ULTRASOUND SCREENING

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1. INTRODUCTION

Along with anoxia and prematurity, congenital defects are the major causes of perinatal and infant morbidity and mortality. In many cases they are the cause of complications and sequelae, associated with different degrees of disability, that compromise the development and social integration of the individual. Estimated prevalence is 3-6%. On the other hand, the detection of growth restriction makes it possible to reduce perinatal mortality, especially that which occurs at the end of gestation. These data justify the setting up of screening programs to improve prenatal detection rates.

Ultrasound, although not meeting all the criteria proposed by the WHO, is the best prenatal screening method available. Its effectiveness is directly related to the rational and directed organisation of its practice, both from the point of view of organising the health of the population and the monitoring of appropriate protocols in the Centres where it is performed.

The difficulty of selecting risk groups entails that it should be performed on all pregnant women and deems that all foetuses should be explored as if they were high risk.

In our setting, the care protocol during pregnancy includes performing 3 ultrasound scans spread over the first, second, and third trimesters. The timing and objectives of these ultrasound scans are summarised below:

- 1st trimester. 11-13.6 weeks (preferably week 12)
  - Confirm intrauterine pregnancy
  - Confirm evolution of the pregnancy
  - Determine the number of foetuses and chorionicity in case of multiple pregnancies
  - Pregnancy dating
  - Determination of aneuploidy markers
  - Early anatomical assessment
  - Determination of the uterine artery Pulsatility Index (PI) to calculate the risk of preeclampsia.
- 2nd trimester. 20-22 weeks (preferably week 21).
  - Assessment of placenta, cord insertion and amniotic fluid
  - Fetal growth assessment
  - Assessment of fetal anatomy
- 3rd trimester. 37±1 in low risk. 28±1, 32±1 and 37±1 in high risk for IUGR.
  - Fetal static assessment
  - Assessment of placenta and amniotic fluid
  - Fetal growth assessment
  - Reassessment of the fetal anatomy to rule out evolving and/or possible late-onset pathology.

Sometimes other complementary ultrasounds must be performed at different gestational ages with objectives defined by the particular circumstances, to be established in relation to the data of the clinical history and evolution:

- Family and personal history
- Events during pregnancy

- Result of complementary tests, including ultrasound
- Multiple pregnancies

The follow-up of pregnancies with pathological uterine arteries in the first trimester deserves special mention, since they will be studied again at 20-22 weeks:

- If mean uterine artery PI <p95, control will be performed at 28, 32 and 37 weeks.
- If mean uterine artery PI >p95, control will be performed at 24, 28, 32 and 37 weeks.

It is important that the pregnant woman knows the objectives, benefits and limitations of ultrasound, and fills out, during the first ultrasound, the informed consent on ultrasound examination, a single document for all ultrasound examinations performed during pregnancy.

Prior to performing the morphological ultrasound at 20-22 weeks, the pregnancy risk factors should be investigated by means of a questionnaire given to the pregnant woman.

The evaluation of each of the ultrasounds performed in the three trimesters of pregnancy can be carried out by means of a direct interpretation of the ultrasound scan or by means of an offline evaluation of a selection of images or clips acquired during the scan. In the case of a deferred evaluation, the acquisition of the necessary images and clips must be carried out by specialised personnel, with extensive knowledge of what constitute normal and abnormal findings. However, the interpretation of the images and the final diagnosis, the confirmation of normality or suspicion of pathology, is the responsibility of the maternal-fetal specialist.

The content of this clinical guide refers to two key points in ultrasound screening: obtaining standard sections in order to carry out a diagnostic quality examination and their interpretation.

