FETAL MATURITY AND AMNIOTIC FLUID THROMBOPLASTIC ACTIVITY

by

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SUMMARY

Accelerated Clotting time (ACT) is a very simple index of fetal maturity and a mean ACT of 148.9 seconds indicates the fetal gestation period between 14-34 weeks while a mean ACT of 61.0 seconds indicates a fetus of 41-42 weeks gestation.

Thus, the thromboplastic activity as reflected by ACT can be utilized to estimate fetal maturity.

Introduction

An indication of the thromboplastic activity of the amniotic fluid was first presumed in cases of amniotic fluid embolism, which was later proved to be due to the haemostatic activity of amniotic fluid (Steiner and Luschbaug, 1941).

The addition of amniotic fluid to the blood accelerates the clotting time. This clotting time is accelerated as the period of gestation increases (Dube *et al*, 1976 and Yaffe *et al*, 1977). It has been utilized for assessment of fetal maturity (Hastwell, 1974, 1978; Yaffe *et al*, 1977).

Material and Methods

This study was carried out in 100 patients attending Kamala Nehru Memorial Hospital, Allahabad for confinement (both normal and abnormal pregnancy) or for medical termination of pregnancy. A detailed antenatal checkup and routine investigations were done in each case.

Clotting time and accelerated clotting time (ACT) after addition of amniotic fluid were determined in each patient using Hastwell's method (Hastwell, 1974) for the later test. Fetal maturity was also determined using other esablished parameters like period of gestation, birth weight, crown-heel length and head circumference and was correlated with ACT.

Observations

Correlation with period of gestation

Accelerated clotting time (ACT) decreased significantly as the period of gestation increased. When the period of gestation ranged from 14 to 34 weeks, the ACT was from 180-120 seconds (mean 148.9 ± 26.8). It reduced to 30-90 seconds (mean 56.3 ± 18.01) when period of gestation increased to 37-40 weeks. The reduction in ACT was highly significant in the later part of gestation (Table I).

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Accepted for publication on 14-6-84.

TABLE I

Relationship of Accelerated Clotting Time With Period of Gestation

Group	Period of gestation in weeks	No. of cases	Mean ACT in seconds	SD	Statistical comparision of means		
					Comparision between group	t	P
1.	14-34	20	148.9	26.88	1 & 2	8.17	<.001
2.	35-36	11	82.9	30.48	1 & 3	17.4	<.001
3.	37-40	59	56.3	18.01	1 & 4	10.09	<.001
4.	41-42	10	62.2	1.98	2 & 3	4.88	<.001
					2 & 4	18.48	<.001
					3 & 4	3.28	<.001

Correlation with birth weight of infant

An increase in the birth weight of the infant indicates fetal maturity. ACT decreased significantly as the birth weight increased. When the birth weight was less than 1000 gms, the mean ACT was 153.43 ± 19.5 seconds. A drastic reduction in ACT to 68.6 ± 19.94 seconds was seen when the birth weight increased to 1000-2500 gms, a weight indicating fetal maturity. The mean ACT further decreased to 49.0 ± 2.75 seconds when the birth weight increased to 3501-4000 gms (Table II).

Correlation with crown heel length of infant

An increase in crown heel length decreased the ACT significantly. When the crown heel length was less than 40 cms, the mean ACT was 160.0 ± 19.31 seconds. It decreased to 32.5 ± 4.18 seconds when the crown heel length increased to 51-55 cms. This difference was highly significant (Table III).

Correlation with head circumference of infant

An increase in the head circumference decreased the ACT significantly. When the head circumference was less than 28 cms, the mean ACT was 97.57 ± 61.01 seconds. It decreased significantly to 51.42 ± 14.10 seconds when the head circumference increased to 34-36 cms (Table IV).

The ACT did not show any variation

TABLE II

Relationship of Accelerated Clotting Time With Birth Weight of Infant

Group	Birth weight in gms	No. of cases	Mean ACT in seconds	SD	Statistical comparision		
					Groups compared	t	P
1.	<1000	16	153.43	19.5	1 & 2	13.53	<.001
2.	1000-2500	26	68.6	19.94	1 & 3	19.13	<.001
3.	2501-3500	52	56.8	17.18	1 & 4	12.95	<.001
4.	3501-4000	6	49.0	2.75	2 & 3	27.15	<.001
					2 & 4	2.38	<.05
					3 & 4	1.106	>.05

