INTRACERVICAL INJECTION OF HYALURONIDASE—EFFECT ON CERVICAL DILATATION AND DURATION OF LABOR

by

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It has been rightly said that labour is normal only in retrospect. A woman in labour always gives an anxious time to the obstetrician till she delivers. Any method which aims at reduction of the duration of labour without complication would be welcome to the patient and the obstetrician alike.

Cervical dilatation is one of the important factors which determine the duration of labour. Uterine action, presentation of the foetus, cephalopelvic disproportion are some other factors which determine the course of labour. We have adequate means to diagnose and manage these factors. The factors favouring cervical dilatation are not adequately understood. Cervix is made up of fibromuscular tissue with stroma containing hyaluronic acid, chondroitin and some acid mucopolysachharides (Denforth 1947). It is known that cervix is firm in the non-pregnant state and becomes soft during pregnancy. The cervix is usually ripe a few days before the onset of labour. By ripening we mean increased softening of the cervix, beginning of the effacement and dilatation of the cervix. The process of ripening of the cervix appears to be controlled by the hormones, especially oestrogen and progesterone (Zachariac 1959). It is surmised that local injection of hyaluronidase may reduce the adhesions of the cervical cells (Green 1967) by neutralising hyaluronic acid and thus help in softening the cervix and favouring early dilatation.

The present study was undertaken to determine the effect of intracervical injection of hyaluronic acid on cervical dilatation during labour. Favourable report from Green also prompted us to initiate the study.

Material and Methods

Sixty-five women in labour from S.S.G. Hospital, Baroda, were taken up for the study. Hyaluronidase was injected intracervically in 30 cases and 35 cases acted as controls. There were 26 primigravidae and 39 multiparas. The full term cases with vertex presentation and without clinical disproportion were selected. The patients with cervical dilatation of 4-4.5 cms. were taken up for study. A solution containing 30 units of hyaluronidase per ml. of normal saline was prepared and 4 ml. of this solution was injected into the substance of the cervix each at 2, 6 and 10 O'clock position. As it is difficult to note the exact time of full dilatation of the cervix, interval between injection and delivery was recorded. Pitocin was not administered to any of these cases.

Results

The duration of labour after injection of hyaluronidase is compared with the

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duration of labour in control cases in Table I. It can be seen here that there is a significant reduction in duration of labour after injection of hyaluronidase.

(though c.p.d. was clinically ruled out in the beginning) and these cases are excluded from the study. The reduction in the duration of labour without complication is

TABLE I

Duration of labour in study group and control group from 4.5 cms. cervical dilatation

Cases	Primgravidae		Multipara	
	Study	Control	Study	Control
Cases	12	14	18	21
Length of labour hour: min.				
Mean	7:10	10:20	3:13	7:09
Range	1:58 to 18.05	1:55 to 30	0:50 to 10:15	0.40 to 28:30
% delivered at the end of six hours	75	64	88	71

The mean length of labour has been reduced by 2 hours 90 minutes and range by nearly 12 hours in primigravidae in the study group. The results are more dramatic in multiparous women. Mean length of labour here has been reduced by 3 hours 56 minutes and range by 18 hours 15 minutes after use of hyaluronidase.

No doubt labour is longer in primigravidae than in multiparous women. It is clear from Table I that with local injection of hyaluronidase it is possible to shorten the duration of labour in primigravidae nearer to the time taken by multiparae in the control series.

Study at the end of six hours showed that 75 per cent of the primigravidae in the study group delivered as compared to 64 per cent in the control series, whereas 88 per cent of the multiparae in the study group delivered at the end of six hours as compared to 71 per cent in the control series.

Caesarean section was needed in two cases in the study group and in control group for cephalopelvic disproportion

always welcome by the patient and the obstetrician alike. It does reduce the need for analgesics as well as gives a psychological advantage that 'All was thru' soon'. Informal talks with the patients confirmed the above impression. The softening of the cervix so produced by enzymatic lysis of the intercellular mucopolysachharides appears more physiological and safe method. We have not used hyaluronidase for induction of labour but we feel that in cases when induction of labour is indicated but the cervix is unripe, injection of hyaluronidase in the cervix may help in ripening the cervix.

Difficulties during the procedure

Visualisation of the posterior lip of the cervix is a little difficult in some cases. The membranes accidentally ruptured in two cases while injecting in the cervix. The injection site does produce some bleeding but it is not significant.

Summary and Conclusions

A study of sixty-five cases in labour

showed that labour could be accelerated significantly by intracervical injection of hyaluronidase. The need for analgesics is also reduced thus reducing the foetal risks. Shortening the labour does give a psychological advantage to the patient and the obstetrician alike.

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References

1. Denforth, D. N.: Am. J. Obst. & Gynec. 53: 541, 1947.
2. Green; Philip, S.: Am. J. Obst. & Gynec. 94: 337, 1967.
3. Zachariac, F.: Acta endurinal (Suppl.). 47: 9, 1959.