

RUPTURE OF UTERUS

(A Study of 106 Cases)

by

RAMA MITRA,* M.S., D.G.O.

Rupture of uterus is one of the most hazardous obstetrical complication and carries a high maternal and foetal mortality. Efficient antenatal and intranatal cares have reduced the incidence of rupture of uterus in countries where these are available, at the same time advent of antibiotics, improved anaesthesia, ready availability of blood, improved surgical techniques have reduced maternal mortality. But, in our country the problem is entirely different. Good antenatal and intranatal cares are available to only a fraction of the population. Even today patients in labour are brought into hospital from villages in bullock carts, after hours of prolonged exhausted labour

after all the resources by untrained 'dias' have failed to deliver the yurtenant. Such types of cases are real problem for us and carry a high maternal mortality as well as morbidity.

Material and Methods

From January 1961 to December 1970, 106 cases of rupture uterus have been treated in the department of Obstetric and Gynaecology, G.S.V.M. Medical College, Kanpur. In all these cases the diagnosis was made on clinical examination as well as at laparotomy. During this period the total number of deliveries were 33,857. This gives an incidence of rupture of uterus as 1:319.

TABLE I

Shows the Incidence of Rupture of Uterus as Reported by Various Authors

| Authors | Incidence | Year | Maternal mortality |
|-------------------------------|-----------|---------|--------------------|
| Das Gupta (Calcutta) | 1:1800 | 1950-53 | 32.5% |
| Patel and Parikh (Bombay) | 1:1257 | 1955-59 | 27.5% |
| Menon (Madras) | 1:415 | 1953-59 | 10% |
| Prabhawati and Mukerji | 1:167 | 1960-69 | 33.3% |
| Subhadra Devi (Visakhapatnam) | 1:164 | 1960-62 | 33.3% |
| Shasterkar (Nagpur) | 1:256 | 1952-60 | 50.9% |
| Ferguson Reid (Boston USA) | 1:1204 | 1935-55 | 5.9% |
| Rendle Short | 1:93 | 1952-58 | 36.8% |
| Sarah I Jacob | 1:305 | 1963-69 | 44% |
| Delfs and Eastman (1945) | 1:1010 | | |
| Present series | 1:319 | 1961-70 | 22.6% |

Age Distribution

*Reader in Obst. & Gynaecology, G.S.V.M. Medical College, Kanpur.
Received for publication on 16-5-72.

Much significance is not attributed to the age factor as the majority of the pati-

ents attending the hospital are unable to give correct age. Even though the age of patients in the present series ranged from 22-41 years, maximum cases were between 24-30 years. The maximum number of cases reported by different authors was between 21 to 35 years. In Rendle Short series (1960) the maximum incidence was between 21 to 30 years.

Parity

Table II shows that as many as 83 cases were para 4 and above and rest of the

(1945) the average parity was 6.4 and in Menon's series 4.6. All are agreed that multiparity is one of the chief aetiological factors in rupture uterus.

Causes of Rupture

In our series 97.15% (103 cases) were spontaneous rupture, higher than that reported by Jacob and Bhargava 92.3%, Chowdhary 82.05% and Shastrakar 78.1%. Among the spontaneous ruptures, 2.8% (3 cases) were of scar rupture. It is considerably higher than in the series

TABLE II
Shows the Parity Distribution in the Present Study

| | | | | | | | | | | | | |
|--------|---|----|----|----|----|----|----|---|---|---|----|----|
| Parity | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| Number | 1 | 10 | 12 | 28 | 26 | 20 | 10 | 2 | 4 | 2 | 0 | 1 |

