Growth Profile by Estimated Fetal Weights in Bangladesh

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Purpose: Estimated fetal weight is one of the most important parameters for assessing fetal growth and development. If we use tables based on our own population, growth assessment will be more accurate. A nomogram of estimated fetal weights of Bangladeshi population is prepared in this study.

Subjects & Methods: A prospective, cross-sectional study was conducted on well dated, singleton fetuses. A table and 2 graphs were prepared by regression analysis. Previously established nomograms produced on Caucasian and other populations were compared with it.

Results: Fetal charts of estimated fetal weights were constructed from 1223 subjects. Percentiles, means and standard deviations were derived. The model showed a good fit to the data. There was a gradual increase of the estimated fetal weights. The increase of estimated fetal weights at 3rd, 10th, 50th, 90th and 97th percentiles was slow up to 26th week of gestation. Thereafter a linear growth rate was observed up to term. There was a gradual increase of standard deviations towards term.

Conclusion: The findings suggest that this chart is special for Bangladeshi population and can be useful for accurate assessment of fetal growth and development, especially in the 3rd trimester. It can also be used for better assessment of fetal growth of other south Asian population with similar stature.

Key words: Estimated fetal weights, fetal growth, Bangladesh.
Adenomyoma Myomata and Uterine Sarcoma

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The most prevalent uterine tumors are leiomyomas, leiomyosarcoma represent s about 1.3% of uterine malignancies.

Less than 1% of women with clinical uterine leiomyoma is Leiomyosarcoma.

Five-year survival rates ranged between 18.8% and 65% for all stages of disease.

Clinical diagnosis by imaging modalities including of three-dimensional power Doppler angiography of ultrasonography, Magnetic resonance imaging, positron emission tomography, Computed tomography. The gynaecologic three-dimensional power Doppler ultrasound, can provide vascular assessment for preoperative prediction of uterine sarcoma, but associated literature are rare and controversial.

Leiomyosarcoma most are larger and softer, compared to leiomyosarcoma, due to more marked of vascularization, hemorrhage and necrosis. So vascular type, location and complex can help us determine and analyze tumor vessel supply. Obviously three dimensional power Doppler angiography of sonographer are the best tool to evaluate and practice this clinical work.

Leiomyoma in angiograms was characterized have two vascular network layers with the superficial thick layer in the pseudo-capsule spherically surrounded the surface of the leiomyoma. Leiomyosarcoma are more intramural, complex and rich in neovascularization. According to this phenomenon we can design different vascular pattern with three dimensional power Doppler of sonographer to differ leiomyosarcoma among leiomyoma.

Therefore, we can induct three dimensional power Doppler of sonography with traditional pre-operative survey as CT, MRI, PET for aid of tumor staging and leiomyosarcoma identify.
Endometrioma, Cystadenoma and Dermoid Cysts

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Benign ovarian tumors are the most common situation that gynecologist would encounter at clinics. Sometimes the diagnosis might be very difficult for similar image characteristics. The most common benign ovarian tumors are endometrioma (chocolate cyst), cystadenoma (simple cyst) and dermoid cyst (teratoma). At an inexperienced hand, the differentiating diagnosis could be very uncertain. In this speech, we will focus on the sonographic images of those mentioned ovarian cysts which include tumor shape, size, echogenicity and other soft markers. The more precise diagnosis of sonographic technician and gynecologist and would bring better prognosis of the patients no matter surgical operation is indicated.

Selecting Ultrasound Modes to Define Gynecological Tumors- Malignant Ovarian Tumors

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Ovarian cancer is the most lethal gynecologic malignancy in Taiwan and the Western world. Due to lack of symptoms in early disease, most cases of epithelial ovarian cancer are not detected until advanced stages and the resultant overall survival is poor. Nevertheless, when this malignancy is detected with the disease confined to the ovary the prognosis is usually favorable. Transvaginal sonography is an integral part of virtually every ovarian cancer screening program, whether it is used as the initial screening test or as a secondary test in women with an elevated biomarker profile. Particularly a 3-dimensional and color Doppler assessment of blood flow where technically feasible, should be the modality of first choice in patients with suspicious isolated ovarian mass. A meta-analysis of several cohort studies indicated an enhanced sensitivity of 93.5% and a specificity of 91.5% with 3-D setting. There have been several morphology scoring systems based on specific ultrasound parameters used to differentiate benign from malignant pelvic masses. All evaluated scoring systems were found to have a moderate level of sensitivity and specificity. However, the positive predictive value of these scoring systems is usually not high and actually the best criteria of pelvic tumors for surgical intervention in the early detection of cancer is not yet well determined. To date, the efficiency of the 3-D Power Doppler imaging in identifying early ovarian cancer has also to be determined. Although newly developed tools are increasingly used in evaluating the suspicious pelvic mass, fundamental questions remain concerning who should be screened, the frequency of screening, and the advisable steps of tests within a specific screening algorithm.
Obstetrics & Gynecology

