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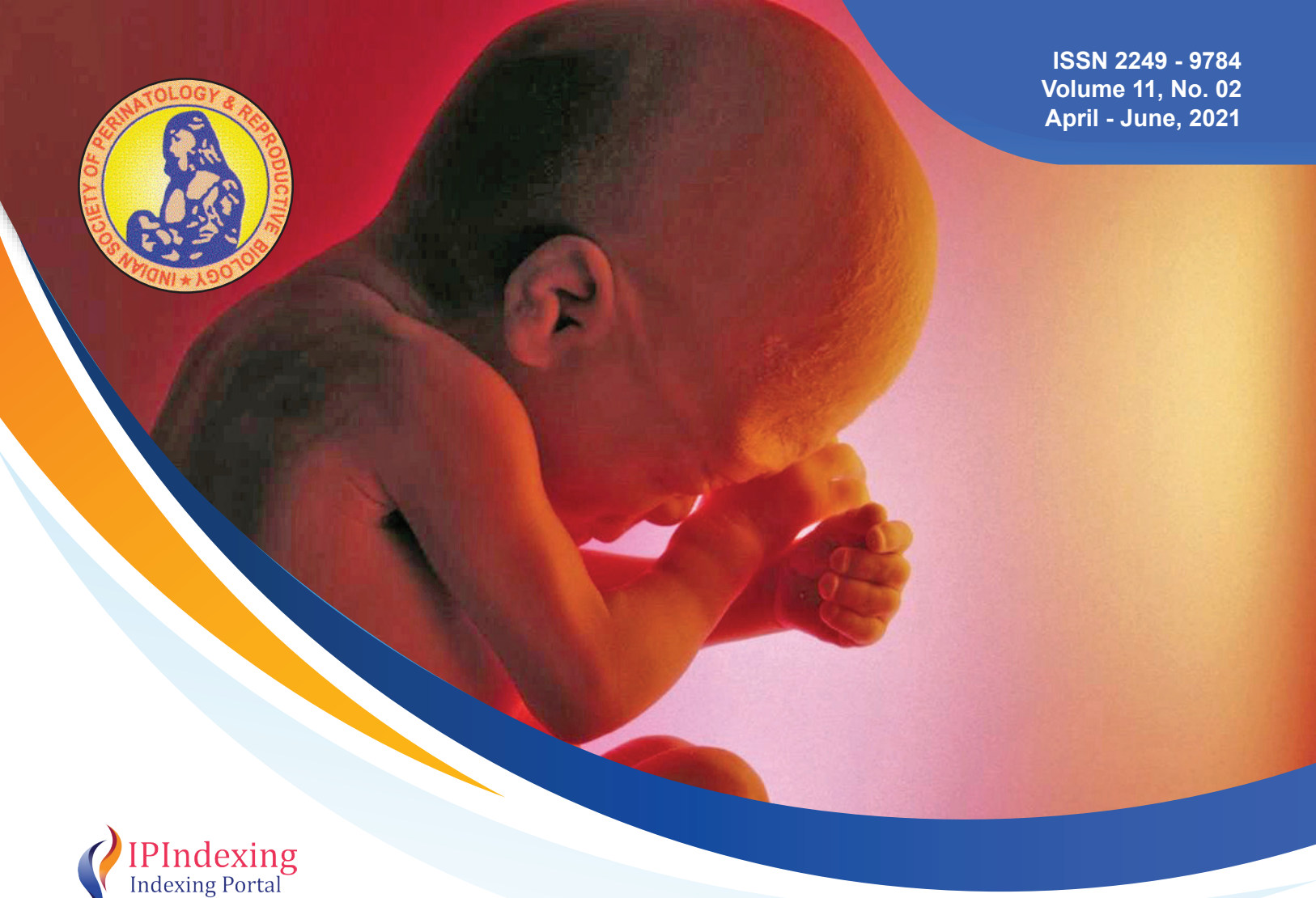

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Official Journal of Indian Society of Perinatology and Reproductive Biology

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Indian Society of Perinatology and Reproductive Biology

Estd. 1978

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EDITORIAL BOARD

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From the Desk of the Editor-in-Chief

Respected Seniors, my dear Colleagues and Friends

It is my pleasure and privilege to address you as Editor-in-Chief of our Journal, The Indian Journal of Perinatology and Reproductive Biology in the first issue published by New Editorial Board 2022-2024. The New Editorial Board has taken over the charge of the Journal officially on 6th May 2022 at 37th Annual National Conference of ISOPARB at Varanasi.

I am fortunate and feel blessed to have the support of our President ISOPARB, Dr Gangadhar Sahoo, Secretary General, Dr Pragya Mishra Chaudhury, all office bearers and executive members of National body. I would like to express my sincere gratitude to all of you for your faith and support to elect me as Editor-in-Chief of our Journal, IJOPARB. I also extend my sincere thanks and gratitude to Professor (Dr) Arup Kumar Majhi, Professor (Dr) Gita Ganguly Mukherjee and Dr Sudip Chakravorty for their contribution to the Journal.

I would like to take this opportunity to congratulate previous editorial board led by Professor (Dr) Hiralal Konar for successfully publishing all the issues of Journal till Jan-Mar 2021 Vol. 11 : No. 01. Though it is the first issue of this new Editorial Board, actually it is Vol. 11 : No. 02 , April - June, 2021 issue.

Our Journal presently indexed with Index Copernicus International and "IP Indexing". We need to keep in mind that it is a continued effort to maintain the quality. We have to work hard to index our Journal with other national and international recognised indexing authority as per guidelines of NMC.

The IJOPARB is a quarterly published, widely circulated, peer reviewed Journal, freely available as print as well as digital version with ISSN No. The priority of our Journal is to publish original and research articles in the field of obstetrics, perinatology, fetal medicine and gynecology. We also encourage for review article, editor's choice, short commentary on contemporary topics. We are also interested to publish case report of clinical significance.

We want to improve the quality of our Journal by selecting good article for publication. This hard work lies with our peer reviewers. We look forward for the feedback from our members. To strengthen the process, we welcome more contributors and reviewers for the journal in the editorial board. I sincerely request each and every member of the editorial board to provide wholehearted support to improve the quality of the journal.

IJOPARB need to reach all the members. Soft copy (digital version) of the Journal, including current one is available as customised format

in the Journal website, www.ijoparb.co.in as well as ISOPARB website www.isoparb.org Members are requested to update their address to the office to help us to send print copy of the Journal.

I earnestly request all the members of ISOPARB, office bearers, executive committee members, President and Secretary of all city chapters to contribute to the Journal by sending articles of your own works to your own Journal. I also request you all, please encourage your fellow colleagues, juniors and PGTs to send article to publish in our Journal.

Long live ISOPARB, Long Live IJOPARB.

Regards

Professor (Dr) Ramprasad Dey
DCH, MD (O&G), FICOG, FIAOG, FMAS
Editor-in-Chief, Indian Journal of Perinatology and Reproductive Biology (IJOPARB)

Presidential Speech at Varanasi

Chief Guest:
Hon'ble Padma Shree Dr. K.K. Tripath

Guest of honour:
Dr. S.N. Tripathi

Organizing Chairpersons:
Dr. L.K. Pandey & Dr. Sulekha Pandey

President Elect:
Dr. Gangadhar Sahoo

Secretary General:
Dr. Meena Samant

In-coming Secretary General:
Dr. Pragya Mishra Choudhary

Organizing Secretary:
Dr. Neelam Ohri

Past Presidents, Senior Members of ISOPARB and Friends

First of all, I thank the almighty by whose blessings we have assembled here for the 37th National Conference of ISOPARB in the holy city of Varanasi.

I congratulate the two organizing chairpersons **Dr. L.K. Pandey** and **Dr. Sulekha Pandey** with their dynamic organizing secretary **Dr. Neelam Ohri** along with their excellent organizing team who have put commendable efforts to organize this grand conference.

The theme of this conference is **Respectful Maternity Care – Fighting the Odds**. The conference aims to highlight the difficulties encountered in providing **Respectful Maternity Care** and discuss the means and ways to overcome them.

Over 90 global organizations including **The International Federation of Gynecology and Obstetrics (FIGO)** and **The International Confederation of Midwifes (ICM)** endorsed a statement by **WHO** in 2014 calling government, health care institutions and health care providers to prevent and eliminate, disrespect and abuse during facility-based childbirth. The aim is to ensure that every woman has the right to the highest attainable standard of health which includes the right to dignified, respectful healthcare.

ISOPARB was formed in 1978 by stalwarts of our country Late Prof. G. Achari, Late Dr. Kamla Achari from Patna and Late Dr. Tarun Banerjee from Kolkata with a handful of members. My senior predecessors had nurtured ISOPARB with their dedicated work in the past.

I took charge on 4th of October, 2020 in covid era not sure what we can achieve for ISOPARB with all the limitations posed by covid restrictions, but to my delight all ISOPARBIANS were ready to join hands with me for the growth and progress of ISOPARB. As a result, today we have 2800 members and 28 registered city chapters, few more in the formation. This was only possible because of joint effort of all ISOPARBIANS. At this juncture I recall the quote of Henry Ford "Coming Together is Beginning, Keeping Together is Progress and

Working Together is Success". I congratulate all the ISOPARBIANS for the progress and new momentum of ISOPARB. Our theme during tenure "**Say no to birth defects**" for a future healthier India has been popularized in the country by the 4 zonal webinars. Our 4 vice presidents Dr. Sulekha Pandey, Dr. Shahikala Kola, Dr. Saswati Sanyal Choudhary and Dr. Parul Kotdawala were instrumental for these webinars thank you for your excellent works. These webinars have provided insight for prevention, early diagnosis, appropriate timely treatment with latest technologies which will help in reducing the incidence of babies born with birth defects in India.