Virilizing Luteoma of Pregnancy Causing Obstructed Labour—Preet Kamal et al
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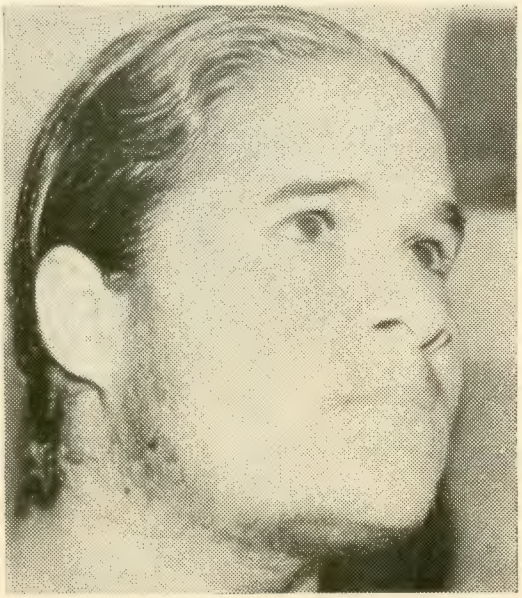

Fig. 1
Prominent hair growth on the face.

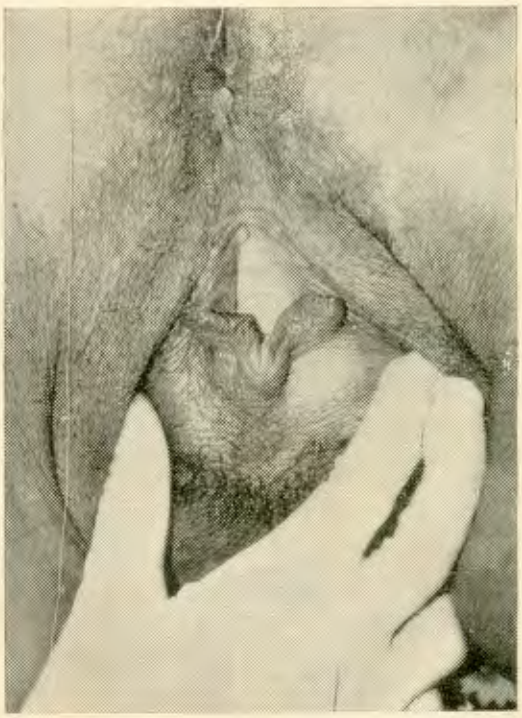

Fig. 2
Shows enlarged clitoris.

Unusual Case of Criminal Abortion by Surma Stick—Manju Misra et al p. 1190

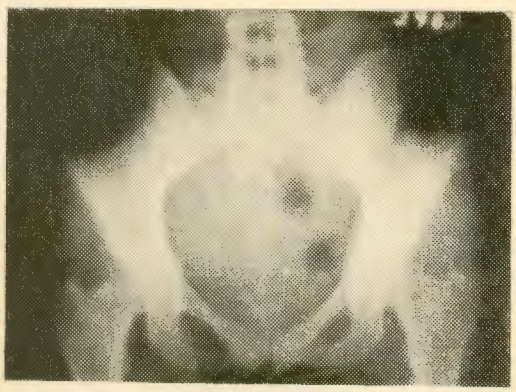

Fig. 1
X-ray showing metallic opacity on the right side of pelvic region.

Fig. 2
Showing the metallic stick piercing the omentum.

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Fig. 3
Cut surface of the tumour.

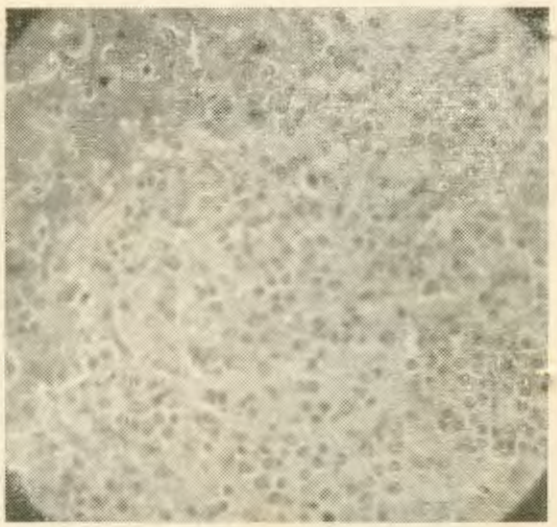

Fig. 4
Photomicrograph of luteoma.

Auto Amputations of Fibroid Polyp—Sinha & Sinha p. 1205

Fig. 1
Clinical examination of mass.

Fig. 2
External appearance of mass.

