FOETAL SALVAGE WITH CIRCLAGE OPERATIONS†

by

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Introduction

Habitual abortion in the second trimester of pregnancy is a frustating handicap on a woman who is desirous of having a child. Increasing interest in the subject of incompetent os as a cause of habitual abortion has followed the publication by Lash and Lash in 1950 who attributed it to a weakness or herniation of lower segment near the isthmus. Lash first advocated plication of this part to strengthen the sphincteric action, subsequently he excised a rhomboid part of the anterior wall and called it Isthmorraphy. The operation was done in between the pregnancies. In 1951 Shirodkar performed the operation during pregnancy by his technique of 'isthmic encirclage with a fascial strip' and reported 80% success in both pregnant and non-pregnant patients. Later on he used ribbon supplied by 'Ethicon' and Mersilene thread, Decron and Nylon threads. The problem of his original technique was that he had to do a Caesarean section each time the patient became pregnant. Later on this was modified by cutting the stitch near term and allowing vaginal deliveries. The operation was repeated in next pregnancy. He also used polythelene bead at the centre which was fixed in place by knots at each end of the bead. McDonald (1957) reported a simple method of suturing the cervix by a purse string suture of No. 4 Mersilk on a Mayo needle. Green Armitage used nylon mesh to encircle the cervix. Burton used Mersilene tape for this purpose.

Here is a review of 28 cases performed by the authors by Modified Shirodkar's and McDonald's technique in Unit II of the Dept. of Obstetrics & Gynaecology, G.R. Medical College, Gwalior.

Operative Technique

The cases were divided in 2 categories. In first group where the os was incompetent but the cervix was not taken up and operculum was intact without any bulging membranes, Modified Shirodkar's stitch was applied. In second group where the os was incompetent with effaced type of cervix with bulging membrane and/or the presence of mucoid operculum at the external os, Modified McDonald's stitch was applied.

In first group the patient was put in lithotomy position, vulva and vagina painted and sterile sheets applied. The bladder was emptied with a metal catheter, Under Intravenous pentothal anaesthesia vaginal examination was performed and the cervix was exposed and lips grasped

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with Allis's forceps A small 1 cm. transverse incision was made at the junction of rugose vagina with smooth cervix and it was undermined on both sides with small curved artery forceps to facilitate passage of Shirodkar's needle. A small verticle incision was placed posteriorly at the same level and similarly undermined. The left sided Shirodkar's needle threaded with medium size back silk was passed from posterior incision on left side and brought out anteriorly. The thread was drawn out of the needle eye and the two ends were held with mosquito forceps. The right sided Shirodkar's needle was introduced on the right side in similar fashion and its eye was threaded with black silk which was held anteriorly. The needle was then drawn back carrying the thread out through the posterior incision. The stitch was tied and knot made posteriorly. Then 4-5 additional knots were made to form a tassel to enable identification at the time of taking out the stitch. The incisions in mucosa were so small that they did not need any suturing. A little of iodine was applied to these incisions and operation concluded.

In second group of cases a purse-string suture was inserted at cervico-vaginal junction with medium sized black silk mounted on an ordinary round body needle. Four bites were taken at 6, 3, 12 and 9 O'clock positions. The stitch was tied and knot made posteriorly.

After care

The patients were kept in bed rest for 10 days and were given duvadilan injections along with injection calmpose 6 hourly for first 24 hours. Then they were put on duvadilan tablets 1 T.D.S. for 7 days. Systemic antibiotics and vaginal antibiotic pessaries were given for 7 to 10 days and the patients were then discharged. They were kept under rigid antenatal care. The stitch was divided and removed at the end of 38 week or earlier if the labour was established.

Observations

TABLE I

Nature of Operation

Total No. of women treated	28	%
No. of women undergoing modified Shirodkar's Circlage	16	57.18%
No. of women undergoing modified McDonald Circlage	12	42.82%
Circlage operation repeated in 2 consecutive pregnancies	2	7.14%

TABLE II

Grouping of Cases

No. of women with repeated 2nd trimester abortions only	12	42.85%
No. of women with repeated premature labours only	7	25.00%
No. of women who had previous deliveries one or few but now having abortions only	9	32.15%
Total	28	100.00%

From the history suspicion about incompetence of os was later confirmed by doing a vaginal examination and the internal os could easily admit tip of finger and in some cases membranes and foetal parts were felt on vaginal examination.