After about 19 years the ISOPARB constitution has been rewritten with addition of various recommendations of amendments in the interim period of 2001 to 2021.

I thank all the members of constitution committee for their valuable suggestions and their cooperation in rewriting the constitution.

Dr. Meena Samant, the worthy and dynamic secretary general thank you for being always with me.

Thank you Pragya for being sincere treasurer.

I thank all the office bearers of ISOPARB and of city chapters who have worked tirelessly to bring this momentum which I hope will continue in coming years.

Dr. Ranjana Sinha a talented and committed joint secretary thank you for your dedicated excellent work. I thank Dr. Supriya Jaiswal the sincere communicator and Dr. Amita Sinha for their good work. I thank all the ISOPARBIANS form the bottom of my heart for the cooperation and whole hearted support during my tenure. My best wishes to the incoming president Dr. Gangadhar Sahoo and the secretary general Dr. Pragya Mishra Choudhary along with all the new office bearers for a fruitful tenure.

I hope all the faculties and delegates will enjoy the scientific sessions have spiritual experience along with warm hospitality of Varanasi people and their famous local cuisine. To sum up a wonderful Varanasi conference.

Jai Hind.

Long Live ISOPARB.

DR. USHA SHARMA

President ISOPARB [2020-22]

Review Article: Obstetrics

Antepartum Fetal Surveillance – Current Status

Sukumar Barik

Introduction

Care of pregnant women is nothing but an exercise of preventive medicine. Throughout pregnancy the caregiver, the woman and her family have one single question in mind – "Is the baby and the mother is alright?" Clinical management includes history taking, examination and investigations are geared up to answer this single question. Is the baby all right? Which scientifically means - Is the baby chromosomally normal, is the baby structurally normal, is the baby's growth normal, is the baby has any metabolic or enzymatic abnormality?

The term surveillance means close observation. Fetal surveillance basically means the clinical and investigations needed to observe the baby closely. Clinically this close observation is only meaningful after the threshold of viability (in India at around 28 weeks of gestation).

Figure 1: Possible problems of fetus and detection method and gestation

Problem	Test	Gestation
Chromosomal abnormality of fetus	1) First trimester combined screening 2) Quadruple test	1) 11 – 13 weeks 2) 15 – 22 weeks
Structural abnormality (overall)	Ultrasonography of fetus	18 – 22 weeks
Cardiac abnormality	Echocardiography of fetus	Around 24 weeks
Fetal growth	Ultrasonography of pregnancy	Around 32 weeks
Metabolic or enzymatic abnormalities	1) Amniocentesis 2) Blood / urine test of fetus	1) Around 16-20 weeks 2) Postnatal

Goal of Fetal Surveillance

The goals of antepartum fetal assessment are, firstly to identify fetuses at risk of intrauterine death or other complications of intrauterine asphyxia. The second goal is to intervene to prevent these adverse outcomes, if possible.

Two thirds of fetal deaths occur before the onset of labor. Many antepartum deaths occur in women at risk for uteroplacental insufficiency. Ideal tests allow intervention before fetal death or damage from hypoxia. It is preferable to the treat disease process and allow fetus to go to term if possible or to deliver earlier if it seems necessary.

Who are at risk?

Traditional risk classification does not identify all cases at risk of development of fetal hypoxia. That is one of the reasons to have careful monitoring of pregnancy in all cases. However, some risk factors need careful evaluation.

- Preeclampsia, chronic hypertension,
- Collagen vascular disease, diabetes mellitus, renal disease,
- Fetal or maternal anemia, blood group sensitization,
- Hyperthyroidism, thrombophilia, cyanotic heart disease,
- Postdate pregnancy,
- Fetal growth restriction

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Figure 2. Techniques of antepartum fetal assessment

Methods for antepartum fetal assessment:
– Fetal movement counting
– Antepartum fetal heart rate testing / Cardiotocography / Electronic fetal monitoring
– Contraction stress test
– Biophysical profile
– Modified biophysical profile
– Doppler velocimetry

Fetal Movement Counting

Importance of maternal perception of fetal movement is emphasized since time immemorial. Fetal movements have been defined as any discrete kick or roll. Maternal perception of a decrease in fetal movements or change in the pattern of fetal movements may be a sign of impending fetal compromise. This perception may be there for few days before any adverse outcome. Counting the fetal movements is a method by which a woman quantifies the movements she feels. The main purpose is to try to reduce perinatal mortality by alerting clinicians / midwives when the baby might be compromised. This method may be used routinely. In some settings it is only advised in women who are considered at increased risk of complications affecting the baby. Reduced or altered fetal movement count / perception may alert the clinician / caregiver to take appropriate necessary action to improve the overall outcome of the fetus. Sometimes, fetal movement counting may cause unnecessary anxiety to pregnant women. It also may lead to unnecessary interventions. At present the exact number of fetal movements in twenty-four hours which indicates healthy baby is not yet known. That is one of the reasons of controversy in its clinical application. Currently, several methods/ protocols are practiced in clinical practice.

Cardiff Count to Ten

This innovative method advised pregnant women to count fetal movements once a day, preferably at the same time every day. Also advised to perform the task within1 to 2 hours after a meal. Post dinner is a good time, as the fetus is usually more active at that time. Usually, it is advised to get a sheet of paper and pen to indicate the movements. To have a clock or watch nearby to observe the time passed. Also advised to lie on her side while counting, preferably on left side. Then advised to mark down the start time, count any movement she feels. Advised to count until she has felt ten fetal movements. Many times, she can feel at least 10 movements within 2 hours. Sometimes likely she may feel ten movements in much less time. Also advised to mark down the finish time, and the total amount of time it took to count the ten movements. This protocol was introduced in Cardiff and still very popular.[1]

SOGC Clinical Practice Guideline (2007)[2]

This guideline emphasized the importance of being alert about daily fetal movement. They mentioned that healthy pregnant women without risk factors for adverse perinatal outcomes should be made aware of the significance of fetal movements in the third trimester. This is not advised as a routine in third trimester. If pregnant women perceive decreased movements, they advised to perform a fetal movement count. If perception of fetal movements are less than six movements in an interval of two hours, then further testing is required. In these cases, the women should contact the hospital as soon as possible.

USA Study (1989)[3]

This was a pilot study. Main aim was to validate a protocol in which the patient was instructed to record time required to appreciate ten fetal movements. The mean time interval was 20.9 +/- 18.1 minutes (mean +/- SD). Patients in whom 2 hours elapsed without 10 fetal movements (mean +/- 5 SD) were to report to the delivery unit for further evaluation. This study emphasized that the count-to-10 fetal movement screening program is simple and effective in reducing the fetal mortality rate.

BJOG Systematic Review (2016)[4]

The objective of this systematic review was to determine effects of interventions to enhance maternal awareness of decreased fetal movement. This study found no clear evidence of benefit or harm. Indirect evidence suggests improved pregnancy and birth outcomes. The optimal approach to support women in monitoring their pregnancies needs to be established. Meanwhile, women need to be informed about the importance of fetal movement for fetal health.

Antenatal Fetal Heart Rate Testing / Cardiotocography/ Electronic Fetal Monitoring

Cardiotocography (CTG) or electronic fetal monitoring is a continuous recording of the fetal heart rate. It is obtained via an ultrasound transducer

placed on the mother's abdomen. It was introduced to clinical practiced in 1980's, and gradually took the wide acceptance all over the world. It is widely used in pregnancy as a method of assessing fetal well-being particularly in intrapartum period and especially in high-risk pregnancies. The autonomic nervous system namely, parasympathetic and sympathetic nervous systems both contributes to the regulation of the fetal heart rate. Fetal heart rate changes fundamentally result from moment-to-moment autonomic modulation by medullary cardiorespiratory centers in response to inputs from baroreceptors, chemoreceptors, central nervous system activities, blood volume and catecholamines. The cardiotocography usually to be conducted for at least 20 minutes. It may be necessary to monitor the tracing for 40 minutes or longer in some physiological conditions like fetal sleep. Variations of the fetal sleep–wake cycle is well recognized and should be considered before concluding or classifying the CTG as suspicious. Several classification systems in clinical practice, namely FIGO classification (2015),[5] ACOG Classification (2009),[6] NICE classification (2014).[7]

Vibroacoustic Stimulation Test (VAST)

Vibroacoustic stimulation, sometimes referred to as fetal vibroacoustic stimulation test or fetal acoustic stimulation test (FAST), is the application of a vibratory sound stimulus to the abdomen of a pregnant woman to induce fetal heart rate acceleration. The presence of fetal heart rate accelerations reliably predicts the absence of metabolic academia in the fetus. A Cochrane systematic review was conducted to find out the advantages and disadvantages of the use of fetal vibroacoustic stimulation in conjunction with tests of fetal wellbeing. This review concluded that vibroacoustic stimulation offers dual benefits. Firstly, by decreasing the incidence of suspicious cardiotocography reporting and secondly by reducing the time of the test itself. The review recommended further randomized trials to determine not only the optimum intensity, frequency, duration and position of the vibroacoustic stimulation, but also to evaluate the efficacy, predictive reliability, safety and perinatal outcome of these stimuli with cardiotocography and other tests of fetal wellbeing.[8]

