

IATROGENIC UTERINE RUPTURE

by

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The various obstetrical operative manoeuvres have marked a major advance in obstetric service but, employed indiscriminately and by unskilled attendants, may produce fearful accidents like rupture of the uterus. Of the various obstetrical operations, which may produce rupture uterus, internal version, and breech extraction have been blamed by many as the foremost important causative factors. Bay (1932) and Green Armytage (1928) have mentioned the injudicious use of oxytocics as the most important cause of traumatic or iatrogenic rupture. De Lee (1938) stated that where good obstetrics is practised, rupture of the uterus is uncommon. Rupture of the uterus is common in underprivileged countries where obstetric care is grossly inadequate.

Material and method of collections

Material was collected from Imambara Hospital, Hooghly, West Bengal from June 1967 to June 1971. During this period 22,678 patients were delivered and 39 mothers were admitted with rupture uterii and 6 had rupture while in hospi-

tal. In 31 cases, uterus ruptured due to an iatrogenic factor. Other causes of rupture were scar rupture, six (two cases in hospital), and prolonged and neglected labour without interference in eight cases. Of the thirty-one traumatic cases, 29 cases came from outside and 4 cases had rupture while in hospital.

Analysis of the cases

All except two, who had traumatic rupture gave history of manipulation outside either by a registered doctor or by an unregistered person or by a midwife. Twenty-five cases had typical signs and symptoms of rupture uterus (shock, haemorrhage, loss of uterine continuity etc.). In 6 cases there was moderate shock and extreme abdominal tenderness.

Short history, operative and mortem findings have been appended in Table I.

Factors which were responsible for traumatic ruptures in these series have been tabulated in table II.

Discussion

Iatrogenic factors play an important role in causing uterine rupture. In the present series, in 31 (68.8%) of the cases, the cause of rupture was traumatic. In the literature lowest figure of traumatic rupture are recorded by Fenney and Barry (1956) as 22% and highest by O'Driscoll (1966) as 69.9%, Clairborne *et al*, (1967) 48.2%, Singh (1967) 29.5%

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TABLE I
Short Notes of the 31 Traumatic Rupture

Age	Parity	P/G in wks.	L or N.L.	Ppt Factors	Site of Rupture	Treatment	Mothers A/D	Baby A/D
1. 28	4	40	L 8 hrs.	Oxytocic	L.U.S.; anterior wall left lateral wall	Nil	D	D
2. 30	8	36	L 4 days	"	L.U.S.; posterior wall Both broad ligaments	Nil	D	D
3. 26	4	40	L 11 hrs.	"	As in No. 1	Subtotal hysterectomy	A	D
4. 32	9	40	L 10 hrs.	"	As in No. 1	"	A	D (Brow)
5. 24	3	40	L 3 days	"	Stellate-shape tear L.U.S.; anterior wall	"	A	D
6. 27	3	40	L 18 hrs.	"	L.U.S.; anterior wall; right lateral wall	Nil	D	D (Hydrocephalus)
7. 32	9	36	L 12 hrs.	"	L.U.S.; posterior wall and right broad ligament	Subtotal hysterectomy	A	D
8. 38	12	40	L 6 hrs.	"	As in No. 1	"	A	D
*9. 23	0 + 0	40	L 27 hrs.	Forceps undilated cervix	Left lateral wall cervix and L.U.S.	Suturing from below and uterine plugging	A	A
10. 42	10	40	L 13 days	Oxytocic/forceps	L.U.S.; left lateral wall and cervix	Total hysterectomy. Repair of bladder	A	A (V.V.F.)
11. 28	9	36	L 4 days	Oxytocic/high forceps	L.U.S.; anterior wall	Subtotal hysterectomy	A	D (N.N.D.)
12. 27	5	38	L 24 hrs.	High forceps (failed)	Anterior wall; bladder	Subtotal hysterectomy; bladder repair	D	D
13. 25	4	39	L 16 hrs.	Internal version, Oxytocic —transverse; lie hand prolapse	L.U.S.; anterior wall left lateral wall	Subtotal hysterectomy	A	D