WFUMB Statement on the Safe Use of Ultrasound in the First Trimester

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The advance of ultrasound in medical use has been more than 60 years. Currently, there is no report of adverse effect on the human embryos. However, ultrasound is a kind of energy, which can have certain bioeffects and mechanical effects. Therefore distinct training about the safety use should be provided for everyone who uses ultrasound as a tool for diagnosis. Here we excerpt the WFUMB statement about safety use of medical ultrasound in early pregnancy.

Use of Doppler in the first trimester
1. Pulsed Doppler (spectral, power and color flow imaging) ultrasound should not be used routinely.
2. Pulsed Doppler ultrasound may be used for clinical indications such as to refine risks for trisomies.
3. When performing Doppler ultrasound, the displayed Thermal Index (TI) should be less than or equal to 1.0 and exposure time should be kept as short as possible (usually no longer than 5-10 minutes) and not exceed 60 minutes.
4. When using Doppler ultrasound for research, teaching and training purposes, the displayed TI should be less than or equal to 1.0 and exposure time should be kept as short as possible (usually no longer than 5-10 minutes) and not exceed 60 minutes. Informed consents should be obtained.
5. In educational settings, discussion of first trimester pulsed or color Doppler should be accompanied by information on safety and bioeffects (e.g. TI, exposure times, and how to reduce the output power).
6. When scanning maternal uterine arteries in the first trimester, there are unlikely to be any fetal safety implications as long as the embryo/fetus lies outside the Doppler ultrasound beam.

Ultrasound exposure during pregnancy
The WFUMB disapproves of the use of ultrasound for the sole purpose of providing souvenir Images of the fetus.

Care should be taken to limit the exposure time and the Thermal and Mechanical Indices, particularly when the Thermal Index exceeds 0.7. It is recommended that TIs of less than 3.0 are used.

Temperature rises are likely to be greatest at bone surfaces and adjacent soft tissues. With increasing mineralization of fetal bones, the possibility of heating sensitive tissues such as brain and spinal cord increases.
Differentiate Fetal Chest Lesions with Ultrasound

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The increased frequency of obstetric ultrasound usage and the availability of high resolution ultrasound technology have improved the prenatal diagnosis of fetal chest lesions.

Fetal lung development can be divided into five stages: the embryonic stage (26 days to 6 weeks), the pseudoglandular stage (6-16 weeks), the canalicular stage (16-28 weeks), the saccular stage (28-36 weeks), and the alveolar stage (36 weeks to term).

Fetal chest lesions occur in 1 in 10000 to 1 in 35000 pregnancies. In spite of the impressive appearance of ultrasound images during the mid-trimester, most of the lesions have a favorable outcome without prenatal intervention. Many lesions regress during pregnancy, and some disappear completely. Conservative management is commonly most appropriate. In some cases, however, secondary physiologic derangements occur because of mass effect or hemodynamic changes, which can lead to progressive cardiac failure, hydrops fetalis, and even intrauterine fetal demise. Prenatal intervention may be warranted to improve outcome.

In this topic, we focus on the most common fetal chest lesions, such as congenital cystic adenomatoid malformation, bronchopulmonary sequestration, congenital diaphragmatic hernia, bronchogenic cyst, and pleural effusion (hydrothorax and chylothorax).
Prenatal Ultrasound on Fetal Extremities

*Pei-Chen Wu*

*Taiji Clinic*

### Nomenclature for limb abnormalities:

<table>
<thead>
<tr>
<th>Shortness</th>
<th>micromelia</th>
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<tr>
<td></td>
<td>rhizomelia</td>
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<tr>
<td></td>
<td>mesomelia</td>
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<tr>
<td></td>
<td>acromelia</td>
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<tr>
<td>Absence</td>
<td>amelia</td>
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<td></td>
<td>hemimelia</td>
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<td></td>
<td>transverse</td>
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<td>radial ray anomaly</td>
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<td>longitudinal</td>
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<td></td>
<td>meromelia</td>
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<td></td>
<td>phocomelia</td>
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<tr>
<td>Qualitative assessment</td>
<td>bowing</td>
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<tr>
<td></td>
<td>fracture</td>
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</tbody>
</table>

**Joints**

- demineralization
- arthrogryposis
- dislocation

**Hands / Feet**

- Numbers
  - acheiria / apodia
  - adactyly
- Numbers
  - polydactyly
  - preaxial / postaxial