Contraction Stress Test

A contraction stress test is performed at late third trimester of pregnancy to determine the wellness of the fetus, especially to find out how well she will cope with the uterine contractions. The aim is to induce uterine contractions and monitor the fetal heart rate pattern using a cardiotocograph. Contractions are induced with either nipple stimulation or intravenous oxytocin. In a 10-minute period of observation, at least three contractions lasing for at least 40 seconds each was considered satisfactory. Contraction stress test is relatively safe but in currently in practice of obstetrics it is rarely used for obvious reason. Very correctly it has been mentioned that in mid-1900's this test was felt to be in its death knell.[9]

Biophysical Profile

Biophysical profile is a scoring system based antenatal ultrasonographic evaluation of fetal well-being. It is also popularly known as Manning score according to the name of the inventor. It consists of an antenatal cardiotocography combined with four additional observations made by real-time ultrasonography. There are five components. They are – (a) antenatal cardiotocography (b) fetal breathing movements (c) fetal body movement (d) fetal tone and (e) amniotic fluid volume. An assigned a score of either 2 (present, as previously defined) or 0 (not present) was allotted to each of the five components. Normal score means a composite score of 8 or 10. A score of 6 is considered as equivocal. And a score of 4 or less is designated as abnormal. Clinical decision making is based three basic aspects - clinical condition, biophysical score and gestation of the fetus. Oligohydramnios was defined as an amniotic fluid volume of 2 cm or less in the single deepest vertical pocket was given independent importance. It should prompt further evaluation, regardless of the composite biophysical score.

Place of Biophysical Profile in Twin Pregnancies – a Study

This study deigned to assess the suitability of the sonographic portion of the biophysical profile in twin pregnancies as the primary screening modality. This study concluded that in twin pregnancies the use of the sonographic biophysical profile for routine antenatal surveillance has a low false-positive rate. Also emphasized a very low incidence of intrauterine fetal death in study population. The sonographic biophysical profile was suggested as a primary mode for antenatal surveillance in twin pregnancies.

Antenatal cardiotocography was reserved for an abnormal score.[10]

Modified Biophysical Profile

The modified BPP is one of the easier versions. It combines only two tests. The antenatal cardiotocography, as a short-term indicator of fetal wellbeing. And amniotic fluid volume assessment as an indicator of long-term placental function. Modified biophysical profile is normal when these two are normal. Which means antenatal cardiotocography is normal and the single deepest vertical pool of liquor is also normal. These findings are very helpful in the management of fetal growth restriction. A study among high-risk patients from USA compared amniotic fluid index (AFI) with the single deepest pocket technique in predicting an adverse pregnancy outcome. This study demonstrated that single deepest pocket compared with amniotic fluid index is associated with a significantly lower rate of suspected oligohydramnios.[11]

Doppler Velocimetry

Pregnancies associated with suspected or diagnosed fetal growth restriction or cases where there is an increased risk of poor perinatal outcome fetal arterial and venous Doppler has an established role. Judicious use of these tools guides the clinician to determine the timing of delivery. Commonly measured vessels are umbilical artery and middle cerebral artery.

Umbilical Artery Doppler

The Doppler indices measured at the fetal end has highest impedance compare to the free loop or placental end. The changes in the indices are better to be seen at the fetal end first. Ideally the measurements should be made in the free cord but a fixed point is difficult to be obtained during follow up and that the basic reason of choosing fetal or placental end for measurement. The umbilical arterial waveform usually demonstrates a "saw tooth" pattern. The flow is always in the forward direction. During the course of pregnancy there is progressive maturation of the placenta and also increase in the number of tertiary stem villi. These two factors lead to decrease in both the resistive index (RI) and pulsatility index (PI).

- The most commonly used parameters are the following:
- Umbilical artery S/D ratio (SDR). That is systolic velocity / diastolic velocity
- Pulsatility index (PI): (PSV - EDV) / TAV
- Resistant index (RI): (PSV - EDV) / PSV
- PSV: peak systolic velocity
- EDV: end diastolic velocity
- TAV: time averaged velocity

As mentioned earlier, the Doppler indices gradually decline with advancing gestational age.

- S/D ratio mean value decreases
- RI mean value decreases
- PI main value decreases

Classification of severity: In cases of fetal growth restriction which gradually developing intrauterine hypoxia, the umbilical artery waveform usually changes in a progressive manner. First reduced end diastolic flow, the absent end diastolic flow and lastly reversed end diastolic flow.

Middle Cerebral Artery Doppler

In a normal fetus the MCA has a high resistance flow. This means there is minimal antegrade flow in fetal diastole. In pathological condition, it can turn into a low resistance flow. This happens mainly because of the brain sparing effect. Parameters used include are – fetal MCA pulsility index, MCA peak systolic velocity and MCA systolic / diastolic ratio.

A Spanish study explored the predictive capacity of feto-placental Doppler performed at 37 gestational weeks in identifying small-for-gestational age and adverse perinatal outcome (APO). The study concluded that in low-risk pregnancies Doppler evaluation at 37 weeks of pregnancy did not improve the prediction of small for gestational age and fetal growth restriction by estimated fetal weight, but combining estimated fetal weight with Doppler improved the prediction of APO by these parameters alone, although not significantly.[12]

A Cochrane review concluded that the existing evidence does not provide any conclusive evidence of routine use of umbilical artery Doppler in low-risk pregnancies. They also suggested that future studies should address small changes in perinatal outcome.[13]

Another Cochrane review assessed the effects of Doppler ultrasound in high-risk population and

concluded that it reduced the risk of perinatal death and resulted in less obstetric interventions.[14]

Umbilical artery Doppler may be normal in the early stages of FGR and therefore do not rule out placental dysfunction.[15]

Practice Recommendations

An ACOG bulletin[16] recommended the of the deepest vertical pool measurement, as opposed to amniotic fluid index to diagnose oligohydramnios. In cases of FGR, umbilical artery Doppler along with appropriate use of antenatal cardiotocography or biophysical profile is associated with improved outcomes.

Take Home Message:

The main objective of antepartum fetal surveillance is to recognize the fetus at risk, which will benefit from early intervention. This may be in the form of intra uterine resuscitation or early delivery whichever is appropriate. This is expected to prevent fetal death or neurological damage. Antepartum tests are based on the basis that the fetus responds to hypoxia with detectable sequence of biophysical changes.

Antepartum fetal surveillance is in obstetrical practice since the 1970s and developed significantly in 1980s and 1990s. Ability of antepartum fetal surveillance to improve pregnancy outcome has not been evaluated by large, well-designed randomized trials. Although there is a controversy about the risk categorization of pregnancies; specific antepartum fetal testing is currently indicated in high-risk pregnancies. Techniques for assessment of fetal well-being are fetal movement count, cardiotocography, contraction stress test, biophysical profile, modified biophysical profile, Doppler studies of fetal umbilical and middle cerebral arteries, Doppler of fetal venous system in select cases. Frequency of testing depends on the clinical scenario, typically performed weekly. Increased frequency of testing if the situation demands.

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Original Article: Obstetrics

Level of Serum Uric Acid in Gestational Hypertension and Its Relation to Maternal and Fetal Outcome

Nidhi Vardhan[1], Jyoti Malholtra[2]

Abstract

Introduction: Hypertensive disorder are among the common medical disorders during pregnancy and one of the major cause of maternal and perinatal morbidity and mortality world- wide. Early screening for preeclampsia may allow vigilant antenatal surveillance and help in planning for delivery. Uric acid is the final product of purine metabolism oxidation which is mainly excreted in the urine. It is the first and earliest lab parameter for predicting preeclampsia. Serum uric acid not only has predictive role but also plays role in maternal and fetal pathogenesis in PIH

Aims And Objective: Study level of serum uric acid in hypertensive disorder of pregnancy and it relation to maternal and fetal outcome.

Materials And Methods: Study area: Department of Obstetrics and Gynecology, Kurji Holy and Family Hospital ,Patna. Study Population: All antenatal cases with gestation age >28week between 18 year and 35 years of age as per inclusion and exclusion criteria attending the OPD or admitted under OBG Department of Kurji Holy and Family Hospital, Patna, in the study period Nov 2018- Oct 2020 (2 years) Study Design: An observational comparative study. Study population - divided in two groups Group A: Patient with serum uric acid >6 mg/dl .Group B: Patient with serum uric acid ≤6 mg/dl. Sample Size- 150

Results: In our study, in group A had 88 (58.67%) and group B 62 (41.33%)out of 150 patients. No statistical significance was observed between 2 groups regarding age, height, edema, proteinuria, BMI. Significant difference was seen in systolic blood pressure (mmHg) between group A and B. (p value 0.025) Mean ± SD of systolic blood pressure (mmHg) in group A was 152.16 ± 13.85 which was significantly higher as compared to group B (146.77 ± 15.02). Significant difference was seen in diastolic blood pressure (mmHg) between group A and B. (p value 0.037) Mean ± SD of

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diastolic blood pressure (mmHg) in group A was 99.43 ± 8.49 which was significantly higher as compared to group B (96.45 ± 8.7). Significant difference was seen in SGPT (IU/L) between group A and B. (p value <.0001) Mean ± SD of SGPT(IU/L) in group A was 160.83 ± 151.48 which was significantly higher as compared to group B (67.69 ± 75.71). Significant difference was seen in the distribution of gestational age (weeks) between group A and B. (p value 0.002) Gestational age (weeks) was 32-<37 weeks in 51.14% of patients in group A which was significantly higher as compared to group B (25.81%). Significant difference was seen in the distribution of birth weight (gms) between group A and B. (p value 0.012) Birth weight (gms) was 1000-<2500 gms in 48.86% of patients in group A which was significantly higher as compared to group B (25.81%). Proportion of patients with ICU admission and eclampsia was 50.00%, 17.05% respectively in group A which was significantly higher as compared to group B (11.29%, 3.23% respectively). Proportion of patients without any event was 82.26% of patients in group B which was significantly higher as compared to group A (43.18).