TABLE III
Shows The Aetiological Factors in The Present Series. Rupture of The Uterus is Divided Into Two Main Groups, Traumatic and Spontaneous Which May Be Of an Intact or Scarred Uterus

| Aetiology | Number of cases | Percentage |
|-------------------|-----------------|------------|
| Contracted pelvis | 48 | 45.3 |
| Hydrocephalus | 9 | 8.4 |
| Transverse lie | 21 | 19.8 |
| Grand multipara | 12 | 9.4 |
| Unknown | 10 | 2.8 |
| Scar rupture | 3 | 2.8 |
| Traumatic rupture | 3 | 2.8 |
| Total | 106 | 100 |

cases were para 3 and under. Menon from Madras has found high percentage in his series of this group for which no aetiology could be found. Highest parity noted in our series was 11. Only one primipara with ruptured uterus came under our care. This is also noted by Subhadra Devi (1956) 3, by Patel and Parikh (1960) 1, Rendle Short (1960) 7, and by Menon 2 cases. In Eastman's series no case of rupture in a primipara was seen. In the series of Delf and Eastman

reported by Jacob and Bhargava 0.5% (1971) and lower than Chowdhary (1961) 17.9% and Shastrakar (1962) 20.9%. In our series, 2.83% (3 cases) were traumatic ruptures, in contrast to 9.2% reported by Jacob and Bhargava and 21.9% in Shastrakar series. In our series disproportion accounted for 54.7% (57 cases) of spontaneous ruptures in contrast to 25% reported by Jacob and Bhargava, 37.2% by Shastrakar and 36.9% by Menon.

In 19.8% (21 cases) there was malpresentation. Among them, (12 cases) 11.3% were of transverse lie, 6.6% (7 cases) were breech and 1.9% (2 cases) were brow presentations in contrast to 41.6% reported by Jacob and Bhargava, 27.9% by Swami and Patel, Shastrakar 30% and Menon 18%.

Grandmultiparity as such without any associated cause was responsible for 11.3% (12) of the cases in contrast to 25% in Jacob and Bhargava, 46% in Shastrakar's and 8% in Menon series. In 9.43% of the cases no aetiological factors could be found.

Pathological Anatomy

In our series 83% (88) of the cases had complete rupture and 7.5% (8) had incomplete rupture. Prabhawati and Mukerji found complete rupture in 75% and incomplete in 25%, while Jacob and Bhargava reported 61.7% of the cases had complete rupture and rest 39.3% had incomplete rupture.

In the present series 86 cases had a lower segment rupture. The tear was

of uterus but the tear was situated in the anterior wall. Out of these 8, 2 were of previous lower uterine segment scars.

In 12 cases the transverse tear on the anterior wall extended more on the left side and 4 among these there was associated rupture of uterine blood vessels on the same side.

In 6 cases the oblique tear extended into the posterior fornix.

In the rest the tear was situated in the anterior wall.

In 10, the tear was present in the upper uterine segment. Transverse at fundus 6, transverse at fundus and right lateral wall 2, transverse at fundus and left lateral wall 2.

Prabhawati and Mukerji (1963), Rendle Short (1960), Patel and Parikh (1960), Chowdhari (1961) also have reported transverse rupture in the anterior wall of the lower segment as the commonest variety. Shastrakar had 4 cases of involvement of bladder out of 55 cases and in Rendle Short's (1960) series bladder was involved 10 times.

TABLE IV
Showing Duration of Labour in Hours

| Duration in hours | Less than 12 hours | 12-24 hours | 24-36 hours and more than 36 hours | No reliable data | Total |
|-------------------|--------------------|-------------|------------------------------------|------------------|-------|
| Number of cases | 14 | 28 | 36 | 28 | 106 |

transverse on the anterior wall and extended into the broad ligament on the left side in 32 cases and on both the sides in 2 cases. Broad ligament haematoma was present in all these 34 cases. In 4 cases haematoma was present under the uterovesical fold of peritoneum. In 6 among 86 the tear extended into the vagina on the left side and in 3 there was cornual rupture, in 8 there was incomplete rup-

Duration of Labour

Duration of labour varied from 6 to 48 hours. In spontaneous rupture more than 75% of the cases labour lasted more than 18 hours, while in ruptured scar group the duration of labour was less than 12 hours (Table IV).

Clinical Features and Diagnosis

The clinical picture depends upon the

type of rupture and vary from no symptoms at all to complete collapse. The classical picture was present in about 70.7% of the cases. In the series reported by Jacob and Bhargava (1970) 28.8%, Prabhawati and Mukerji (1963) 56.6% of the cases showed the classical signs.

1. In 75 cases there was history of prolonged labour with acute agonizing labour pain followed by a sensation of something giving way inside the abdomen with cessation of labour pain.

