section and is one which may allow no end of abuse.' Walker[10] maintained that a frightening number of unnecessary sections will have to be done to save relatively few infants. The fact remains that in private practice it takes an immense amount of courage not to intervene in the patient who is draining meconium and where the foetal heart is not satisfactory. To do a caesarean section for foetal distress, however, on a patient who is not in labour and where the membranes are still intact, as was sometimes done in the above series, cannot be condemned too strongly. Walker[10] said this was using the foetal distress as the alibi for caesarean section.

Of the *toxaemic group* 32 sections were done for moderately severe or severe pre-eclampsia and only 4 cases had eclampsia. The duration of pregnancy in these cases could not be determined. Two stillborn babies were delivered and 6 infants died in the neonatal period—all associated with pre-eclampsia.

Ten *elderly primiparae* were sectioned, the oldest being 45 years of age. Six of these patients were between 35 and 40 years. It is likely that other associated factors were present, but only one patient, aged 35, had 10 years of sterility recorded.

Caesarean section was done on 8 patients for *abruptio placentae*. In 2 cases the infants were stillborn—premature twins in the one case and a 5 lb. 8 oz. infant in the other case. The remaining 6 infants all survived.

Of the 7 cases operated on because of *diabetes*, only 1 neonate died at the end of the third week. One of the three infants delivered by caesarean section because the umbilical cord had prolapsed, died in a state of shock soon after delivery.

The *miscellaneous* group included 16 cases. There were several obstetrically recognized indications but also a few doubtful ones. Postmaturity, maternal distress, keratoconus of the eyes, ovarian cyst causing obstruction of labour, the Rhesus factor and a poliomyelitis victim are acceptable indications. Recording a patient as mentally unsuitable for labour, or the fact that she has had previous postpartum haemorrhages, is anaemic, has a mitral stenosis or has had a haemorrhoidectomy twelve days previously, all seem rather curious indications. One can only trust that in the 7 patients recorded in this dubious manner there were other valid reasons for doing a caesarean section.

## STERILIZATION

Of the 697 caesarean sections performed during the 5 years, 109 patients (15·6%) were sterilized at the time of the section (Table IV). Sixty patients were sterilized at the time of the first section and 49 patients after 2 or more sections. In the latter group 12 patients were sterilized after the second caesarean section and 26 patients on having their third infant, but not necessarily the third section. Six patients were sterilized on having their first infants by caesarean section and a reasonable indication was found on the hospital records of only one of these, in the case of a patient aged 45 years with fibroids. The ages of the other 5 ranged from 23 to 37 years. Of 6 second-paras sterilized with their first section, 2 were over 44 years of age, 2 had hypertension and the remaining 2 were both 32 years of age and were sectioned for a placenta praevia and a contracted pelvis respectively, with no indication recorded for the sterilization.

TABLE IV. STERILIZATIONS PERFORMED WITH 697 CAESAREAN SECTIONS 1958–62)

| *Parity* | *Sterilized at first section* | *Sterilized after 2 or more sections* | *Total* |
|---|---|---|---|
| 1 | 6 | — | 6 |
| 2 | 6 | 12 | 18 |
| 3 | 12 | 26 | 38 |
| 4 | 16 | 6 | 22 |
| 5 | 9 | 4 | 13 |
| 6 or more | 11 | 1 | 12 |
| Total | 60 | 49 | 109 |

Further study of Table IV shows that 18 patients were sterilized after producing only 2 infants, and in 38 mothers the family was limited to 3. Over-emphasis on the dangers of rupture of weakened uterine scars have created the tendency to sterilize after the third caesarean section and in some cases even after the second. It is therefore the first caesarean section that leads to the repetitive section and the eventual sterilization.

Chesterman,[11] McNally,[12] and Wilson,[13] have stressed the fact that often the capabilities of the uterine scar are underestimated, and that the majority of scars, even in advanced parity, remain intact throughout pregnancy. The operator should judge the scar when doing the repeat section, and unless a defective scar which cannot be repaired is found, sterilization should be withheld.

The limitation to a 2 or 3-child family is undesirable from a social, a national and a biological point of view, according to Chesterman[11] of Australia. The loss of children belonging to the higher social strata is a tragedy to any country but doubly so to our own, where unnecessary sterilization of young prospective mothers should be regarded as a crime.

## RESULTS

In Table V the foetal wastage in 697 caesarean sections performed during the latter 5-year period (1958 - 62) shows that 703 infants were delivered, there being 6 pairs of twins. Thirteen infants were stillborn and 21 died in the neonatal period. The stillbirth rate was therefore 1·86% and the neonatal death rate 3·01%. The total foetal wastage amounted to 4·87%. These results are satisfactory when compared to the 1947 - 56 figures of the Queen Victoria Maternity Hospital, Johannesburg, where the total foetal wastage was 5·97%.

