CHORIAN BIOPSY—A PRELIMINARY EXPERIENCE

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SUMMARY

Chorionic Villus Biopsy unlike amniocentesis and fetoscopy opens the way to making a prenatal diagnosis of genetic disorder in the first trimester of pregnancy.

30 patients who presented for first trimester. MTP were included in this study group. Details about ultrasonic examination and the technique of taking chorion biopsy have been outlined.

Success in obtaining a chorion biopsy was seen in 54%, 30% and 16% of the patients by the first, second and third attempts respectively. Overall successful culture rate was 66.6%, while the complication rate was 16%. Correlation of chorion biopsy with abortus was seen in 89% of the cases.

troduction

Chorion Villus biopsy in the first tri-ester is a very attractive alternative to nniocentesis for cytogenetics diagnosis. allows diagnosis in the 1st trimester, llowing an easy termination if required, nd saving the mothers a lot of time and nxiety. However, it stands or falls on wo criteria, (a) Success rate of sampling b) Risks in an ongoing pregnancy.

Iaterial and Method

In this series we have done chorion iopsies on 30 patients who presented for ITP at BYL Nair hospital, after explaining the procedure and obtaining informed consent.

Procedure

We did an ultrasound scan to confirm foetal vitality. Cases where there was twin pregnancy, absent heart beats or where the gestational sac was distorted were excluded. CRL was measured, and an optimum area for aspiration was determined near the chorion frondosum.

A transcervical aspiration was carried out with a 10 cc. syringe attached to 18 gauge curved metal cannula, filled with sterile saline. The cannula was advanced under vision, and the position of its tip confirmed on both longitudinal and transverse scan. If it was not proper it was removed and repositioned. No more than

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3 attempts were made in any patient. The tissue was examined for presence of villi with a magnifying lens in the absence of a dissecting microscope.

After the procedure the patient was asked to rest for a day. She was told to report if there was (1) Vaginal bleeding (2) Watery discharge. (3) Pain in abdomen. (4) Fever. Patient was called for M.T.P. 3-7 days after the procedure.

TABLE I
Results

Total number of patients for chorion biopsy	30
Patients who underwent M.T.P.	15
Patients who aborted after procedure	3
Patients who continued pregnancy	6
Patients who were lost to follow-up	6

TABLE II

Weeks of gestation	No. of patients	No. of attempts		
		I	II	III
6-7 Weeks	4	3	1	0
8-9 „	11	7	3	1
10-11 „	7	5	2	0
12-13 „	5	1	3	1
14 and above	3	0	0	3
	30	16 (54%)	9 (30%)	5 (16%)

This deliberate delay was to find out the rate of any of the above complications.

TABLE III
Gross Examinations of Chorion Tissue

Class of tissue	No. of patients
Fair	9
Satisfactory	15
Very good	6

TABLE IV
Culture Results

Class of Tissue	No. of patients	Successful culture
Poor	10	3 (30%)
Satisfactory	16	13 (75%)
Excellent	4	4 (100%)
	30	20 Overall % ± 66.6%

TABLE V
Complicatons

Complications	No. of patients	Percentage
1. Abortion	3	10
(a) Vaginal bleeding P.V.	1	
(b) Rupture of Sac	1	
(c) Infection	1	
2. Bleeding P.V. (Pregnancy continues)	2	6
3. No complications	19	64
4. Lost to follow up	6	20

TABLE VI
Correlation of Chorion Biopsy with Abortus

	No. of patients
Number with abortus available for study	18
Number where M.T.P. & Chorion Biopsy results co-related	16
Results contradictory	2 (both 2nd trimster)
Pregnancy continues	6
Lost to follow-up	6

TABLE VII

Recommendations for Chorion Biopsy

1	Patient between 8-11 weeks pregnant
2	Ultrasound confirmation of fetal size, & viability.
3	Ultrasound guidance or suction.
4	Accurate needle placement.
5	Atraumatic suction, avoidance of repeated attempts.
6	Critical evaluation of the sample immediately.
7	Expert laboratory handling of the tissue.

Discussion

No single series is large enough to draw valid conclusion.

Jackson and Wapner (1984) have presented pooled data from various centres: (Chiefly Italy & USA)

Total Chorion Biopsy (Dignostic)	1232
Termination	148
Term deliveries	140
Cong. anomalies	0
Foetal loss	5.1%
Projected fetal loss in scanned pregnancy (8 weeks)	2-3%
Successful culture rates	66%
Accurate prediction	94% in the begining 100% with experience

They have concluded that chorion biopsy does not cause any damage to the foetus in continuing pregnancies. According to projected data, the foetal loss in pregnancies proved to be normal at 8 weeks by sonography should be around 2-2.5%, and it is higher in biopsied patients. This may be attributable to the procedure. However, they have refuted this in a conference held in Dec. 85 (Personal Communication).

With our short experience of the procedure, we can make the following recommendations:

1. Success in obtaining chorion villus samples and in obtaining accurate karyotypes correlates directly with operator and laboratory experience. Ward *et al* (1983) had suggested (and we concur with this) that such experience must be obtained with patients scheduled for first trimester abortions before the technique can be offered as a patient service. We feel that for a-trained person experience with about 50 cases should be sufficient. If this precaution is overlooked, the risk of unwanted spontaneous abortions and other complications is unacceptably high.

2. Ultrasound Scanning and exact location of villus mass (chorion frondosum) is an integral part of the procedure and not merely a refinement. Scanning follows the cannula through the internal os into the substance of the chorion and guides the placement of the tip. Sampling too near the membranes may indent or perforate the membranes. It also yields poorly growing villi, a sampling too near the uterine wall yields maternal decidual cells. We attempted 'Blind' suction on operation table without ultrasound guidance in 4 M.T.P. patients. In each case the aspirated material was obviously inadequate.

3. The fundamental principle of the technique are preliminary ultrasound scanning. Accurate placement of cannula tip, atraumatic suction, critical evaluation of the sample and experienced laboratory handling. Chorian biopsy is a simple technique yet like all classic simplicity, it requires experience to achieve the subtle expertise necessary for a high rate of success.

References

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