2. Absence of foetal heart sounds was noted in 98% cases.

3. Vaginal bleeding was a feature in 102 cases. The bleeding was slight to moderate in quantity often containing clots and was mixed with thick liquor amnii containing meconium in 28 cases in the present series.

4. Palpation of superficial foetal parts often clinches the diagnosis and was elicited in only 85 cases.

5. Abdominal tenderness was observed in 97 cases.

6. Signs of collapse: Most cases of ruptured uterus present in a poor clinical state because of prolonged labour, dehydration, haemorrhage and shock often preceding its onset. Of the 106 analysed, 23 patients had been admitted in a state of collapse with pulse rate of more than 106 per minute and blood pressure less than 70 mm of mercury systolic.

Haematuria was present in 8 cases.

The diagnosis on admission could not be made out in 5 cases which were of incomplete rupture because the uterus was tense and there was associated abdominal distension. Therefore, the presentation and the position of the foetus could not be made out.

The combination of these clinical features were present in the majority of cases.

TABLE V
Showing the Clinical Features

| Clinical feature | Number of cases |
|---|-----------------|
| Prolonged labour | 75 |
| Cessation of labour pains | 75 |
| Signs of collapse | 23 |
| Loss of uterine contour | 101 |
| Palpable superficial foetal parts | 85 |
| Absence of foetal heart sounds | 98 |
| Vaginal bleeding | 102 |
| Haematuria | 8 |
| Distention of abdomen and paralytic ilius | 5 |

Uncommon features that were observed in the present series were:

1. Persistent suprapubic pain was the only complaint in a case of incomplete rupture along with history of prolonged labour. Tenderness in the lower abdomen was marked. The satisfactory general condition, normal pulse and blood pressure can mislead the obstetrician.

2. Peritoneal irritation was so marked in certain cases with distension of abdomen, toxic look, high fever and foul smelling discharge, that one was inclined to diagnose these cases as peritonitis or intestinal obstruction.

Management

Increase in the existing antenatal and intranatal facilities, education of the public in making use of the services of trained personnel, early admission in a large hospital of the cases with previous bad obstetrical history, including cases of previous caesarean section and limiting the families will definitely lower the incidence of rupture of the uterus.

The actual management of a case of ruptured uterus consist of resuscitation

and exploration followed by minimum surgery which can only be decided after the abdomen is opened and depending upon the degree and type of the tear and also on the condition of the patient to be able to withstand the procedure decided upon. In the present series, blood transfusion was given to all and the amount varied from one to four litres.

In the present series, 23 patients were in poor clinical state and had to be given blood and once their general condition improved they were taken up for surgery.

Type of Surgery

TABLE VI
Type of Surgical Treatment

| Type of surgery | Number of cases |
|------------------------------------|-----------------|
| Suturing of rent and sterilization | 13 |
| Hysterectomy | 82 |
| Suturing of rent | 1 |

Suturing of rent alone was done in 1 case, suturing of rent with sterilization was done in 13 cases and hysterectomy was performed in 82 cases. Hysterectomy was performed in those where the suturing of rent was impossible, the tear being extensively ragged and extended upto the broad ligament on one or both sides involving blood vessels.

Anaesthesia

Majority of our patients were operated under general anaesthesia and only in a few cases local infiltration was done.

Ten patients among 106 died on admission before any thing could be done.

Maternal Morbidity and Mortality

Table VI shows that ruptured uterus is attended with high morbidity rate. It can be seen that 40% patients suffered from ill effects of haemorrhage, 25%

manifested sepsis inspite of routine antibiotic cover.

TABLE VI
Maternal Morbidity

| Maternal morbidity | Number of cases |
|--------------------------|-----------------|
| Haemorrhage and shock | 26 |
| Broad ligament haematoma | 34 |
| <i>Sepsis</i> | |
| Thrombophlebitis | 2 |
| Peritonitis with ileus | 4 |
| Urinary infection | 22 |
| Pulmonary infection | 6 |
| Wound sepsis | 8 |
| Burst abdomen | 4 |
| Vesico-vaginal fistula | 4 |

Practice of putting in an in-dwelling catheter for prolonged period of time is responsible for high urinary infection. In 4, vesico-vaginal fistula resulted on the tenth postoperative day. These patients had prolonged labour but in no case was instrumentation done. Incidence of complications was higher in emergency admissions as compared in booked cases.