Recurrent Abdominal Pregnancy—Kate & Bhattacharya pp. 1183-1184

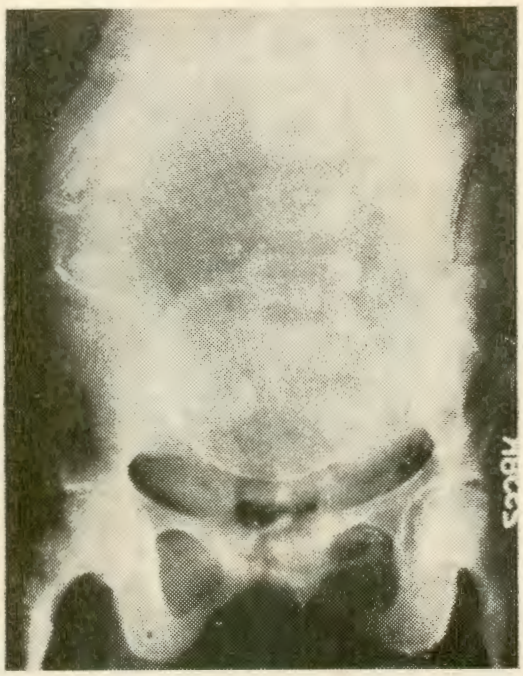

Fig. 1
X-ray of D.R. case of recurrent abdominal pregnancy showing full term foetus with spaldy sign during first time.

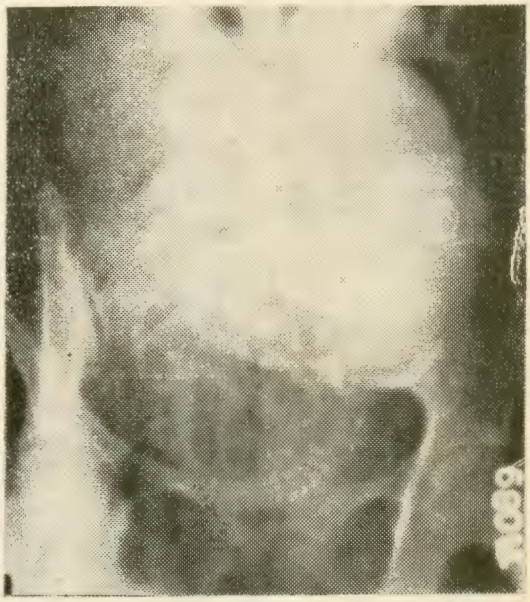

Fig. 2
X-ray of same patient during 2nd abdominal pregnancy.

Fibromyoma of the Round Ligament—Rangnekar & Beedkar p. 1206

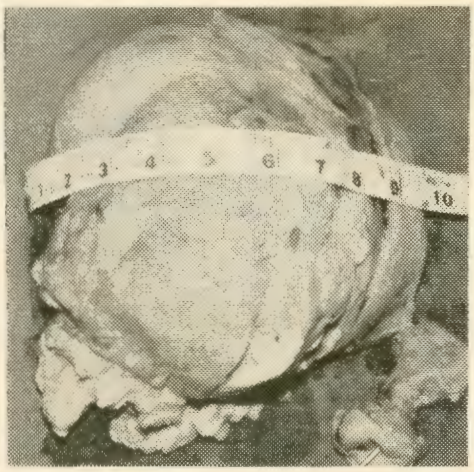

Fig. 1
Showing the fibroid in the round ligament.

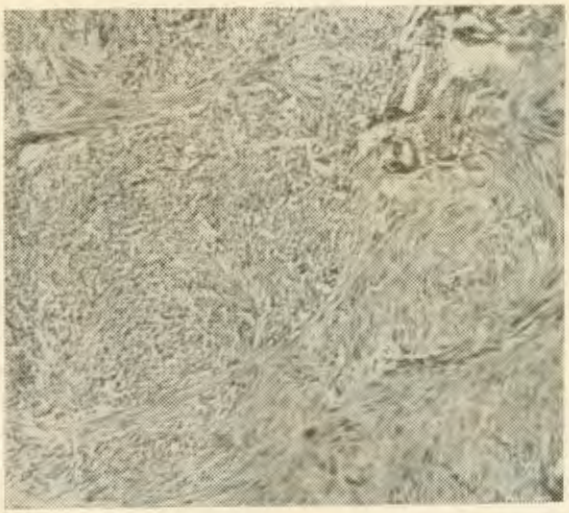

Fig. 2
Showing characteristic picture of fibromyoma.