**Abnormal alignment**

- oligodactyly
- syndactyly
- clenched hand
- clinodactyly
- camptodactyly
- clubfoot

**Size**

- macrodactyly
- bachyductyly
- trident hand
Basic considerations for limb reduction deficiency diagnosis:
(1) Accurate ultrasound examination of the fetal anatomy as a whole, particularly with respect to cardiac, cranio-facial, and musculoskeletal structures.
(2) Specialist counseling from a geneticist, neonatologist and orthopedic surgeon to determine whether the abnormalities viewed on ultrasound are part of a well-known syndrome or to provide indications for a possible/suspected diagnosis.
(3) Fetal karyotype determination, especially in the presence of associated abnormalities that can be ascribed to chromosomal disorders – accounting overall for about 14% of cases, particularly trisomy 18.
(4) Close ultrasound monitoring to track the evolution of the defect and to detect any additional abnormalities on later sonograms that could be useful to categorize the defect into a syndrome complex.
(5) Any possible investigations that may help define the clinical picture after birth - Any possible investigations that may help define the clinical picture after birth – even in those cases when the abnormality was fatal – or after pregnancy termination.

Reference:
Ovarian Solid Tumor with Ascites Mimicking Malignancy - Meigs' Syndrome

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Introduction

Ovarian fibromas represent 3-5% of all ovarian neoplasms. Meigs' syndrome consists of the triad of ascites, pleural effusion and benign ovarian fibroma. The effusion resolves after removal of the pelvic mass. Ovarian fibromas are almost always benign. Fibromas occur at all ages but are most frequently seen in middle-aged women. Key word Ovarian fibromas, fibromthecoma, Meigs' syndrome case report

This 48 year old woman G1P0A0(P1 C/S) has history of uterine myoma and adenomyosis. She was amenorrhea due to Mirena placement since 2008. She suffered from LLQ cramping pain, thus, she visited an GYN clinic where she was found to have a pelvic mass with ascites which malignancy or torsion of adenexa were suspected. She was referred to our GYN clinic where sonography was performed and showed small myoma, adenomyosis, and a pelvis solid tumor 13 cm away from uterus, with massive ascites. Ascites tapping revealed reactive mesothelial cells without malignancy. Tumor markers study showed elevated CA-125: 513 U/ml. The abdominal CT showed a 1.53*13.2cm mass with artery supply from uterine artery over lower abdomen in favor of left ovarian cancer. She then received unilateral salpingo-oophorectomy, the pathology examination confirmed fibrothecoma of left ovary. Conclusion: 1. On ultrasound, fibromas most commonly manifest as solid, hypo-echoic masses with sound attenuation. As such, they may appear similar to (or difficult to distinguish from) a pedunculated subserosal uterine fibroid. Mixture with thecoma component will decrease the degree of sound attenuation. 2. However, the sonographic appearance can be variable and some tumours can rarely have cystic components. 3. General imaging differential considerations include large pedunculated subserosal uterine leiomyoma.
Preoperative Diagnosis of Dysgerminoma – An Ovarian Germ Cell Tumor

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Introduce Dysgerminoma accounts for less than 1% of ovarian tumors overall. Dysgerminoma usually occurs in adolescence and early adult life; about 5% occur in pre-pubertal children. Dysgerminoma occurs in both ovaries in 10% of patients and, in a further 10%, there is microscopic tumor in the other ovary. Key word: dysgerminoma Case report This 14 y/o single girl was well being in the past. She experienced lower abdominal pain since 941114. She went to a local hospital where ovarian tumor was found so she came to our emergent department. Ultrasonography revealed uterus:75x33x41 mm in size, lobulated solid pelvic tumor 156x127x101 mm in size with RI 0.38 with some ascites. Due to the lobulated solid consistence and posterior enhancement, dysgerminoma was impressed, and she was admitted on 941116 for surgical intervention. Optimal debulking operation with left salpingo-oophorectomy + pelvic and paraaortic lymph dissection + infracolic omentectomy was done on 941118. Pathology confirmed left ovarian dysgerminoma extended to serosal surface, without lymph node or other distal metastasis. Thus, FIGO stage IC ovarian cancer was allocated. Chemotherapy with BEP regimen was given for 3 cycles. Conclusion: Dysgerminoma is a rare ovarian cancer. However, due to its characteristic sonographic pattern, such as solid tumor with posterior enhancement, prominent intra-tumor flow, preoperative diagnosis usually can be made before definite surgery. Serum LDH level can help to confirm diagnosis. Correct preoperative diagnosis can be helpful for gynecologic expertise referral, and more conservative at the same time appropriate surgery adoption.