

ACCELERATION OF LABOUR BY INTRACERVICAL HYALASE INJECTION IN PRIMIGRAVIDAS

by

B. JOSEPH,* M.D., D.G.O.

and

CHANDRA KIRAN,** M.D.

The time of labour is found to be directly proportional to the state of the cervix i.e., softening of cervix uteri (Buckingham *et al*, 1962; Friedman *et al*, 1962; Green 1967) leading to the dilatation of cervix. This softening of cervical tissues is observed to be associated with the separation of connective tissue bound complex high molecular weight, hydrophilic mucopolysaccharide acid, hyaluronic acid and chondroitin, etc. (Danforth, 1947; Voutsas *et al*, 1963). The heat labile enzyme hyaluronidase that functions under hormonal control (Zachariae 1959) causes decrease in the adhesion of cervical cells, thus shortening the time of labour through cervical dilatation. The present study was therefore, undertaken to evaluate the role of "Hyalase" injection (Tata Fison Ltd., India) on the progress of labour in primigravidas.

Material and Method

One hundred eighty-one primigravidas in the age group of 20-25 years, with no complications such as toxæmia, anaemia or any other disease were given intracervical hyalase injection (3,000 i.u., each). The drug was injected when the

patient was in well established labour i.e., 2-5 cms of cervical dilatation and the cervix was partially effaced and station of the vertex at the level of ischial spines (O Station) or above the ischial spines (-1 Station). One hundred and eighty-one cases in the age group of 20-25 years were similarly taken as control that did not receive hyalase therapy.

Two Ampules of hyalase were dissolved in 10 ml of distilled water. Cervix was visualized under sterile conditions by introducing a Sim's speculum and anterior vaginal wall retractor. The cervix was injected with the hyalase solution at 3, 6, 9 and 12' O'Clock positions, 750 i.u., of hyalase were injected at each place.

The progress of labour was watched and the time of delivery taken as the end point of observation since full dilatation of cervix was difficult to assess.

Results

The results of intracervical hyalase injection are summarised in Table I.

The labour is accelerated by hyalase injection is quite evident from Table I. At O station, with 2, 4 and 5 cms of cervical dilatations, the time of labour was reduced to less than half. At 5 cms cervical dilatation it results in reduction of time of labour by 5-6 hours. Hyalase reduced the time in general from 2-6.5 hours and in few by 12 hours.

*Professor and Head.

**Reader.

Department of Gynaec. & Obst., S.N. Medical College, (Umaid Hospital), Jodhpur (Raj).

Received for publication on 2-5-73.

TABLE I

Showing Acceleration of Labour in Primigravidas by Intracervical Injection of 3,000 i.u. Hyalase.

S. No.	Dilatation of cervix (Cms)	Station of vertex*	Control		Hyalase	
			No. of patients	Time in labour till delivery (hrs.)	No. of patients	Time in labour till delivery (hrs.)
1	2	0	19	7-20	19	6-8
2	2	-1	22	10-16	22	10-12
3	4	0	21	4-8.5	21	3-4
4	4	-1	20	6-9.5	20	4-5
5	5	0	18	5-9.5	18	2-3
6	5	-1	81	6-10	81	3-4

* O station = At the level of ischial spines.

- 1 station = Above the level of ischial spines.

Table II shows the mode of delivery in the hyalase series.

In the hyalase series there were 21 forceps deliveries. Indications for applying forceps were mostly foetal distress, failure of secondary powers and maternal exhaustion. In the control, the number of forceps were more probably due to maternal exhaustion as the patients had prolonged labour.

There were 5 caesarean operations in the hyalase series as compared to 2 in the control. In hyalase treated cases, two were for foetal distress and 2 for persistent occipitoposterior position. One case was partial failure. This was the lone case of cervical dystocia given hyalase at 2 cms and -1 station, but her cervix did not dilate further except for a little softening. She developed foetal distress and an early caesarean was done.

Only one traumatic postpartum haemorrhage occurred due to cervical tear.

This patient was given hyalase at 5 cms of cervical dilatation and O station. She delivered in 2 hours and it was controlled by haemostatic suture.

Maternal Complications

Three patients had postpartum haemorrhage of which one had cervical tear and two uterine inertia. Four patients had puerperal sepsis, of which two had repeated internal examinations done by local 'dai' before being admitted to the hospital. Two patients had urinary infection which, however, could not be ascribed to the hyalase injection.

Discussion

In a well established labour case, with progressive dilatation, when the patient is suffering for a long time due to pain, the time was found to be considerably reduced by intracervical injection of hyalase.

TABLE II
Showing the Mode of Delivery and its Indications

S. No.	Dilatation of cervix (cms)	Station of vertex	No. of normal deliveries		No. of forcep deliveries		No. of caesarean deliveries**	
			Control	Hyalase	Control	Hyalase	Control	Hyalase
1	2	0	15	16	3	2	1	1+1***
2	2	-1	17	18	4	3	-	-
3	4	0	18	19	4	2	-	-
4	4	-1	16	17	3	2	1	2
5	5	0	65	65	16	10	-	-
6	5	-1	16	16	2	2	-	1
Total			147	151	32	21	2	4+1

* Forceps were applied in case of foetal distress, failure of secondary powers, prolonged second stage, uterine inertia and persistent occipitoposterior position.

** The caesarean sections were done for foetal distress, persistent occipitoposterior position and cervical dystocia.

*** Hyalase did not act in this case of cervical dystocia.

As compared with Green (1967) instead of 3-4 cms cervical dilatation the best results were noted at 5 cms dilatation and O station, when the reduction in time of labour was observed to be 6.5 hours which is significantly more than that observed by Green.

Better results in our cases may be due to the selection of 4 point injection method. We spread the 3,000 i.u., of intracervical hyalase uniformly at 3, 6, 9 and 12 O'clock positions as compared to Green who chose 2, 6 and 10 O'clock positions.

Maternal exhaustion in prolonged labour often necessitates forceps application. Hyalase was found to reduce the incidence of such manoeuvres.

Summary

Intracervical hyalase injection was given to 181 primigravidas and its results compared with the same number of controls. Average reduction in time of labour was found to be from 2-6.5 hours. The best results were observed at 5 cms dilatation and O station 2-6.5 hours reduces the time of labour by an average of 5-6 hours.

References

1. Buckingham, J. C., Selden, R. and Danforth, D. N.: *Ann. New York Acad. Sc.* 97: 733, 1962.
2. Danforth, D. N.: *Am. J. Obst. & Gynec.* 53: 541. 1947.
3. Friedman, E. A. and Sachtleben, M. R.: *Am. J. Obst. & Gynec.* 84: 930, 1962.
4. Green, P. S.: *Am. J. Obst. & Gynec.* 94: 340, 1967.
5. Voutsas, N., Beveridge, G. C. and Foraker, A. G.: *Obst. & Gynec.* 22: 108, 1963.
6. Zachariae, F.: *Acta. endocrinol.* 47: 9, 1959.