In the ten-year (1953 - 62) series consisting of 1,022 caesarean sections, the only maternal death occurred when

a para-4, aged 35 years, died 48 hours after a caesarean section, sterilization and myomectomy have been carried out. Acute pancreatitis was the diagnosis entered on the death certificate, no postmortem being obtained. The loss of this patient is a grave warning to all obstetricians who are tempted to enucleate fibroids while doing a caesarean section. Suffice it to quote Ian Donald[14] who says:

TABLE V. THE FOETAL WASTAGE IN 697 CAESAREAN SECTIONS (1958–62)

| | |
|---|---|
| *Stillbirths* | |
| In association with abruptio placentae | 3 |
| In association with placenta praevia | 3 |
| In association with pre-eclampsia | 2 |
| In association with ruptured uterus | 1 |
| Hydrops foetalis | 1 |
| Unexplained | 3 |
| Total | 13 |
| *Neonatal Deaths* | |
| Birth weight over 6 lb. and death not directly due to the primary indication for caesarean section | 7 |
| Prematurity associated with pre-eclampsia | 6 |
| Prematurity associated with placenta praevia | 5 |
| Hydrocephalic infants | 2 |
| Premature infant associated with diabetes | 1 |
| Total | 21 |
| Total babies delivered | 703 |
| Stillbirth rate | 1·86% |
| Neonatal death rate | 3·01% |
| Total foetal wastage | 4·87% |

'Caesarean myomectomy is an indefensible operation'. This one death gives a maternal mortality of 0·099%. The maternal mortality in the Johannesburg series was 0·38%.

Large series of caesarean sections with a low maternal death rate have been published. At the Sloane Hospital for Women 1,266 caesarean sections were done with one maternal death. In 1957 Higgins[15] reported 1,114 sections performed over a period of 14 years, with the loss of 2 patients. At Leeds Maternity Hospital during 1950 - 59 a total number of 1,659 caesarean sections were done, with 2 maternal deaths! In spite of these flattering series of caesarean sections the enthusiasts, whether belonging to the general public or the medical profession, may well remember the sober warning of Sir Andrew Claye, who pointed out that in 1955 - 57 in England and Wales 15% of all maternal deaths were associated with caesarean section. If ectopic gestation, abortion and undelivered mothers are excluded the proportion rises to 23·8%, or nearly one-quarter of the total maternal loss.


## SUMMARY

1. The maternity section of the National Hospital, Bloemfontein, is unique in that it centralizes all the complicated obstetrics of the city and large areas of the surrounding country.

2. Doctors in private practice cared for 86·68% of all the patients admitted, which gives a fair indication of the standard of private obstetrical practice.

3. The incidence of caesarean section during a 10-year period (1953 - 62) was 6·82%, which is at least twice that reported from a teaching hospital, but not excessively high according to world standards.

4. The factors causing the higher incidence of caesarean section in private practice are mentioned and to a certain extent proved by detailed analysis of the hospital records.

5. The indications for caesarean section in 602 cases are discussed.

6. The number of patients subjected to sterilization are analyzed and a plea made for more careful assessment of the uterine scar in cases of repeat section before resorting to sterilization.

7. The stillbirth rate in 697 caesarean sections was 1·86%, the neonatal death rate 3·01% and the total foetal wastage amounted to 4·87%.

8. There was 1 maternal death in the total series of 1,022 caesarean sections performed during 1953 - 62.


I wish to thank Dr. J. W. Wessels, the Medical Superintendent of the National Hospital, for permission to publish the records; and all my colleagues whose patients contributed to these records.

## REFERENCES


1. Claye, A. (1961): J. Obstet. Gynaec. Brit. Emp., **68**, 577.
2. Louw, J. T. (1955): S. Afr. Med. J., **29**, 160.
3. Van Dongen, L. G. R. (1958): *Ibid.*, **32**, 208.
4. Impey, R. L. (1962): *Ibid.*, **36**, 202.
5. Colvin, E. D. (1952): Amer. J. Obstet. Gynec., **64**, 473.
6. Marshall, C. M. (1949): *Transactions of the XIIth Congress of Obstetrics and Gynaecology*, p. 31. London: Austral Press.
7. D'Esopo, D. A. (1950): Amer. J. Obstet. Gynec., **59**, 77.
8. Mason, G. D. and Buell, J. I. (1962): West. J. Surg., **70**, 79.
9. Jeffcoate, T. N. A. (1949): Trans. Edinb. Obstet. Soc., **101**, 23.
10. Walker, N. (1959): Paper presented at the 8th Interim Congress of the South African Society of Obstetricians and Gynaecologists.
11. Chesterman, J. N. (1953): J. Obstet. Gynaec. Brit. Emp., **55**, 684.
12. McNally, H. B. and Fitzpatrick, V. de P. (1956): J. Amer. Med. Assoc., **160**, 1005.
13. Wilson, A. L. (1951): Amer. J. Obstet. Gynec., **62**, 1225.
14. Donald, I. (1955): *Practical Obstetric Problems*, p. 116. London: Lloyd-Luke.
15. Higgins, L. G. (1957): Lancet, **1**, 834.