Conclusion: In this study it was found that serum uric acid is significantly raised with severity of diseases. It is a useful biochemical marker that reflects the severity and the occurrence of complication of preeclampsia.

Keywords: eclampsia, purine metabolism, uric acid.

Introduction

Hypertensive disorder are among the common medical disorders during pregnancy and one of the major cause of maternal and perinatal morbidity and mortality world- wide. Early screening for preeclampsia may allow vigilant antenatal surveillance and help in planning for delivery. Uric acid is the final product of purine metabolism oxidation which is mainly excreted in the urine. It is the first and earliest lab parameter for predicting preeclampsia. Serum uric acid not only has predictive role but also plays role in maternal and fetal pathogenesis in PIH.[1] Uric acid is a product of purine degradation catalyzed by the enzyme xanthine dehydrogenase / xanthine oxidase (XDH/XO). XDH is converted to its oxidase form XO by several stimuli including ischemia.[2] Uric acid concentration is elevated as early as 10 weeks of gestation, a time much earlier than the clinical presentation. Increased uric acid often precedes clinical manifestations of the disease, including reduced glomerular filtration rate. Uric Acid mg/dL, Non pregnant 2.5 - 5.6 , I trimester-2 - 4.2, II Trimester-2.4 - 4.9, III trimester -3.1 - 6.3.[4] Given the importance of gestational hypertension and associated maternal and neonatal complications in this study, we aimed to investigate the relationship between the level of uric acid with maternal and neonatal complication

Aims And Objective

1. Study level of serum uric acid in hypertensive disorder of pregnancy

2. To study the correlation of maternal and perinatal outcome and severity of disease with serum uric acid

Materials And Methods

Study area: Department of Obstetrics and Gynecology, Kurji Holy and Family Hospital, Patna

Study Population: All antenatal cases with gestation age >28week between 18 year and 35 years of age as per inclusion and exclusion criteria attending the OPD or admitted under OBG Department of Kurji Holy and Family Hospital, Patna, in the study period Nov 2018- Oct 2020 (2 years)

Study Design An observational comparative study

Study population- divided in two groups Group A: Patient with serum uric acid >6 mg/dl. Group B: Patient with serum uric acid ≤6 mg/dl

Sample Size- 150

Results

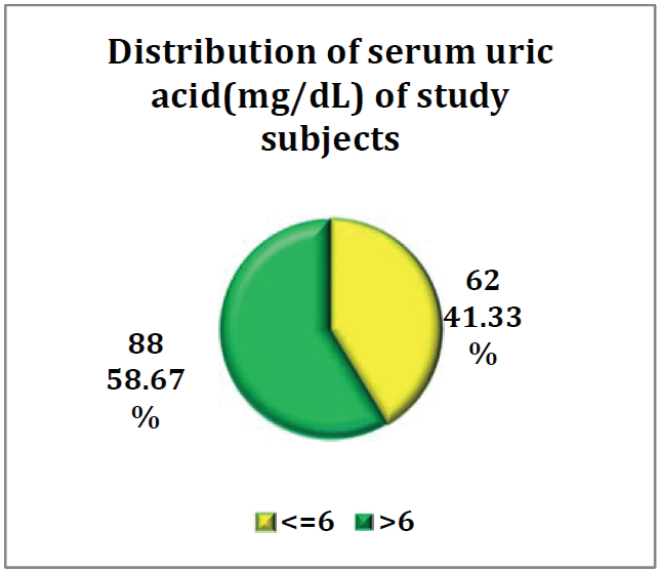

Fig-Distribution of serum uric acid (mg/dl) of study population

A prospective study was conducted in Department of Obstetrics and Gynecology, Kurji Holy and Family Hospital, Patna from Nov 2018-Oct 2020. 150 pregnant women with gestation age>28 weeks who were hypertensive were included in the study. Study population was divided in two groups:-

Group A: Patient with serum uric acid >6 mg/dl

Group B: Patient with serum uric acid <=6 mg/dl

In group A had 88 (58.67%) and group B 62 (41.33%)out of 150 patients

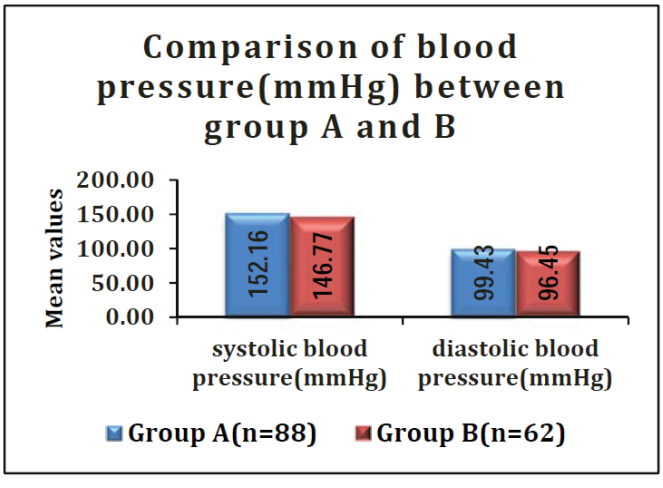

Fig-2-Comparision of blood pressure (mmHg) between group A and B

Significant difference was seen in systolic blood pressure(mmHg) between group A and B. (p value 0.025) Mean ± SD of systolic blood pressure(mmHg) in group A was 152.16 ± 13.85 which was significantly higher as compared to group B (146.77 ± 15.02).

Significant difference was seen in diastolic blood pressure(mmHg) between group A and B. (p value 0.037) Mean ± SD of diastolic blood pressure(mmHg) in group A was 99.43 ± 8.49 which was significantly higher as compared to group B (96.45 ± 8.7).

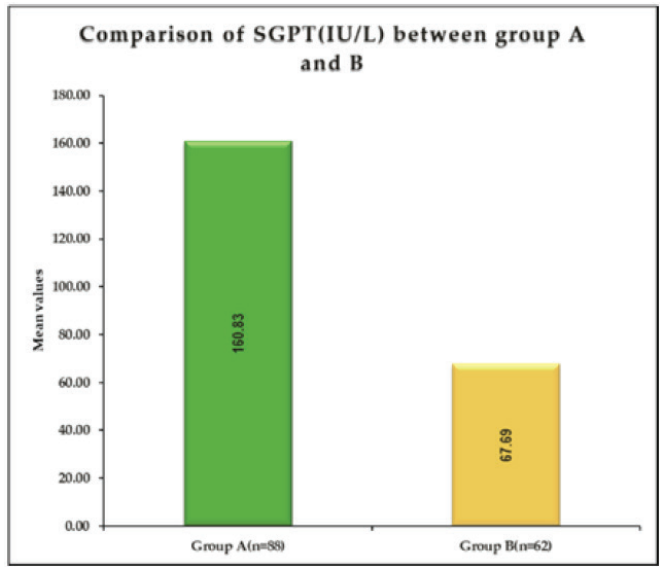

Fig-3-Comparison of SGPT(IU/L) between group A and B

Significant difference was seen in SGPT(IU/L) between group A and B. (p value <.0001) Mean ± SD of SGPT(IU/L) in group A was 160.83 ± 151.48 which was significantly higher as compared to group B (67.69 ± 75.71).