There were 24 maternal deaths out of 106 cases e.g., 22.6%. The important causes of death were shock, haemorrhage, sepsis, paralytic ileus and peritonitis.

Ten patients who were in a collapsed condition died before any surgery could be undertaken. In the rest of the patients the death was attributed to shock and haemorrhage in 7, sepsis 2, cerebral and pulmonary embolism in 2, burst abdomen in 2 cases. One case died due to paralytic ileus and peritonitis.

Foetal mortality is bound to be high in ruptured uterus. In the present study only 4 babies were saved.

TABLE VIII
Showing the Maternal Mortality by
Various Authors

| Various authors | All cases |
|-----------------------------|-----------|
| Golden betson (1959) | 9.0% |
| Mathews (1961) | 6.4% |
| Menon (1962) | 17.1% |
| Keifer (1964) | 4.7% |
| Garnet (1964) | 3.0% |
| Das Gupta (1956) | 32.5% |
| Patel and Parikh (1963) | 27.5% |
| Prabhawati & Mukerji (1963) | 10.0% |
| Subhadra Devi (1956) | 33.3% |
| Shastrakar (1962) | 50.9% |
| Present series | 22.6% |

Summary

1. One hundred and six cases of rupture uterus were studied over a period of 10 years, the total number of deliveries during the period was 33857, giving an incidence of 1:319.

2. There was only one primigravida in the present series.

3. 95% of the cases of ruptured uterus were emergency and only 5% were booked cases.

4. The common aetiological factor was obstructed labour.

5. Twenty-three out of 106 cases were admitted in a collapsed condition.

6. Hysterectomy was performed in 82 cases, suturing of rent with sterilization was done in 13 cases and in 1 case only suturing of the rent was done. Ten cases died before any surgical interference.

7. Blood transfusion was given to all patients.

8. General anaesthesia was the choice in majority of cases and only in a few cases local infiltration was done even

though these cases was supplemented with gas and oxygen.

9. 24 maternal deaths occurred in this group.

10. Only 4 babies were saved in the present study.

References

1. Chowdhari, P. K.: J. Obst. & Gynec. of India. 12: 108, 1961.
2. Das Gupta, K. B.: J. Obst. & Gynec. India. 6: 371, 1956.
3. Delf, E. and Eastmann, N.: J. Canad Med. Assn. J. 52: 376, 1945.
4. Eastman, N. J.: Am. J. Obst. & Gynec. 65: 944, 1953.
5. Ferguson, R. F. and Reid, D. E.: Am. J. Obst. & Gynec. 76: 172, 1958.
6. Garnet, J. D.: Obst. & Gynec. 23: 898, 1964.
7. Golden, M. L. and Betson, J.: Obst. & Gynec. 13: 506, 1959.
8. Jackson, Ian: Brit. Obst. & Gynec. Practice Obst. Ed. 2: 857, 1959.
9. Jacob, I. S. and Bhargava, H.: J. Obst. & Gynec. India. 21: 22, 1971.
10. Keifer, W. S.: Amer. J. Obst. & Gynec. 89: 335, 1964.
11. Mathews, R. I.: Obst. & Gynec. 17: 551, 1961.
12. Menon, M. K. K.: J. Obst. & Gynec. Brit. Emp. 69: 18, 1962.
13. Nystrome, C.: Acta. Obst. & Gynec. Scar. 25: 70, 1956.
14. Patel, D. N. & Parikh, M. N.: J. Obst. & Gynec. India. 13: 455, 1963.
15. Prabhawati, R. and Mukerji, S. N.: J. Obst. & Gynec. India. 13: 455, 1963.
16. Randle Short: Am. J. Obst. & Gynec. 79: 1114, 1960.
17. Shastrakar, V. D.: J. Obst. & Gynec. India. 12: 391, 1962.
18. Subhadra Devi, N.: J. Obst. & Gynec. India. 7: 55, 1956.
19. Swami, N. and Patel, T. V.: J. Obst. & Gynec. India. 11: 63, 1960.