

FIRST TRIMESTER CHORION BIOPSY

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SUMMARY

First Trimester Chorion Biopsy has revolutionised the antenatal diagnosis of genetic disorders and sex of the baby.

This OPD procedure done under Ultrasound control requires no anaesthesia and has hardly any maternal morbidity and foetal loss. The biopsy is best performed between 8 to 10 weeks of gestation.

This study consists of two methods used to perform the biopsy. First, using Polythene Cannula and second using Dr. Chittaranjan Purandare's apparatus. One hundred cases of Chorion Biopsy performed did not show any incidence of spontaneous abortion. The accuracy of diagnosis was 100% in this series and thirteen males and two females had delivered normally following this procedure without any abnormality.

Introduction

First trimester Chorion Biopsy has revolutionised the antenatal diagnosis of genetic disorders and sex of the baby. This procedure is an OPD procedure with hardly any maternal morbidity and foetal loss. There is no necessity of any anaesthesia and the patient is free to go home after fifteen minutes rest.

The Chinese have reported 100 cases of Chorion Biopsy using Polythene Cannula as far back as in 1975.

It is an easy and safe method as compared to amniocentesis done at 16 weeks gestation. Chorion Biopsy is best performed between

8 and 10 weeks gestation. The results are obtained after 5 days. Biopsy can be repeated after a week in case of doubt in results. Patient may complain of spotting for a period of 24 hours, which has been found to be harmless. Abortion rate following the procedure should not be more than 1% if done accurately and carefully.

Material And Methods

This study consists of total 100 cases of Chorion Biopsy done under ultrasound control.

The two methods used for this procedure were :—

- (1) Aspiration biopsy through Polythene cannula using a syringe.
- (2) Aspiration biopsy through metal can-

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nula using Dr. Chittranjan Purandare's Chorion Biopsy apparatus.

Method I :

Ultrasound is first performed to see the size of the foetus, evidence of foetal heart and location of Chorion frondosum.

Patient is then put in lithotomy position or by flexing and abducting the legs. A Cusco's or Sim's speculum is passed after preparation of the patient. The anterior tip of the cervix is grasped with an Ellis forceps. The cervix is steadied and under ultrasound control a metal cannula is passed through the cervix upto the level of chorion frondosum.

A polythene cannula of 16 gauge is then passed through the metal cannula and negative pressure applied with a syringe. The tissue collected is flushed into the transport media and checked under inverted microscope to identify that the correct tissue is obtained. This tissue is then cultured for chromosomal analysis.

Second Method

The initial procedure is same as in Method I. This method consists of attaching a special unit (Photograph I) to the metal cannula and applying suction pressure of 0.6 to 0.7 kg/cm² by a paediatric suction pump for 30 seconds. The biopsy collected in the bottle is checked and transferred to the media. The advantages of this method being (1) less spotting due to minimal handling of the cannula and (2) easy manoeuvring of the ultrasound probe by

the operator himself as the left hand is free for the probe movements.

Results

In the initial phase ten cases were chosen for chorion biopsy who wanted termination and the biopsy results and MTP tissue results were crosschecked by double blind study for foetal sexing and were found to be accurate.

Table I shows that out of the 10 cases, 3 were males and 7 females. The tissue obtained after MTP confirmed the diagnosis with 100% accuracy.

TABLE I

Number of cases of chorion biopsy	MTP specimen studied	Accuracy of Diagnosis
10	—	—
3 M	3 M	100%
7 F	7 F	—

A second group of 10 cases of chorion biopsy were compared with amniocentesis results where the patients wanted prenatal sex determination. Table II shows that out of 10 chorion biopsies studied, 6 were females and 4 males, which were confirmed by amniocentesis performed at 16 weeks gestation giving a 100% accuracy of diagnosis. All the four males have subsequently delivered normally.

Subsequently 50 chorion biopsies were performed using polythene cannula method and the results were given after 72 hours of laboratory procedure.

TABLE II

Number of cases of chorion biopsy	Amniocentesis performed at 16 weeks	Patients already delivered	Accuracy of diagnosis
10	10	—	100%
6 F	6 F	4 M	—
4 M	4 M	—	—

TABLE III

Number of cases of chorion biopsy	Diagnosis results	Patients already delivered	Spontaneous abortions
50	22 M	9 M	—
—	28 F	2 F	—

TABLE IV

Number of cases of chorion biopsy	Diagnosis results	Patients already delivered	Spontaneous abortions
—	10 M	—	—
30	20 F	—	—

Table III shows that out of 50 chorion biopsies studied, 22 were males and 28 females. 9 males and 2 females had already delivered normally.

Conclusion

Thirty chorion biopsies were performed using the second method. The results were as shown in Table IV. Chromosomal analysis of the tissue was done and the results given after 5 days. Minimal post procedure spotting was seen compared to method I.

Incidence Of Abortion

The recorded incidence of abortion has been 1% to 20% in various centres depending on the expertise of the operator and whether or not ultrasound control was used during the procedure.

In the present series there were no spon-

taneous abortions following the procedure. Chorion biopsy is a safe OPD procedure needing no anaesthesia. One hundred cases of chorion biopsy performed showed no incidence of spontaneous abortion following the procedure. Thirteen males and 2 females delivered normally following the procedure proving that the method can be used for foetal sexing and genetic evaluation of the foetus eg. Down's Syndrome, without damage to the foetus or the mother if done carefully under ultrasound control.

Reference

1. Department of Obstetrics & Gynaecology. Tietung Hospital—Anshan Chinese Medical Journal. 1(2): 117, 1975.

See Fig. on Art Paper III