2. OBTAINING STANDARD SECTIONS FOR ULTRASOUND SCREENING

a. Methodology

1) Gestational age
   The optimal gestational age to perform the ultrasound of each of the trimesters is detailed in the previous section.
2) Access
   The route of choice, transabdominal or transvaginal, will depend on the gestational age, the examination to be performed, and the characteristics of the patient.
3) Practical aspects
   - Adequate magnification of the image without loss of resolution (the image to be evaluated that occupies 2/3 of the screen).
   - Adjust gain to improve grey-scale in relation to the ultrasound structure of the structures to be evaluated.
   - Use and change the appropriate preset applications throughout the examination.
   - The use of colour Doppler will be routinely necessary, with different objectives, depending on the gestational age. In the first trimester ultrasound, the use of Doppler will be limited to the essential time as per the ALARA principle[1], especially in the use of pulsed Doppler. If an ultrasound is performed in the embryonic period <10-11 weeks, the use of colour and/or pulsed Doppler should be avoided, the use of the M-mode being more convenient to confirm a positive heart rate.
4) Informed consent

[1] ALARA (As Low As Reasonably Achievable)

Single document for all ultrasound examinations performed during pregnancy, completed during the first ultrasound.

b. VIEWS NECESSARY FOR AN ULTRASOUND EXAMINATION OF DIAGNOSTIC QUALITY

These correspond to the planes that must be evaluated when performing the ultrasound, or recorded and stored in the PACS and accessible from the medical history of the pregnant woman to carry out a deferred assessment.

1) FIRST TRIMESTER ULTRASOUND

- Transverse/axial plane of the skull with the ossified fetal calotte and identification of the midline, choroid plexus and measurement of the Biparietal Diameter (BPD) (Figure 1)
- Mid-sagittal including the foetus in a neutral position with the measurement of the Crown-Rump Length (CRL). (Figure 2)
- Measurement of Nuchal Translucency (NT) in a mid-sagittal section that includes the head and upper part of the fetal thorax, following the guidelines of the Fetal Medicine Foundation. (Figure 3)
- Transverse abdominal view at the level of the cord insertion. (Figure 4)
- Frontal tangential view of the face with the correct identification of the orbits. (Figure 5)
- Views showing the long bones of the upper and lower extremities, feet and hands. (Figures 6 and 7)
- Determination of the Ductus Venosus (DV) Flow Velocity Waveform (FVW), calculation of the Pulsatility Index and end-diastolic velocity (Figure 8). For the acquisition of the FVW of the DV, the following technical aspects will be considered:
    - Sample size of ≈ 0.5 - 1 mm
    - PRF (Pulse Repetition Frequency) with speeds of 20-50 cm/sec
    - Adjust the colour Doppler gain.
    - Insonation angle of the vessel as close to 0, less than 30º.
    - Adjust the sweep speed so that approximately 5 waves are included.
    - Measurement of three similar consecutive waves.
- Determination of the mean Pulsatility Index of the uterine arteries (Figure 9), considering the following technical aspects:
    - High PRF, with velocities above 60 cm/sec.
    - Adjust the colour Doppler gain.
    - Insonation angle of the vessel as close to 0º, less than 30º.
    - Adjust the sweep speed so that approximately 5 waves are included.
    - Measurement of three similar consecutive waves.
- If the fetal situation, gestational age and transmission allow it, images or clips will be captured to allow evaluation of other anatomical structures: kidneys, diaphragm, heart.

If anomalies are detected, acquisition of abnormal static planes and the most representative video clips must be performed.

BASIC PLANES OF THE FIRST TRIMESTER ULTRASOUND

Figure 1


IM 1.0
12-06-2023
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10:43:48
1er trim. /CA
cm
20/03/2023, 12s0d
[2D]
SAMSUNG HERA W10
Frq Gen.
GN 50
DR 50
PC 9
P 90

