INCOMPETENT CERVIX IN HABITUAL ABORTIONS

by

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For statisticians habitual abortion is a small problem, but for the patient it is a matter of great magnitude. The incidence of a successful pregnancy following three or more sequential spontaneous abortions is put at 27% by Malpas. Swyer and Daley put it at 50%. Speert, after going through the records of 17,490 obstetric patients, concludes that with three consecutive abortions, 89% carried the fourth pregnancy to viability. He further concludes that the prognosis is better in secondary aborters than in primary habitual aborters (i.e. without preceding full-term delivery), who are far more numerous than the former.

The incompetent cervical os is a recognised entity which can cause late abortion or premature labour. It is not a common condition, but because of the high foetal wastage it is a definite factor in perinatal mortality. Acceptance of a mechanical defect introduces the possibility of surgical correction. Palmer and Lacomme (1948) in France and Lash and Lash (1950) in America drew attention to the defect, but it was Shirodkar (1955) in India who recognised and successfully treated this condition after it had become evident during pregnancy.

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Background: anatomical & aetiological

The cervical factor was comparatively ignored as a cause of habitual abortion. It was Danforth who showed that a congenital or an acquired defect of the fibromuscular junction between the anatomical internal os and the lower uterine segment resulted in cervical incompetency.

Palmer and Lacomme postulated gaping of the internal os as a cause of second trimester habitual abortion. Lash believes that an anatomical defect of the internal os especially anteriorly is the basic factor. There are others who believe that any defect of the cervix or the lower uterine segment is functional rather than anatomical or traumatic and it is this functional failure which results in premature effacement and painless dilatation of the cervix. Undoubtedly, a number of patients may have a combination of these factors.

Aschoff observed that the upper part of the cervical canal and the anatomical internal os form a part of the lower uterine segment in the

second trimester of pregnancy. Browne confirmed this observation. Muscular tissue constitutes 85% of the isthmus uteri, while the cervix contains 80% fibrous tissue. In the first trimester of pregnancy, there is considerable hypertrophy, softening and elongation of the isthmus, so that the anatomical internal os rises. The pregnancy, as a space occupying mass, is small in relation to the growing size of the uterine cavity and is under no appreciable tension.

However, from 15 weeks onwards, the expansion of the foetal sac tends to outpace the capacity of the muscle to accommodate it, so that intrauterine pressures become appreciable. Now the uterus alters its shape from spherical to a flattened ovoid to conform to the abdominal cavity. It is then that the Braxton Hick's contractions become appreciable. The pressure on fhe membranes at the internal os is the resultant of this the intraamniotic pressure added to any extrinsic pressure on the abdomen, together with the weight of liquor above, proportional to its height. For membranes of given tensile strength and intrauterine pressure, there is a critical size of the orifice beyond which progressive herniation, rupture and abortion must inevitably occur. Thus three factors are important when the cervix is open:

(i) The size of the opening.
(ii) The strength of the membranes.
(iii) The forces acting on the surface of forewaters.

The first one is most important and is an easily controlled factor from the point of view of treatment.

Material

The purpose of this study is to present the clinical pictures in 18 cases of habitual abortions, those that were thought to be due to incompetent cervix, the investigations done and the results obtained in them.

For this purpose, the definition of habitual abortion has been taken as three consecutive abortions without any full-term pregnancy intervening. Abortion is considered as expulsion of the products of conception prior to the period of viability.

Selective Cases

Selection of Cases

Incorrect choice may lead to unnecessary interference.

History

History of painless mid-trimester abortion of a fresh foetus not preceded by any warning bleeding is typical of incompetent cervix. Occasionally a case may present itself with membranes bulging at the vulva. A history of previous trauma such as dilatation for dysmenorrhoea, amputation of cervix, traumatic delivery or vertical incision of lower uterine segment, is significant.

Cervix

(i) With incompetence the uterine sound enters easily into the uterine cavity and can be moved from side to side. Passage of 8 mm. Hegar's dilator past the internal os in a non-pregnant patient without resistance was taken as confirmatory in all the four cases in this series. This was associated with clinical suggestion of incompetence based on the criteria quoted above. Studies by traction

with balloons inside the uterine cavity have also been done by some workers.