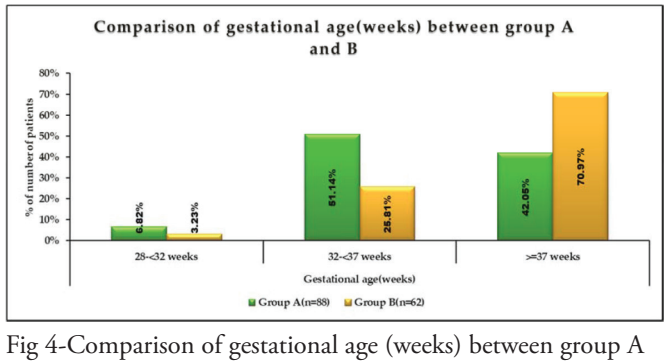

Fig 4-Comparison of gestational age (weeks) between group A and B

Significant difference was seen in the distribution of gestational age(weeks) between group A and B. (p value 0.002) Gestational age(weeks) was 32-<37 weeks in 51.14% of patients in group A which was significantly higher as compared to group B (25.81%)

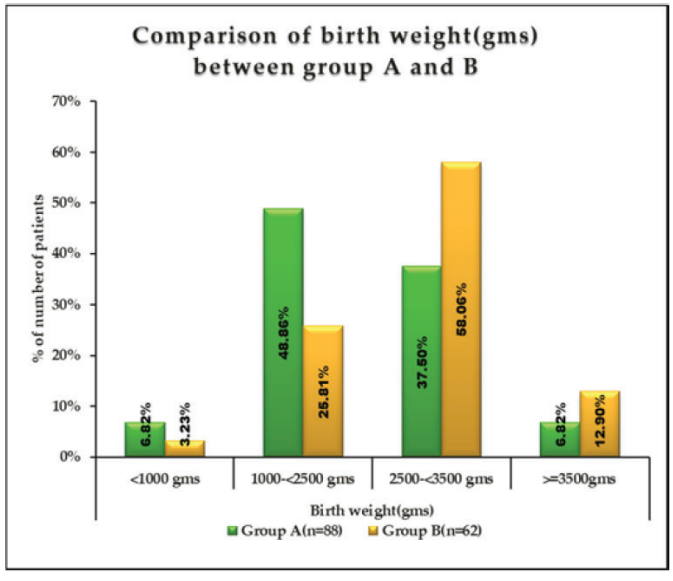

Fig-5: Comparision of birth weight (gm) between group A and group B

Significant difference was seen in the distribution of birth weight (gms) between group A and B. (p value 0.012) Birth weight (gms) was 1000-<2500 gms in 48.86% of patients in group A which was significantly higher as compared to group B (25.81%).

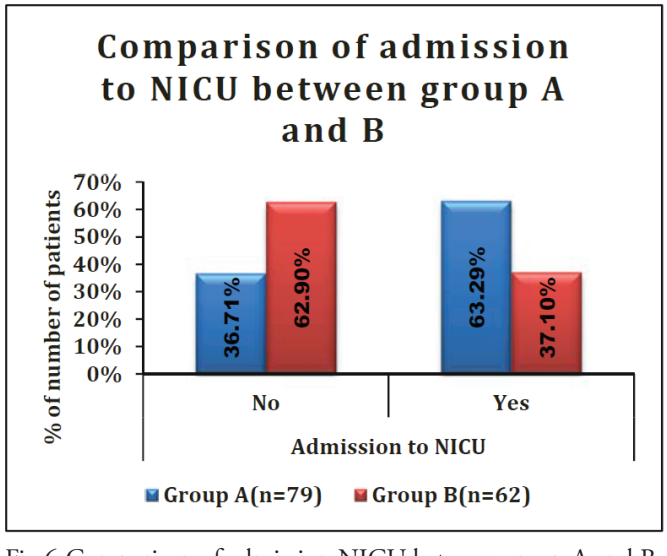

Fig 6-Comparison of admission NICU between group A and B

Significant difference was seen in the distribution of admission to NICU between group A and B. (p value 0.002) Admission to NICU was required in 63.29% of babies in group A which was significantly higher as compared to group B (37.10%)

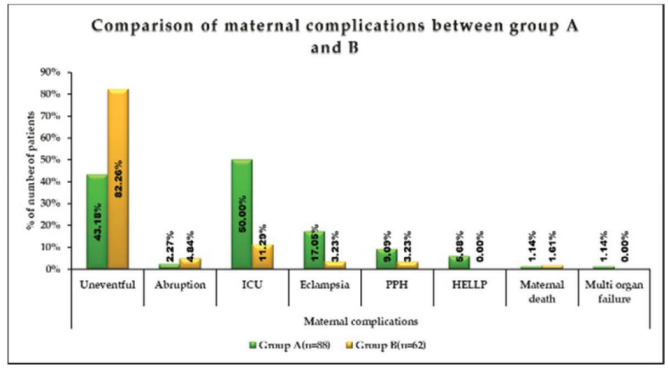

Fig 7-Comparison of maternal complication between group A and B

Proportion of patients with ICU admission and eclampsia was 50.00%, 17.05% respectively in group A which was significantly higher as compared to group B (11.29%, 3.23% respectively). Proportion of patients without any event was 82.26% of patients in group B which was significantly higher as compared to group A (43.18%). Significant difference was seen in the distribution of uneventful (p value <.0001), ICU (p value <.0001), eclampsia (p value 0.009) between group A and B.

Conclusion

In this study it was found that serum uric acid is significantly raised with severity of diseases. It is a useful biochemical marker that reflects the severity and the occurrence of complication of preeclampsia.

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Original Article: Gynecology

Comparative Study of Effect of Mifepristone (Antiprogesterone) and Ormeloxifene (SERM) on size of Uterine Leiomyoma and Uterine Artery Blood Flow

Suparna Biswas[1], Prabhanjan Chattopadhyay[2], Subhash Chandra Biswas[3], Ramprasad Dey[4]

Abstract

Introduction: Leiomyoma, commonly called as fibroid uterus is the most common neoplasm of the uterus. The term that emphasizes the origin of this tumour from smooth muscle cells and the predominance of these cells in the tumour.

Aims: This prospective randomised control study was to compare the efficacy of mifepristone (antiprogesterone) and ormiloxefene (SERM) in medical management of fibroid uterus in terms of change in size and volume of fibroid by ultrasonography and change in uterine artery blood flow by Color Doppler study of uterine artery.

Material and method: A prospective randomised control parallel group, open label clinical trial study was women in the age group of 30-50 years diagnosed with fibroid uterus diagnosed by ultrasonography, willing for medical management.Perimenopausal women with provisional diagnosis of fibroid with or without symptoms diagnosed clinically and confirmed by ultrasonography, irrespective of fertility status and having no medical contraindications were included for this study.

Result: Mean PSV and EDV in mifepristone group was 32.46±7.4 and 9.26±1.95 and in ormeloxifene group was 29.74±5.97 and 8.54±1.65 with p value 0.217 and 0.220 respectively. S/D ratio was similar in both the groups (3.5±0.23 & 3.49±0.18 in mifepristone and ormeloxifene respectively p=0.924). Baseline RI and PI in mifepristone were 0.71±0.01 and 1.62±0.25 compared to 0.71±0.01 and 1.6±0.23 in ormeloxifene group respectively (p value for RI and PI comparison between groups were 0.909 and 0.736).

Conclusion: Mifepristone can successfully reduce volume of uterine fibroid whereas, the effect of ormeloxifene on uterine fibroid are variable and may cause increase in size of uterine fibroid as in our study (>50%).

Keywords: Leiomyoma, mifepristone, ormiloxefene, and SERM.

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Introduction

Leiomyoma, commonly called as fibroid uterus is the most common neoplasm of the uterus. Various terms are used to describe this tumour viz. fibromyoma, leiomyofibroma, myoma, fibroma, leiomyoma, fibroid uterus. The last term, in spite of being most commonly used, probably is least accurate and hence, least acceptable.[1] The term leiomyoma, on the other hand, is rather a reasonably correct term that emphasizes the origin of this tumour from smooth muscle cells and the predominance of these cells in the tumour.[2]

Leiomyomas remain asymptomatic in at least 50% of affected women. However, in others, they may cause significantly poor quality of life though mortality is very rare. The clinical presentation has a wide range: abnormal menstrual bleeding including menorrhagia and intermenstrual bleeding; dysmenorrhoea and chronic pelvic pain unrelated to menstruation; sensation of heaviness in abdomen and aesthetically unacceptable abdominal enlargement; pressure symptoms such as a sensation of bloating; increased urinary frequency and bowel disturbance. In addition, they may compromise reproductive function by debatably contributing to subfertility, recurrent miscarriage and later pregnancy complications. Abnormal bleeding occurs in 30% of symptomatic women; this symptom along with bloating and pelvic discomfort due to mass effect constitutes the most common presentation of a symptomatic leiomyoma. The size, number and location of leiomyomas undoubtedly determine their clinical behaviour,but research is yet to correlate these parameters with clinical presentation.[3]

Fibroid is a steroid dependent tumour which has receptors for estrogen and progesterone. Therefore, antiprogesterone like mifepristone may induce regression of fibroid by withdrawal of progesterone action and/or by its interference with estrogen action. Most of the studies of mifepristone for the treatment of fibroid were small ranging in size between 14 to 75 subjects. The primary outcome of maximum studies was change in leiomyoma or change in uterine size. One of the studies measured the volume of uterus and largest leiomyoma.[4] Although the mechanism for fibroid size reduction with mifepristone is unclear, there is evidence that mifepristone decreases number of progesterone receptors in the myometrium and fibroids directly.

Ormeloxifene being the selective estrogen receptor modulator, is an estrogen antagonist on uterus and breast, it has mild estrogenic activity in vagina, bone, cardiovascular system and lipid profile without any progestational, androgenic or antiandrogenic property may reduce size of the fibroid and thus likely to reduce the symptoms related. Ormeloxifene has been successfully used in the treatment of Dysfunctional Uterine Bleeding, but its effect on fibroid uterus has not been evaluated.