Figure 2

Figure 3

Figure 4

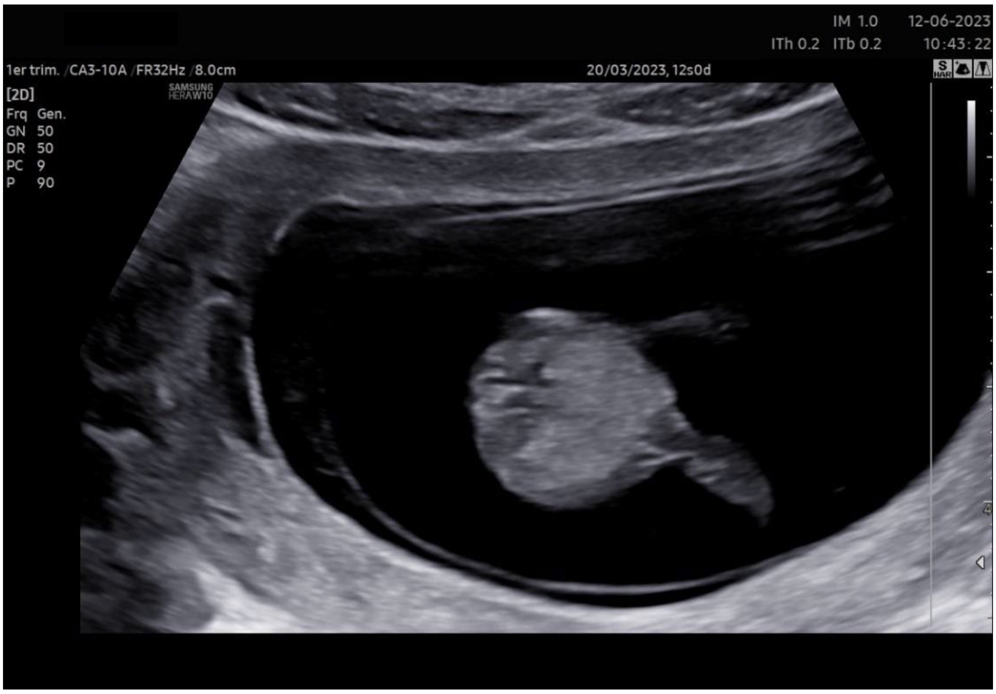


Figure 5

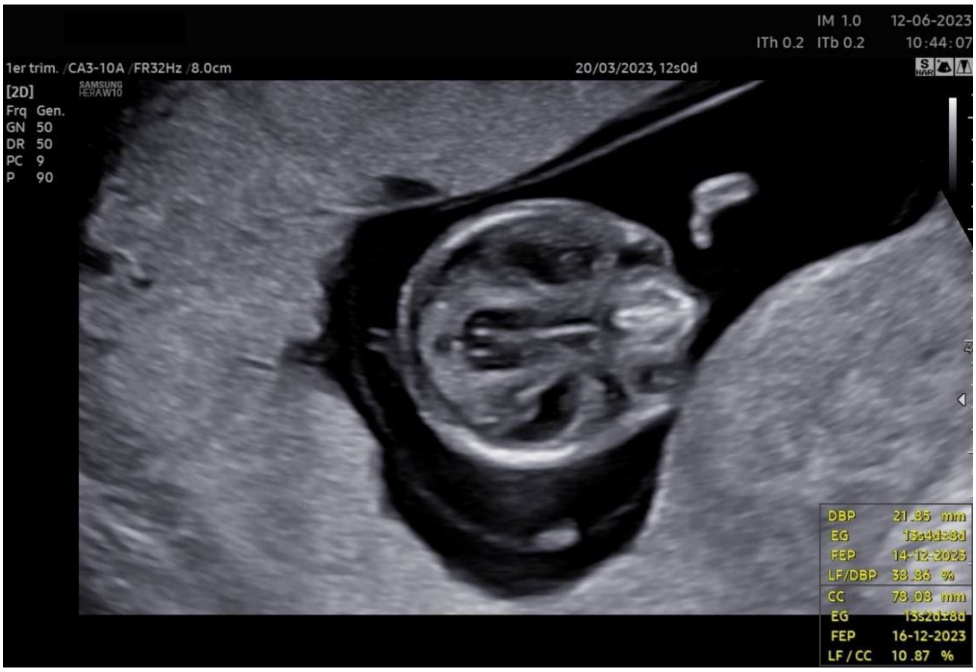


Figure 6

Figure 7

Figure 8

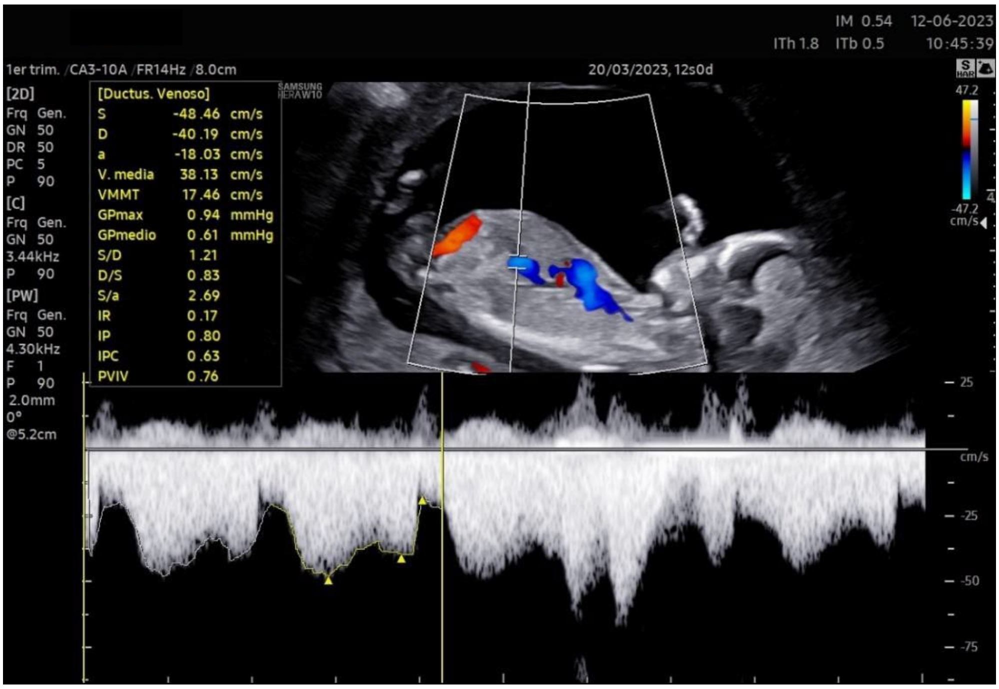
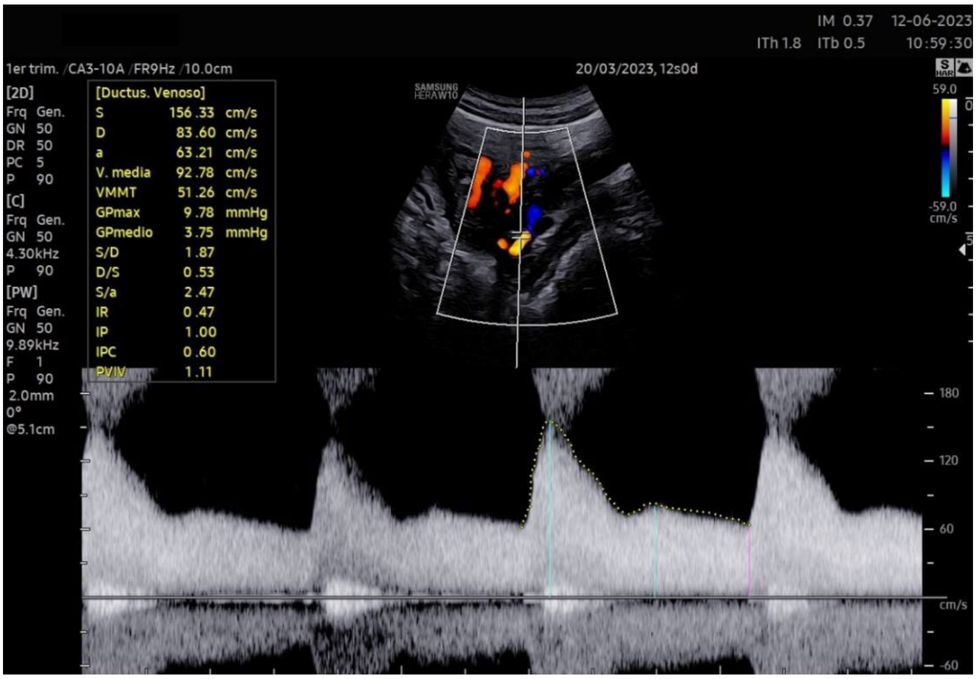


Figure 9



2) SECOND TRIMESTER ULTRASOUND (morphology scan)
- Fetal biometry. These will be acquired in standardised views following strict quality criteria (ISUOG Guidelines 2010). The measurements to be taken are: Biparietal Diameter (BPD); Head Circumference (HC); Abdominal Circumference (AC); Femur Length (FL) (Figure 10). The percentile is calculated according to the BPD and considering the BPD obtained in the first trimester ultrasound and the gestational age at which it was performed.