Contd.—Table I

Age	Parity	P/G in wks.	L or NL	Ppt Factors	Site of Rupture	Treatment	Mothers A/D	Baby A/D
14.	41	15	L 7 hrs.	Int. version cord prolapse	Cervical tear starting from left lateral wall of the cervix upto L.U.S.—anterior wall	Total hysterectomy	D	D
*15.	35	9	L 2 hrs. Bleeding P.V.	Internal ver- sion	Cervical tear—left late- ral wall	Subtotal hysterectomy	A	D
*16.	30	8	L 3 hrs. Dribbl- ing of Liq. amni	"	Cervical tear; L.U.S.— right broad ligament	"	A	D
17.	26	5	L 8 hrs. Trs. lie hand prolapse	"	Cervical tear left side extending upto L.U.S.	Suturing from below Sterilization on 10th day	A	A
18.	28	4	L 39 Trs lie hand prolapse	"	L.U.S.; anterior wall	Subtotal hysterectomy	A	D
19.	20	2	L 2 days	Craniotomy	L.U.S.	Abdominal repair	A	D
*20.	36	7	L 38 L	Manual remo- val of placenta (accreta)	Fundal; anterior wall	Subtotal hysterectomy	D	A
21.	26	6	L 2 days	Oxytocic/ supra fundal pressure	Vertical tear from fun- dus to vaginal vault	Nil	D	D
22.	30	3	L 2 days	"	Same as No. 21 not in- volving L.U.S.	Subtotal hysterectomy	A	D
23.	21	5	L 3 days	"	Irregular complete tear at fundus	"	A	D
24.	25	8	L 24 hrs.	Suprafundal pressure	As in No. 23	"	A	D
25.	23	2	L 4 days	"	As in No. 23	Suturing and ligation of tubes	A	D

Contd.—Table I

Age	Parity	P/G in wks.	L or NL.	Ppt Factors	Site of Rupture	Treatment	Mothers A/D	Baby A/D
26.	9	38	L 5 hrs.	Oxytocic/suprafundal pressure	Incomplete tear and extending in right broad ligament	Subtotal hysterectomy	A	A
27.	8	38	L 24 hrs.	"	Fundal rupture; anterior wall	Subtotal hysterectomy	D	D
28.	9	40	L 12 hrs.	"	As in No. 27	"	A	D
29.	2	40	L 18 hrs.	"	Right cornual area	Suturing and ligation tubes	A	A
30.	12	38	L 8 hrs.	suprafundal pressure	As in case No. 21	Nil	D	D
31.	8	40	L 14 hrs.	Oxytocic/suprafundal pressure	Fundal; anterior wall	Subtotal hysterectomy	A	D

* Rupture occurred in the hospital.
P/G = Period of gestation; L = Labour.

NL = Not in Labour; Ppt factors = Precipitating factors,
A = alive; D = dead.

TABLE II

Iatrogenic Factors and Uterine Ruptures

Causative factors	No. of cases	Percentage
1. Oxytocic	8	25.8
2. Forceps and oxytocic	2	6.4
3. Forceps	2	6.4
4. Internal version	5	16
5. Internal version and oxytocic	1	3.2
6. Suprafundal pressure	3	9.6
7. Suprafundal pressure and oxytocic	8	25.8
8. Craniotomy	1	3.2
9. Manual removal of placenta	1	3.2

and Akasheh (1968) 23%. This wide variation in incidence of traumatic rupture reflects that nature of obstetric service in a particular region.

3.2% of the total traumatic ruptures in this series, occurred in primigravidas and 64.4% were grand multigravidas. In O'Driscoll's (1966) series, 4% were primigravidae and more than half were grand multiparae. High incidence of traumatic ruptures amongst grandy multiparas may be due to, (1) less attention is given to them and weak general health, (2) uterine musculature of grande multiparae can withstand less trauma.

In the present series oxytocics were responsible for 8, 25.8% of the total traumatic ruptures and was an associated factor in another 11 cases i.e. 35.4% cases. Therefore, oxytocics were responsible, directly or indirectly, for 61.2% of the total traumatic ruptures. The incidence of traumatic rupture due to oxytocics has been mentioned by Morrison and Douglas (1950) as 11.5%, Ingram, Alter and Carter (1952) 57.1%, Beacham and Beacham (1951) 18.1% and Clairborne *et al* (1967) as 70.3%.

