

ISOLATION OF VIRUS IN PRODUCTS OF CONCEPTION
IN SPONTANEOUS ABORTION

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Introduction

Viral infections during pregnancy may be serious. Abortion is common after infection with Small pox, Polio, Measels, Rubella, Cytomegalic and Mumps viruses.

In low socioeconomic groups of the Iranian population abortion is common. In Women's Hospital university of Tehran where this study was done, about 13.4 per cent of the patients who refer to the obstetric and gynecology department are abortion cases.

As the placenta does not begin to function as a barrier to fetal infection until the end of the first trimester we only studied the abortion cases which hap-

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pened during the first trimester.

In this study we tried to investigate the part of the viruses in 200 cases of spontaneous abortions of the first trimester. The sera of the same patients were titrated for Rubella hemagglutination inhibition antibody (HI). The sera of 150 full term pregnant women who gave birth to normal babies were also titrated for Rubella antibody as a control group.

MATERIALS AND METHODS

Two hundred patients with spontaneous abortions of the first trimester were studied. The products of abortion obtained by sterile curettage were minced, ground and made up to a 10% suspension in a maintenance tissue culture media (Eagle + 2% fetal calf serum + antibiotics + fungicides). The homogenates were centrifugated at 2500 rounds per minute for 30 minutes.

Half a ml (0.5 ml^3) of each specimen was inoculated into each of the two tubes of green monkey kidney (G.M. K.) tissue culture and kept under incubation at 35°C to 37°C for 12 days.

For detection of Rubella virus, tubes showing no cytopathic effect (C.P.E.) were challenged on the twelfth day by 100 TCID 50 of Echo virus 11.

The sera of 192 of these patients were titrated for

Rubella (HI) antibody titre by kaolin absorption using 6 hemagglutination antigen units and pigeon red blood cells. As a control group the sera of 150 term pregnant women who gave birth to normal babies were titrated for Rubella antibody. All sera were kept at -20°C until use.

RESULTS

The sera were titrated to $\frac{1}{640}$ for Rubella antibody. In table 1 it is indicated that 11.5 per cent of the abortion cases had a titre less than $\frac{1}{10}$, but in the delivering patients, only 5.3 per cent had a negative titre. The titres higher than $\frac{1}{320}$ were only positive in the abortion cases.

Table II shows that out of 342 patients titrated for Rubella antibody during the reproductive age 8.8 per cent had a negative titre and 69.9 per cent had a positive titre up to $\frac{1}{40}$ and 21.3 per cent had a titre over $\frac{1}{40}$.

From 200 cultures of the products of conception for virus detection, we obtained 9 positive results of which 4 were Herpes virus, 2 Rubella virus and 3 were an unidentified Entero virus like virus. The characteristics of the patients with positive results are classified in table III.

DISCUSSION

As shown in table I there is no significant diff-

TABLE I

Cases	Total No. of Patients	Rubella antibody titre									
		—	$\frac{1}{10}$	$\frac{1}{20}$	$\frac{1}{40}$	$\frac{1}{80}$	$\frac{1}{160}$	$\frac{1}{320}$	$\frac{1}{640}$		
Abortion	No.	22	34	54	52	16	11	1	2		
	%	11.5	17.7	28.1	27.1	8.3	5.7	0.5	1.0		
Normal Delivery	No.	8	20	45	34	33	10	—	—		
	%	5.3	13.3	30	22.7	22	6.7	—	—		

Table II

Cases	Total No. of Patients	Rubella antibody titre					
		Negative		$\frac{1}{10}$	$\frac{1}{40}$	$\frac{1}{80}$	1 or more
		No.	%	No.	%	No.	%
Abortion	192	22	11.5	140	72.9	30	15.6
Normal Delivery	150	8	5.3	99	66	43	28.7
Total No.	342	30	8.8	239	69.9	73	21.3

Table III

Table III- The characteristics of the 9 patients with positive result									
No. of patient	1	2	3	4	5	6	7	8	9
Age	28	20	28	38	18	25	29	29	19
No. of children	2	2	0	5	0	3	2	0	1
No. of members of family	4	4	2	7	2	5	5	2	3
Method of con- -traception	con- -dom	-	-	I.C	-	I.C	pill	-	-
Months of abortion	3	2	2	2	2	3	1 $\frac{1}{2}$	3	2
Kind of abortion	spn.	spn	spn	spn	spn	spn	spn	spn	spn
No. of previ- -ous abortion	1	1	1	1	1	1	2	3	2
Bleeding on- -set (day)	6	2	15	2	2	6	2	3	5
Previous his- -tory	-	-	-	-	-	-	-	-	-
Rubella anti- -body titre	$\frac{1}{40}$	$\frac{1}{40}$	$\frac{1}{40}$	$\frac{1}{640}$	$\frac{1}{160}$	$\frac{1}{160}$	-	$\frac{1}{20}$	$\frac{1}{20}$
Virus isolated	Herpes	Her- pes	Her- pes	Her- pes	Rub- ella	Rub- ella	Unidentified Enterovirus like virus		

erence between the antibody titre of the two groups of pregnant and abortion cases. A slightly higher percentage is observed in abortion cases at $\frac{1}{40}$ and $\frac{1}{160}$.

In a study carried out 5 years ago at the Institute of Public Health in Tehran university it was shown that only 4 per cent of the adult population lacked antibody to Rubella virus (9).

In our study 8.8 per cent of the patients had a negative rubella antibody titre. Comparing the two results it seems that rubella vaccination if necessary, should become obligatory before marriage to prevent many of the congenital malformations.

From 200 products of conception cultured for detection of Rubella virus we had only 1 per cent positive result, while Wyll et al (10) have reported 3.2 per cent of positive rubella cultures in their series of 215 patients, inadvertently vaccinated against Rubella during pregnancy.

Catalano et al (1) also reported 0.5 per cent positive placenta cultures in Rubella epidemics during 1964-1965.

Herpes infections are more prevalent in the lower socioeconomic groups (8). Herpes simplex virus has been found in the cervical region of many pregnant women, so that the possibility of an ascending route must be con-

sidered. The transplacental route seems likely although unproved (9).

In 200 cultures of the products of conceptions for detection of Herpes virus 2 per cent had a positive result.

Nahmias et al (4) have reported 1 per cent positive herpes culture in pregnant women of low socioeconomic group.

In our investigation 3 of our cultures or 1.5 per cent were positive for an Enterovirus like virus.

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SUMMARY

Two hundred patients of the low socioeconomic group with an abortion of the first trimester were studied. The sterile products of conception were cultured on Green Monkey Kidney tissue culture for viral detection. Four positive Herpes virus, two positive Rubella virus and three positive unidentified Entero virus like

virus were obtained.

The sera of 192 of these patients were titrated for Rubella antibody. The sera of a control group of 150 normal pregnant women were titrated for Rubella antibody and 8.8 per cent of these patients had a negative titre and 21.3 per cent had a titre over $\frac{1}{40}$.

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