Figure 10a

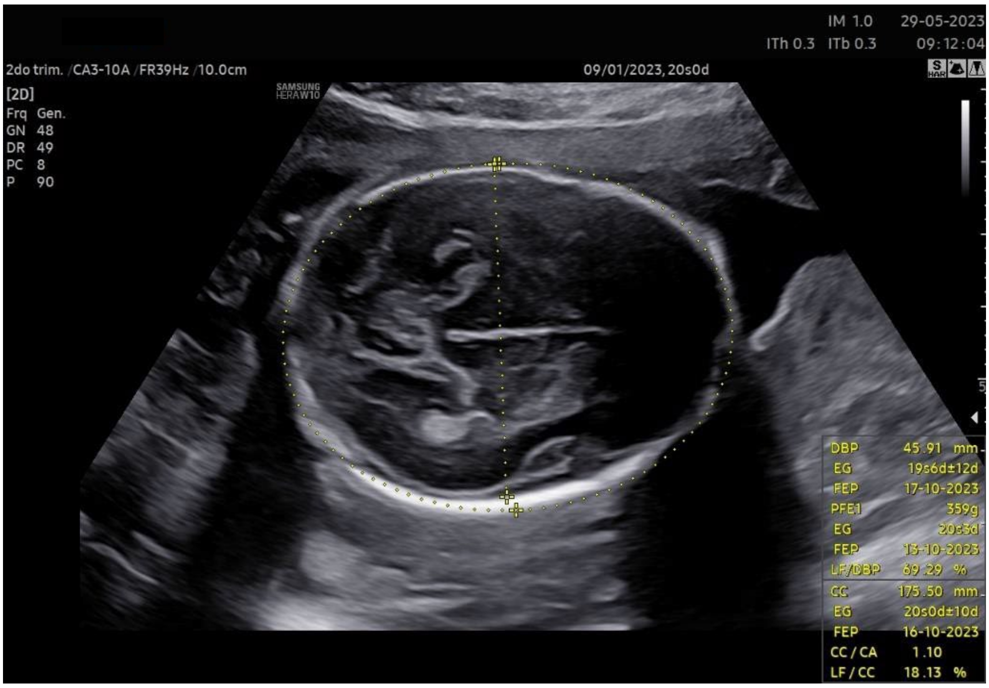


Figure 10b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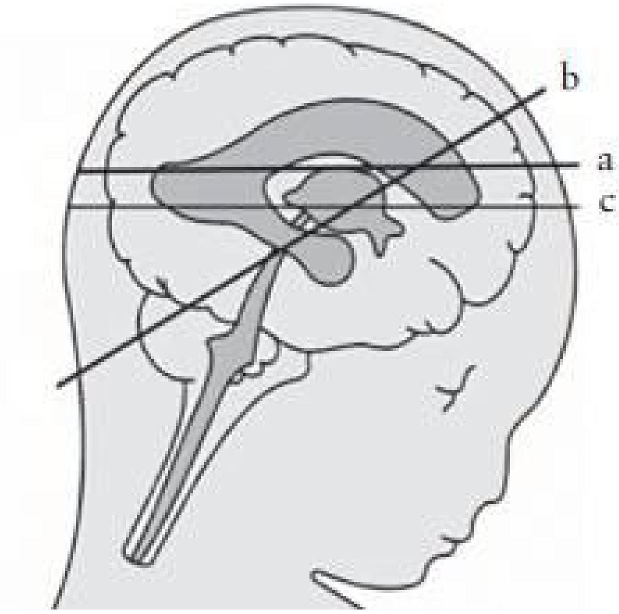
[2D]
Frq Gen.
GN 48
DR 49
PC 8
P 90
CA 160.00 mm
EG 21s1d±14d
FEP 08-10-2023
LF / CA 20.22 %

Figure 10c

Figure 11. *Ultrasound Obstet Gynecol 2020; 56: 476–484*



- Planes for assessment of fetal anatomy:
  - Head

Acquisition of 3 basic axial planes (Figure 11 and 12) according to the anatomical references defined for each one. The cave of septum pellucidum is the anatomical reference that confirms that the planes are correctly formed.