(ii) Radiological examination is essential to exclude congenital abnormalities and irregularities in the cavity of the uterus and it may give confirmatory evidence of the state of the cervix. Rubovits, Cooperman and Lash described special techniques using a cannula with a balloon and 'Lipiodol'. Normal radiological appearances of the cervix may be filiform, conical, cylindric, barrel-shaped or pear-shaped. Isthmic region shows a constriction. Absence of constriction (funnel cervix) indicates sphincteric weakness. Hysterosalpingography was done in all the four cases where the tightening was done and radiological evidence was obtained in two.

Exclusion of other causes of habitual abortions is essential for obtaining good results.

Rh grouping, V.D.R.L., and other investigations like glucose tolerance curve were done when indicated to rule out other causes or associated causes for second trimester abortions. Three patients had V.D.R.L. positive and were treated adequately with 'Penicilin Alluminium Monostearate' injections. Seventeen patients were Rh positive, one was Rh negative. Her husband was Rh positive (O Group), but antibodies were absent in this particular case.

Operative methods

The purpose of surgery is to promote scar tissue around the cervical os or to prevent its expansion by encircling it with a permanent suture material.

The repair may be done before or during pregnancy. When the patient presents herself in between the abortions, the cervix can be studied by dilators as well as by radiography for confirming the diagnosis of incompetent os as well as ruling out other concomitant causes, like uterine abnormalities. Shirodkar claims many advantages for adopting this procedure during pregnancy. When the tightening is done during the second trimester, the causes of the first trimester abortions are excluded. The placement of the sutures at the histological internal os can be done properly. How tight the suture should be, can be judged better during pregnancy, than in the non-pregnant state. In case the patient does not conceive after the tightening, the operation might be blamed unnecessarily for causing sterility.

In the present series, eleven tightenings of internal os were done during pregnancy, the period varying from 16 to 22 weeks. One case was taken up as an emergency. In five cases, no definite evidence of aetiological factor could be obtained. They were treated on conservative lines, i.e. complete rest by hospitalisation and hormones. Speculum and vaginal examinations were done every week to find out progressive effacement and dilatation of the cervix if any.

Technique in the present series

The operative technique used in this series was similar to that of Shirodkar's. Two sutures of braided nylon were applied at the level of the internal os.

Postoperatively the foot of the bed

was raised for 48 hours, if the patient was pregnant. The patient was kept at complete bed-rest for one week. The average period of hospitalisation in this series was 16.5 days, where tightening was done. Depot preparation of progesterone, 250 mgm, was administered intramuscularly post-operatively, every week, for a variable period.

The patient was advised to abstain from coitus, as it is known to start uterine contractions reflexly with nociceptive stimuli, with release of epinephrine.

In this series of 18 cases, one patient had aborted 15 times. On an average a patient aborted about 5 times (5.2 times) prior to the selection of the case for this study and therapy.

Results

Table I indicates the out-come of tightening of the cervical os in the present series.

TABLE 1

Outcome of tightening of cervical os in present series

Outcome	Tightening done: 13 cases	
	During pregnancy 11	Non-pregnant State 4
1. Lower segment caesarean section at term	4	1
2. Cutting the suture and vaginal delivery at or near term	4	1
3. Abortion after cutting the suture	3	—
4. Results yet to be known	—	2*

* One patient has not conceived during the last 8 months. The other could not be traced.

Summary and Conclusions

1. The problem of incompetent cervix vis-a-vis habitual abortions is briefly reviewed.

2. Eighteen cases of habitual abortere, i.e. those that were thought to be due to incompetence of the cervix, were investigated and treated on accepted variety of methods to judge its exact place.

3. The need for proper selection of cases and the criteria for the same have been put forward.

4. The number of cases presented is too small to be of statistical significance, but the said line of treatment has definitely brought down the foetal wastage.

5. Multiple lines of treatment may have to be combined as the result is as important to the patient as the diagnosis to the obstetrician.

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