Ultrasonography, by abdominal and/or transvaginal approach, remains the mainstay of pre-operative diagnostic confirmation of leiomyoma.[5] Studies have shown that for diagnosing leiomyomas, ultrasonography (USG) has 100% sensitivity and 99% specificity.[6] A uterine leiomyoma is a highly vascular neoplasm supplied by feeding vessels mostly entering from the periphery. Colour Doppler velocimetry of the uterine arteries have proved that the blood flow to the uterine artery/arteries increases significantly in leiomyomatous uterus;[7] the peak systolic velocity (PSV) increases and resistance index (RI) and pulsatility index (PI) fall. So changes in PSV and RI in uterine artery can be an effective indicator in assessing the response of fibroid to medical therapy with the mifepristone and ormeloxifene.

Aims And Objectives

AIMS: Main aim of this prospective randomised control study was to compare the efficacy of mifepristone (antiprogesterone) and ormiloxefene (SERM) in medical management of fibroid uterus in terms of change in size and volume of fibroid by ultrasonography and change in uterine artery blood flow by Color Doppler study of uterine artery.

OBJECTIVES: Following are the objectives of the study:

1. To compare change in size of fibroid after treatment with the study drugs by ultrasonography.

2. To observe change in the Peak Systolic Velocity (PSV), Resistance Index (RI) and Pulsatility Index (PI) of uterine arteries after treatment with the study drugs by Doppler.

3. To assess improvement or deterioration of subjective symptoms of patient.

Materials And Methods

Women in the age group of 30-50 years diagnosed with fibroid uterus diagnosed by ultrasonography, willing for medical management were enrolled from from March 2017 to August 2020. It was interventional prospective randomised control parallel group, open label clinical trial. This study enrolled 39 women (Mifepristone n=20 and Ormeloxifene n=19).

Samples were designed according to the following inclusion and exclusion criteria.

Inclusion criteria:

1. Age between 30-50 years.
2. Premenopausal at any phase of menstrual cycle and perimenopausal women.
3. Provisional diagnosis of fibroid with or without symptoms diagnosed clinically or by ultrasonography.
4. Irrespective of fertility status.
5. Physically fit enough for the study.

Exclusion criteria:

1. Pregnancy.
2. Women admitted for surgical treatment.
3. Those receiving GnRH analogue or danazol.
4. Postmenopausal women.
5. Age <30 years or >50 years.
6. Patients with degenerative changes in fibroid, adenomyosis, endometrial malignancy or polyp, cervical abnormality and DUB.
7. Hypersensitivity to drug.
8. Recent history of jaundice, renal disease PCOS, past and family history of thrombophlebitis.

Statistical Analysis:

For statistical analysis data were entered into a Microsoft excel spreadsheet and then analyzed by SPSS 24.0. and GraphPad Prism version 5. A chi-squared test ($\chi 2$ test) was any statistical hypothesis test wherein the sampling distribution of the test statistic is a chi-squared distribution when the null hypothesis is true. Without other qualification, 'chi-squared test' often is used as short for Pearson's chi-squared test. Unpaired proportions were compared by Chi-square test or Fischer's exact test, as appropriate.p-value ≤ 0.05 was considered for statistically significant.

Result And Discussion

This study was a prospective, randomised control parallel group open label study. Total number of patients recruited into the study was 52. 13 patients were lost to follow-up, 7 from ormeloxifene and 6 from mifepristone group. 39 patients completed the study, 19 received ormeloxifene and 20 mifepristone for the treatment of fibroid uterus for 3 months each.

Separate studies observed the effect of mifepristone on fibroid and ormeloxifene in DUB but no comparison on fibroids..

In our study, comparison of baseline characteristics like age, marital status, and parity did not show any significant difference between groups. Mean age in mifepristone group was 41.3±4.4 and in ormeloxifene group was 40±5.2 (p=0.422). All patients in ormeloxifene group were married whereas, 2 patients were unmarried in mifepristone group. Marital status though is not expected to change the possible outcome. Most of the patients in both the groups were multipara, 60%(12) and 79%(15) in mifepristone and ormeloxifene group respectively, p= 0.258.

Most common type of fibroid in both groups was intramural type, 60%(12) and 52.63%(10) in mifepristone and ormeloxifene groups respectively, p value being 0.910. At diagnosis, there was no significant difference in dimension and volume of fibroid and also in ultrasonographic variables on Color Doppler. Mean Volume of fibroid in mifepristone group was higher than in ormeloxifene group though p value was notsignificant. (81.7±27.5 vs 71.86±26.5 and p=0.262)

Mean PSV and EDV in mifepristone group was 32.46±7.4 and 9.26±1.95 and in ormeloxifene group was 29.74±5.97 and 8.54±1.65 with p value 0.217 and 0.220 respectively. S/D ratio was similar in both the groups (3.5±0.23 & 3.49±0.18 in mifepristone and ormeloxifene respectively p=0.924). Baseline RI and PI in mifepristone were 0.71±0.01 and 1.62±0.25 compared to 0.71±0.01 and 1.6±0.23 in ormeloxifene group respectively (p value for RI and PI comparison between groups were 0.909 and 0.736).

Following treatment, in 75%(15) of patients in mifepristone group there was decrease in size of fibroid against only 21%(4) in ormeloxifene group. There was no change in size of fibroid in 5 patients in each group. But none of the patients in mifepristone group showed increase in size. But more than half of patients in ormeloxifene group i.e., 10 (52.63%). P value was found to be significant (<0.001).

Post- treatment ultrasonographic variables of fibroid in both groups did not show significant difference statistically between groups. Mean Volume of fibroid in mifepristone group was lower than in ormeloxifene group following treatment though p value was not significant. (60.83±25.64 vs 71.47±30.34 and p=0.111). Mean PSV and EDV in mifepristone group was 26.36±6.03 and 7.69±1.82 and in ormeloxifene group was 30.57±9.5and 8.83±2.03 with p value 0.105 and 0.073 respectively. S/D ratio was similar in both the groups (3.43±.26 & 3.59±0.31 in mifepristone and ormeloxifene respectively p=0. 0.108). Following treatment, RI and PI in mifepristone were 0.70±0.02 and 1.69±0.22 compared to 0.71±0.02 and 1.677±0.34 in ormeloxifene group respectively (p value for RI and PI comparison between groups were 0.132 and 0.785).

Data was analysed and comparison was made within each group. There was significant difference in fibroid volume, PSV and EDV before and after treatment within mifepristone group. Other ultrasonographic variables did not show significant statisticaldifference within the group when compared before and after treatment. For mifepristone group, change in mean for volume of fibroid was 20.90, p value for pre and post- treatment change being <0.001 whereas for ormeloxifene group, change in mean for volume of fibroid was found to be -3.60. negative value indicating that, there was increase in volume of fibroid paradoxically. Change in mean for PSV and EDV for mifepristone group was 6.09 and 1.57 p value being < 0.001 for both parameters. Change in mean after treatment for S/D ratio, RI and PI was not statistically significant (p >0.05) probably due to small sample size.

De Leo et al used doses ranging from 12.5 to 50 mg daily and reported a reduction in uterine/fibroid volume of 40–50%, with amenorrhoea in most subjects.[8] This report was corroborated 1 year later from a group who used RU 486 at a dose of 5 or 10 mg/day for 1 year, and found that it was effective in decreasing mean uterine volume by 50%, while amenorrhoea occurred in 40–70% of the subjects.

Eisinger et al[9] in 2003 followed up their preliminary findings with the only published RCT to date on the use of mifepristone for the treatment of uterine fibroids. In this study with mifepristone 5mg for 6 months, the mean uterine volume decreased by 48% at 6 months. This was a small study which included 42 women in a double-blind placebo controlled study over a period of 6 months.

Hot flushes were increased over baseline in the 10-mg group, but 5 mg/day did not increase the incidence of vasomotor symptoms. Simple hyperplasia was noted in 28% of the women. This study therefore suggested that a dose of mifepristone as low as 5 mg/day may be efficacious for the treatment of uterine fibroids, with few side-effects.

Fiscella et al 2006[10] reported that overall quality of life was improved significantly, anaemia rates and uterine volume were reduced significantly, and women were more likely to become amenorrhoeic if they were treated with a low dose of mifepristone. Murphy et al[11] found that women with Mifepristone 25mg/day experienced average reduction of 56% at 3 months.

In our study, within ormiloxifene group, change in mean after treatment for PSV, EDV, S/D ratio, RI and PI were all in the negative range indicating increase in volume of fibroid after treatment with ormeloxifene. But p value was < 0.005 for all above mentioned parameters.

In a study on 26 subjects of dysmenorrhea, 57 % showed symptomatic relief. 9 showed no relief, and pain was aggravated in 2 cases following ormeloxifene therapy.[12] In an independent study[13] on 70 patients of DUB receiving 30 mg biweekly dose of ormeloxifene for 6 months, 80% were relieved of menorrhagia at the end of treatment.

Biswas et al. (2004)[14] put forward that ormeloxifene is safe and effective drug in the treatment of dysfunctional menorrhagia. In a pilot study by Datta Ray C (2002) it was seen that there was decrease in bleeding often resulting in amenorrhea with a significant increase in hemoglobin concentration and decrease in uterine size. So, ormeloxifene has been used as a need

oriented contraceptive and is being given for treating dysfunctional bleeding of the uterus.[15]

Conclusion

Results showed that following treatment, in 15(75%) patients in mifepristone group there was decrease in size of fibroid against only 4 (21%) in ormeloxifene group. There was no change in size of fibroid in 5 patients in each group. But none of the patients in mifepristone group showed increase in size whereas, more than half of patients in ormeloxifene group i.e., 10 (52.63%). P value was found to be significant (<0.001). Post-treatment ultrasonographic variables changed accordingly. Change in volume of fibroid and PSV, EDV, S/D ratio, PI and RI were assessed after treatment with study medications.