Suprafundal pressure with or without

oxytocic was the next common cause of uterine rupture in this series. In this manoeuvre, one or more persons press with extreme violence on the fundus of the uterus to deliver the baby. Sometimes, they sit astride on the mother and in one case a basket was placed on the abdomen to facilitate pushing. Incidence of this sort of iatrogenic rupture was quoted by Ferguson and Reid (1958) as 33.3% and Trivedi *et al*, (1968) 31% of the total traumatic ruptures. In this series, out of 11 cases, 3 died and in Trivedi *et al*, (1968) series, out of 57 cases where suprafundal pressure was practised, 24 died.

Internal version was responsible for six uterine ruptures i.e. 13.3% of the total and 19.3% of the traumatic ruptures in this series. Pedowitz and Perell (1958), have remarked, that, version with its inherent dangers is best relegated to history, except in few circumstances. Greenhill (1968) states that internal version should be abandoned in modern obstetrics. Delfs and Eastman (1945) reported 30-40% of the total traumatic ruptures as due to internal version. Pedowitz and Perell (1958), put the figure as high as 80%. Borgoin and Ballon (1964), practising in Africa, State "rupture can be avoided by education and raising the standard of medical care, but", they add "that, whatever its risk, internal version cannot be avoided in Africa." This is also true for our country. During the study period, 42 internal versions were performed, of which two 4.7% were due to internal version without any mortality.

Four uterine ruptures in this series were caused by injudicious application of forceps, two in hospital and two came from outside (Table I) Fenney and Barry (1956) have remarked "It is indeed a great pity that an instrument so beautifully designed

and resourceful can be so traumatic in its misuse". Incidence of rupture due to forceps has been reported by Beacham and Beacham (1951) 9.3%, Fenney and Barry (1956) 27.2%, O'Driscoll (1966) 3%, and Stone (1967) reported that half of their ruptures were caused by Piper's forceps used for the aftercoming head. In this series, 8.8% of the total and 12.9% of the traumatic ruptures were following application of forceps and one mother died. During the study period, in 296 cases Das's forceps was applied in our hospital and two ruptures occurred, i.e. 0.67% of the total forceps deliveries. There were no maternal deaths.

Manual removal of the placenta is occasionally followed by rupture as happened in one of our cases during an attempt to remove a placenta accreta. In this case, uterus was inverted and there was complete rupture at the fundus. This patient expired, in spite of prompt supracervical hysterectomy.

Davis (1951) has aptly stated "The time to treat rupture of the uterus is before it occurs". In the present series in almost all the cases, rupture could have been prevented by better care during pregnancy and labour. Although the older writers like Bay (1932), Kerr (1914) have stated very highly of conservative surgery in the form of vaginal repair and plugging, but the ideal treatment is hysterectomy and prompt massive blood transfusion. Gordon and Rosenthal (1949), Fenney and Barry (1956), Fergusson and Reid (1958), Pedowitz and Perell (1958), all are of the same opinion. We consider that each case for a particular method of treatment, must be individualised. Though radical surgery can produce good results in proper cases expectant treatment also has a definite place. Supracervical hysterectomy should be the method of choice unless one

is forced to perform a total hysterectomy in some odd cases. Routine total hysterectomy increases the material death because it takes more time and the parts surrounding the cervix and vagina are so vascular that at times it is difficult to stop the bleeding. Involvement of bladder is a dangerous complication with a very high mortality. In this series, bladder ruptured in two cases and one died.

Summary and Conclusions

(1) While the incidence of scar rupture is common in western countries even to day in our country iatrogenic factors are the most important causes of uterine rupture as has been shown in this series (out of 45 uterine ruptures, 31 cases were iatrogenic in nature).

(2) Incidence of traumatic rupture is less common amongst primigravidas.

(3) Though in modern obstetrics, oxytocics are used judiciously, in remote rural areas indiscriminate use of oxytocics along with violent suprafundal pressure is a common practice.

(4) Though internal version is blamed by many as one of the commonest cause of uterine rupture, but we are of the opinion that internal version if done in suitable cases by a properly trained person is not so hazardous as claimed by many.

(5) Rupture of uterus is preventable by better maternity service. When rupture occurs each case should be individualised as regards treatment to get better results.

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