- Transventricular (a). This is the highest plane. It includes visualisation of the frontal horns, the cave of the septum pellucidum (CSP) and the posterior horns of the ventricle with the choroid plexus inside. Measurement of the atrium according to ISUOG guidelines must be performed.
- Transcerebellar (b). This plane is slightly caudal to the transventricular one, and it is usually obtained by slightly tilting the transducer towards the back of the head. It includes the cave of the septum pellucidum, the anterior horns of the lateral ventricles, the thalami, the cerebellum and the cisterna magna with correct visualization of the occipital bone. Measurement of the transverse diameter of the cerebellum and of the anteroposterior diameter of the posterior fossa must be performed.
- Transthalamic (c). The frontal horns of the lateral ventricles, the CSP, the thalami and the hippocampal gyrus should be identified. This plane is used for the biometry of the fetal head (BPD and HC).

Figure 12a.

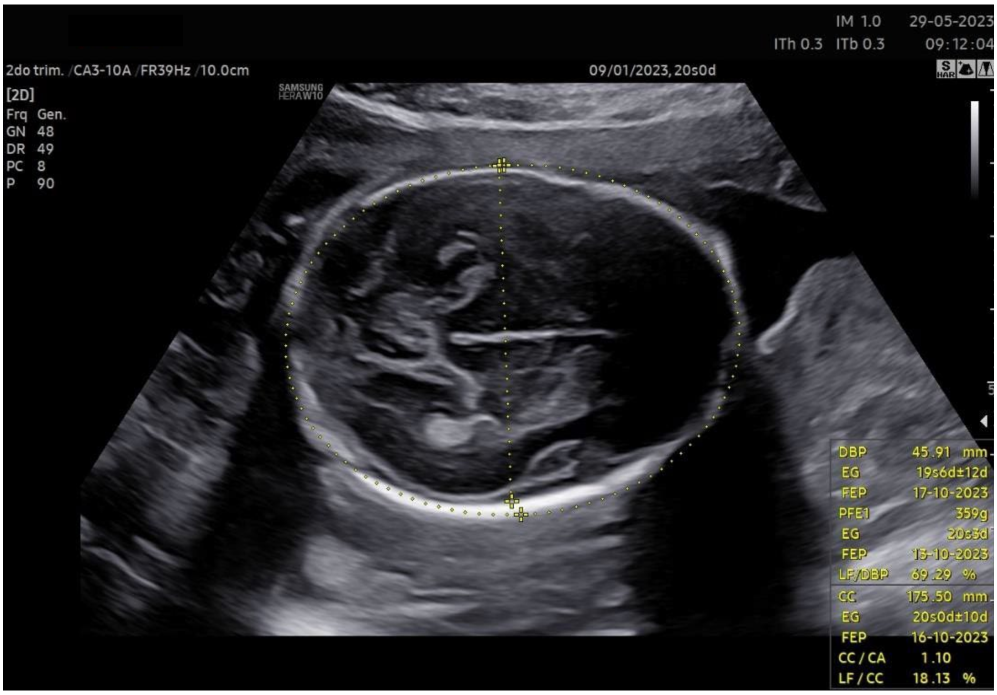


Figure 12b.