Volume of fibrod decreased in ormeloxifene group in 4 patients, out of which 3 patients had submucosal fibroid. Volume increased in 10 patients which was paradoxical to the expected result.

The study concludes that, mifepristone can successfully reduce volume of uterine fibroid whereas, the effect of ormeloxifene on uterine fibroid are variable and may cause increase in size of uterine fibroid as in our study (>50%).

Anyhow, studies for assessment of improvement of symptomatology and changes in size of mass conducted on larger sample size with longer follow up are required.

Table 1: Comparison of post-treatment alteration in Volume of fibroid between groups

Alteration volume	Mifepristone	Ormeloxifene	p-value
Decreased	15(75%)	4(21.05%)	<0.001
Nochange	5(25%)	5(26.31)	
Increased	0	10(52.63%)	

Figure 1: Comparison of post- treatment alteration in Volume of fibroid between groups

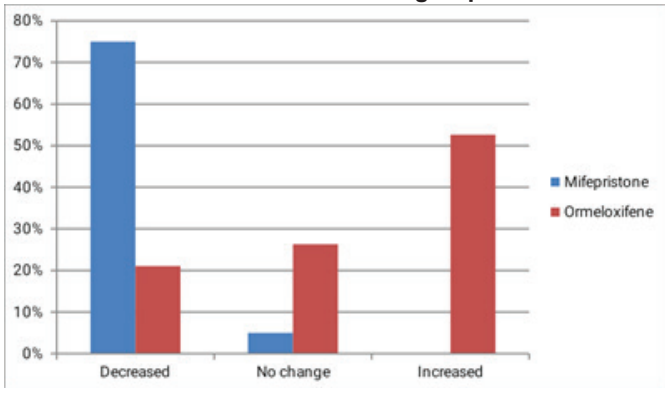

Table 2: Fibroid characteristics in mifepristone group pre and post- treatment

Parameter	Changein mean	Pre-treatment	Post-treatment	p-value
Fibroidvolume (cc)	20.9085	81.7±27.5	60.83±25.64	<0.001
PSV	6.0975	32.46±7.4	26.36±6.03	<0.001
EDV	1.57400	9.26±1.95	7.69±1.82	<0.001
S/DRatio	.05900	3.5±0.23	3.43±.26	0.456
RI	.00500	0.71±0.01	0.70±0.02	0.440
PI	-.07050	1.62±0.25	1.69±0.22	0.299
< 0.001	< 0.001	< 0.001	< 0.001	< 0.001

Figure 2: Fibroid characteristics in mifepristone group pre and post- treatment

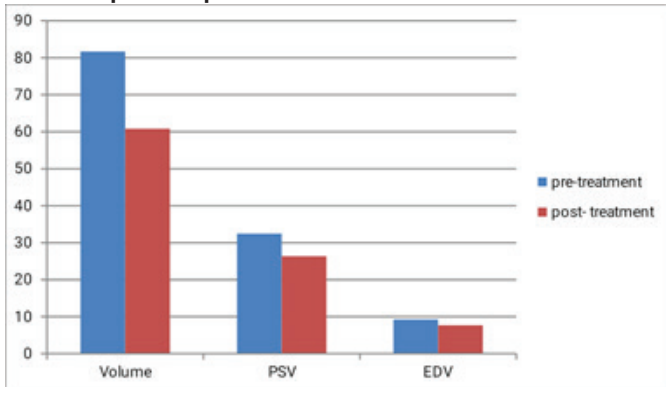

Table 3: Changes in numerical variables within Group A Mifepristone and Group B Ormeloxifene– Paired t test

		Mean	Std. Deviation	Std.Error Mean	95% Clof diffLL	95% Clof diff UL	t	Df	Pvalue
Mifepristone	Pair 1 FibVol1-FibVol2	20.9085	17.0334	3.8088	12.9366	28.8804	5.490	19	<0.001
	Pair 2 PSV1-PSV2	6.0975	5.4683	1.2227	3.5383	8.6567	4.987	19	<0.001
	Pair 3 EDV1-EDV2	1.57400	1.76616	.39492	.74741	2.40059	3.986	19	<0.001
	Pair 4 SDR1 -SDR2	.05900	.34671	.07753	-.10327	.22127	.761	19	.456
	Pair 5 RI1-RI2	.00500	.02838	.00635	-.00828	.01828	.788	19	.440
	Pair 6 PI1-PI2	-.07050	.29539	.06605	-.20875	.06775	-1.067	19	.299
Ormeloxifene	Pair 1 FibVol1-FibVol2	-3.6042	13.8450	3.1763	-10.2773	3.0689	-1.135	18	.271
	Pair 2 PSV1-PSV2	-.8289	7.1984	1.6514	-4.2985	2.6406	-.502	18	.622
	Pair 3 EDV1-EDV2	-.28947	1.14304	.26223	-.84040	.26146	-1.104	18	.284
	Pair 4 SDR1 -SDR2	-.09895	.28657	.06574	-.23707	.03917	-1.505	18	.150
	Pair 5 RI1-RI2	-.00474	.01982	.00455	-.01429	.00482	-1.042	18	.311
	Pair 6 PI1-PI2	-.07158	.40741	.09347	-.26794	.12479	-.766	18	.454

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Case Report: Gynecology

Atypical Longitudinal Vaginal Septum with Obstructed Right Sided Hemivagina — A Case Report and Review of Literature

Md Mofijul Mondal[1], Farheen Faruque[2], Sukumar Barik[3]

Introduction

Failure in the development of the vagina may account for the appearance of congenital vaginal septum, which may be transverse or longitudinal. Current Mullerian anomalies classification 2021, included cervical, vaginal and complex abnormalities along with uterine anomalies.[1] Contrary to the popular belief, in a systematic review and metanalysis prevalence of uterine anomalies was found to be 5.5% in an unselected population, 8% in infertile women, 13.3% in those with miscarriage and highest at 24.5% in infertile women who also had a history of miscarriage.[2] Vaginal septum is a relatively rare abnormality of the female genital tract. The longitudinal vaginal septum is produced by incomplete disappearance of the partition between the fused Mullerian ducts; hence uterine anomaly is also frequently involved. The transverse vaginal septum can develop anywhere in the vagina, and its most common locations are in the lower part of the vagina, sometimes in the central part and occasionally in the upper part of the vagina. These structural obstructions can completely block the vagina and can cause hematocolpos, associated with cyclic pelvic pain shortly after menarche in adolescent girls. Hematocolpos is defined as an accumulation of menstrual blood in the vaginal cavity. The longitudinal vaginal septum may be associated with dyspareunia, dystocia and hygiene problems, although it is often symptomless and detected by chance during routine speculum examination or at delivery. The significance of transverse vaginal septum has recently been assessed, whereas the longitudinal vaginal septum has drawn less attention.

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Case Report

A 12 year 7 month girl, a resident of rural district of West Bengal attended the outpatient clinic with complaints of lower abdominal pain (off and on) for three months. The girl experienced her menarche 3 months back, followed by amenorrhea. The girl had undergone open heart surgery for patent ductus arteriosus PDA), and PDA device was introduced at the age of 5 years. There was no significant family history. On examination her body weight was 40 kg, body mass index 18. There was no pallor, icterus or edema. Her vitals were normal. Chest examination was normal. Abdominal examination revealed slight tenderness in the suprapubic region, no obvious mass felt.

Full blood count, serum urea, creatinine, liver function tests are within normal limits. Electrocardiogram, echocardiography was normal. Urine routine and microscopic examination detected plenty of red blood

cells in the urine. Ultrasonography of lower abdomen revealed bicornuate uterus with hematometra (9.0 cm×4.2 cm) to the right horn and hematocolpos. No free fluid noted in pouch of Douglas.

Magnetic Resonance Imaging revealed bicornuate uterus, large hematocolpos, and large hematometra to the right cornu with right hemato salpinx. The vagina is grossly distended with an inverted L shaped collection measuring 14×5×4 cm. At the upper end of vagina, it is turning laterally towards left and further it is extending into the uterine cavity of the right cornu of uterus.

Therefore, examination under anesthesia, diagnostic hysteroscopy and laparoscopy was planned after doing proper preanesthetic check-up.

Examination under anesthesia findings: Vulva-normal, bulging noted in the right side of vagina. Small cervix seen through left side of vagina on speculum examination.

Vaginoscopic hysteroscopy findings was presence of small size left vagina, hymenal opening normal, small size cervix, right sided vaginal bulging.

Laparoscopic findings: Smallish left horn and distended right horn of uterus was seen. Left tube and ovary were normal. Right horn was bigger (distended), mild blackish in colour. Right tube significantly distended, appeared to have hematosalpinx. Right ovary was normal.

Vaginal Procedure: Incision was made on right vaginal bulge, plenty of collected old blood (about 300 ml) was drained out. Subsequently the bulging of right cornu was reduced. No right cervix could be identified. Inserted Hegar dilator reached to the fundus of right cornu.

The neo-opening created for drainage of menstrual blood. Margin of the neo-opening sutured with 2-0 vicryl.