Majority of the cases underwent Circlage operation between 16-20 weeks pregnancy. Eight cases were operated after 26 weeks of pregnancy and these

TABLE III
Time of Operation During Pregnancy

S. No.	Weeks	No. of cases	%
1	12—15	5	18.1
2	16—20	11	39.2
3	21—25	4	14.2
4	26—30	6	21.4
5	at 32 wks.	2	7.1
	Total	28	100.0

were cases who had premature deliveries in previous pregnancies. In many of these cases the internal os starts opening up progressively after 20th week and after Circlage they could carry the pregnancy to term and had full term mature babies. Thus as a routine in all cases with history of premature deliveries, a routine pervaginum examination was done in these women during 19th or 20th week to study the patency or otherwise of cervical canal.

TABLE IV
Success Rate

S. No.			%
	Total No of women treated	28	
2	No. of full term deliveries	25	89.29%
3	No. of abortions	3	10.71%

Table IV shows the absolute success rate (90%). The failure rate is 3 out of 28 (10%). Analysis of the causes of failure shows that all the 3 cases were seen for the first time when the internal os had already opened and the operculum was at the external os or in the vagina. The failure was attributed to delayed ligature due to patients negligence or due to some other factor. When there was a failure, the expulsion took place within the first 48 hours of ligature. This happened in all the 3 cases. There were 2 stillbirths in the series. In one the patient had essential hypertension and at 37 weeks of pregnancy there was sudden disappearance of foetal heart and in another patient in whom forceps was applied after Duhrssen's incision there was foetal death due to intracranial haemorrhage. Thus a total of 23 full term babies were delivered. This compares well with the results reported by other authors.

The suture was removed when labour started or after 38 weeks of pregnancy and the time interval between removal of ligature and delivery varied from 4 hours (minimum) to 15 days maximum.

Table V shows that 23 patients i.e. 92% had normal vaginal delivery and in one patient forceps was applied after Duhrssen's incision and in another caesarean section was done for placenta previa. In this case the Circlage stitch was not removed and the drainage of lochia was normal in puerperium.

TABLE V
Mode of Delivery

S. No.		No. of cases	Percentage
1	Normal vaginal delivery	23	92%
2	Forceps delivery with Durhessen's incision	1	4%
3	Caesarean section (Placenta previa)	1	4%
	Total	25	100%

Discussion

Surgical treatment of incompetent os is now a recognised method of treatment. It is important to remember that there are primary habitual aborters and secondary habitual aborters and it must be understood that there is a physiological defect and an anatomical defect causing this condition. In the present series it is noted that roughly 42.85% (12 out of 28) of the cases it is possible to trace the aetiology to the procedure of dilatation of cervix, normal vaginal deliveries and difficult deliveries in some cases. McDonald (1951) attributed 56 out of his 70 cases to acquired incompetent cervix. He has traced the causes to dilatation of cervix in 35 cases, to cautery of cervix in 15 cases, to amputation of cervix in 3 cases and trachellorraphy in 1 case, but in our series with the exception of 1 case who had M.T.P., others had obstetric causes only.

Second point that should be highlighted in this paper is that 23 out of 28 operations were conducted after 16 weeks of pregnancy and even as late as 32nd week with good results. None of the operations was performed in non-pregnant state.

The other important point is that the operations were performed mostly under I/V pentothal and bladder was not dissected as it is not necessary that suture be placed high up after reflecting the bladder. Shirodkar (1961) and Barter (1958) point out that reflecting the bladder and then placing the suture is an essential point for a successful outcome. In our series the operation was done within 15-25 minutes and less of handling, giving no postoperative uterine irritability. The knot was applied with black braided silk for easy identification and it was placed posteriorly for easy removal at the time of labour.

Our Foetal salvage rate was 89.29% which compares very well with series reported by other authors. Shirodker has reported a salvage rate of 85.6%.

One more important point is that with legalization of abortion and increasing indications for Medical termination of pregnancy, we are performing an increasing number of dilatation and suction evacuation and this may result in trauma to the internal os with resultant incompetence in succeeding pregnancy and hence we should be more vigilant to diagnose and treat this condition.

Summary and Conclusions

i. Twenty eight cases of cervical incompetence leading to habitual abortion have been reported.

ii. Success rate is 89.29%.

iii. Failure rate is 10.71%.

The operations were done by Shirodker and McDonald's technique with slight modification.

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