She was discharged home in satisfactory condition on next day. She was reviewed in the clinic after six weeks and after three months and found to be asymptomatic and had one episode of menstrual bleeding lasting for three days.

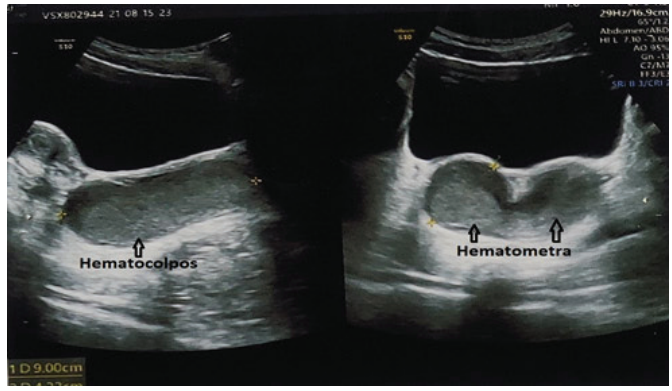

Figure 1. Ultrasonography of lower abdomen.

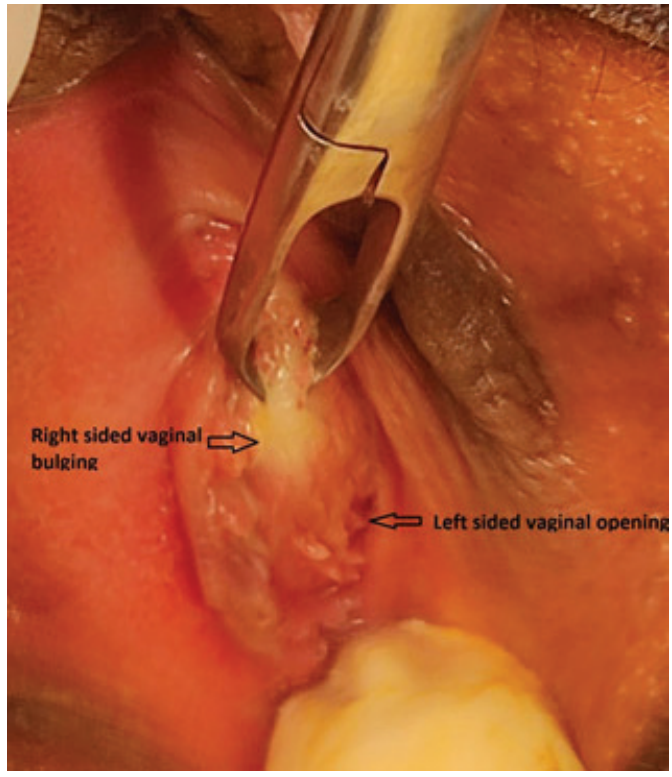

Figure 2. Examination under anesthesia findings

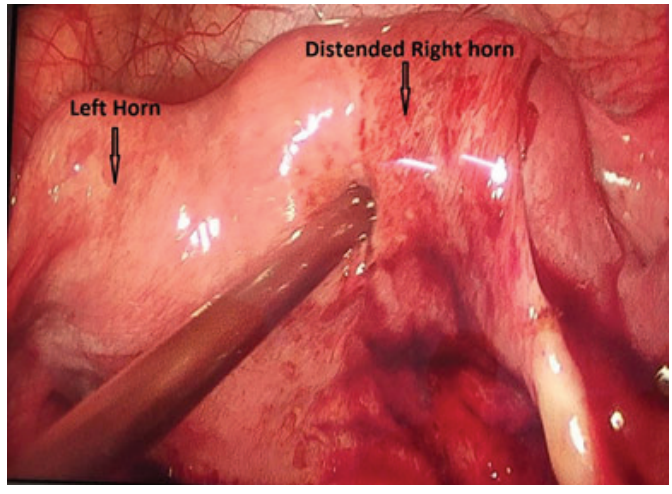

Figure 3- Laparoscopic image showing Right sided distended horn

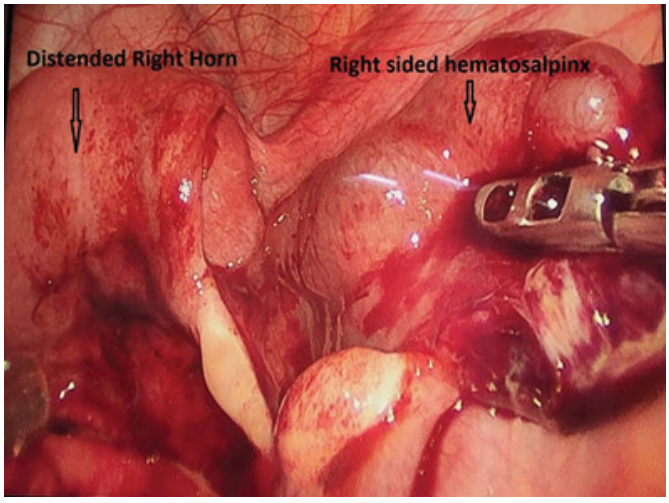

Figure 4 - Laparoscopic image showing Right sided hematosalpinx

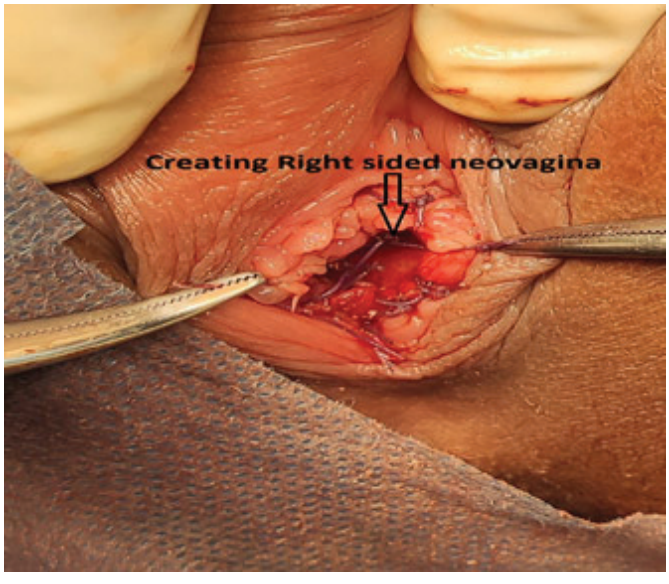

Figure 5: Creation of right sided neo-hemivagina

Discussion

The urogenital sinus, the Wolffian and Mullerian ducts all play a role in the development of the vagina, and the process is complex. It appears that the Mullerian ducts contribute the upper 4/5 of the vagina while the lower l/5 is derived from the urogenital sinus. A vaginal septum is produced by lack of dissolution of the intervening median septum produced subsequent to fusion of the Mullerian ducts. If the lack of dissolution is complete, the result is a complete vaginal septum. The partial vaginal septum is found mostly in the upper part of the vagina because disappearance of the partition between the fused Mullerian ducts proceeds from below upwards. Sometimes the abnormal laterally located Mullerian component may form a vaginal septum with a blind sac on this side of the vagina associated with hematocolpos and our case is interestingly falls to this group. The longitudinal vaginal septum is often associated with various degrees of uterine anomaly, since the uterus is also developed from the Mullerian ducts. The transverse vaginal septum results either from incomplete channelling of the vaginal plate of failure of the paramesonephral ducts to meet urogenital sinus. The transverse vaginal septum may not be associated with Mullerian abnormality. It is very similar to an imperforate hymen; it can present a diagnostic challenge.

In our case the adolescent girl came after 3 months of menarche which was through the left sided vaginal opening. But the collection in right sided closed vaginal part created hematocolpos and hematometra with symptoms of on and off lower abdominal pain.

USG and MRI of pelvis revealed bicornuate uterus, likely imperforate hymen with large hematocolpos with hematometra right cornu of uterus and right hematosalpinx. Mild higher location of the left ovarian structure likely due to mass effect. The confusion raised with the report suggestive of imperforate hymen because of the patient had menarche.

This case is matching with none of the MAC 21 classification of uterine anomaly.1 It has bicornuate uterus with two cervix with the right sided one so much dilated that can not be seperately identified feom vaginal dilatation and obstructed right / left oblique longitudinal vaginal septum. That's why we are classifying this case as atypical longitudinal vaginal septum.

Recently classification of longitudinal vaginal septum has been proposed based on four main features. Firstly, completeness of vaginal division: partial and complete type. Secondly the symmetricity: symmetric and asymmetric position (with dominant left and right side). Thirdly association with the cervix: merged and isolated forms. Fourthly, concomitant vaginal openings: normal, and narrow openings: vaginal stenosis and hymen persistent.[3]

Vaginal stenosis at the resection site remains the most common complication. Post-operative regular follow up is necessary and selected cases vaginal dilation may help to reduce scarring and stenosis at the surgical site.

Other fewer common complications are described after surgery, such as dyspareunia, menstrual irregularities and fertility problems. Management of the vaginal septum with drainage of the hematocolpos at an early age is necessary to preserve fertility and reduce risk of endometriosis. Therefore, these patients and their parents need to be informed about these potential long-term complications and the importance of regular follow-up. The girl had patent ductus arteriosus which was surgically treated with PDA device. This finding along with the congenital genital anomaly suggests need of more investigations to rule out any further associated congenital anomaly in other systems.

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