[redacted]
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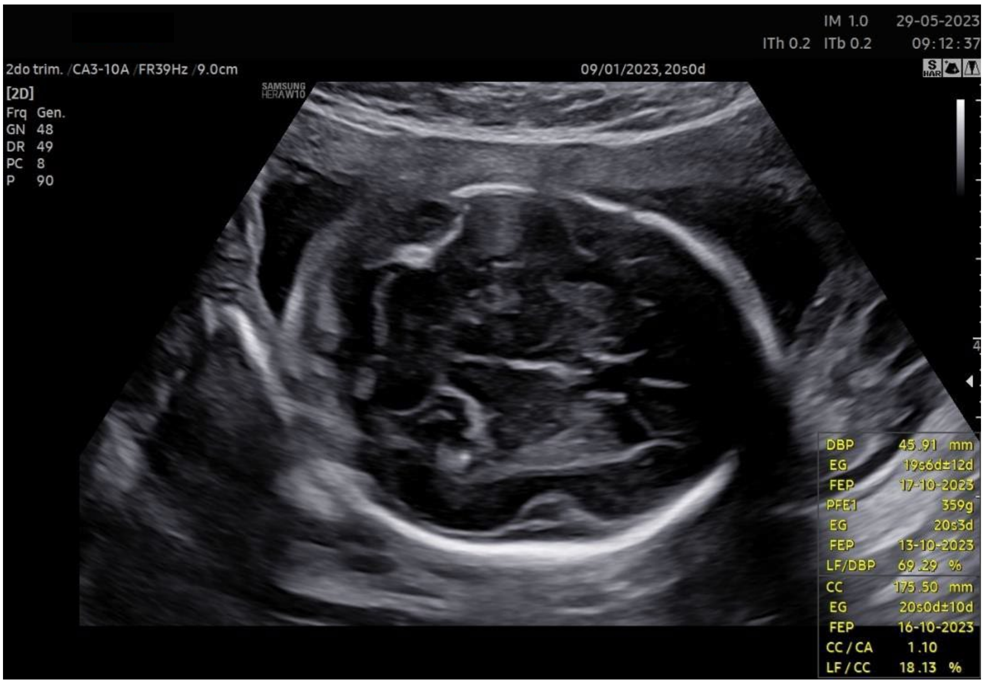
09/01/2023, 20s0d
SAMSUNG HERA W10
[2D]
Frq Gen.
GN 48
DR 49
PC 8
P 90
DBP 45.91 mm
EG 19s6d±12d
FEP 17-10-2023
PFE1 359g
EG 20s3d
FEP 13-10-2023
LF/DBP 69.29 %
CC 175.50 mm
EG 20s0d±10d
FEP 16-10-2023
CC / CA 1.10
LF / CC 18.13 %

Figure 12c.



- Face
    - Transverse at orbital level (Figure 13)
    - Frontal tangential, identifying nose with two nostrils, upper and lower lip and chin (Figure 14)
    - Median (mid-sagittal). Fetal profile assessment (Figure 15)

Figure 13


IM 1.0
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2do trim. /CA3-10A /FR39Hz /11.0cm
09/01/2023, 20s0d
[2D]
Frq Gen.
GN 50
DR 49
PC 8
P 90

Figure 14

Figure 15

- Neck. The presence of obvious neck masses should be documented.

- Thorax. Axial plane including the fetal thorax with identification of a single rib, lungs and heart (Figure 16).
- Heart. Images will preferably be acquired in an apical plane. They will be acquired using grey-scale and colour Doppler, adjusting the speeds to those most appropriate for the vessels to be studied: high PRF, with speeds of 40-70 cm/sec to explore coronary arterial flows; and low speeds, of 20-30 cm/sec for venous structures. The planes described by Yagel will be acquired:
    - Magnification of the image and acquisition of the 4-chamber view with the atrioventricular valves open and closed. (Figure 17)
    - Five-chamber view. (Figure 18)
    - Three-vessel-trachea view (Figure 19)
    - Ventricular filling with colour Doppler (Figure 20)
    - Outflow of the aorta with colour Doppler (Figure 21)
    - 3V and T with colour Doppler (Figure 22)

Figure 16

Figure 17

Figure 18

Figure 19


[redacted]
IM 0.97 29-05-2023
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Corazón fetal /CA3-10A /FR63Hz /9.0cm
09/01/2023, 20s0d
[2D]
Frq Gen.
GN 45
DR 52
PC 5
P 90

Figure 20

Figure 21

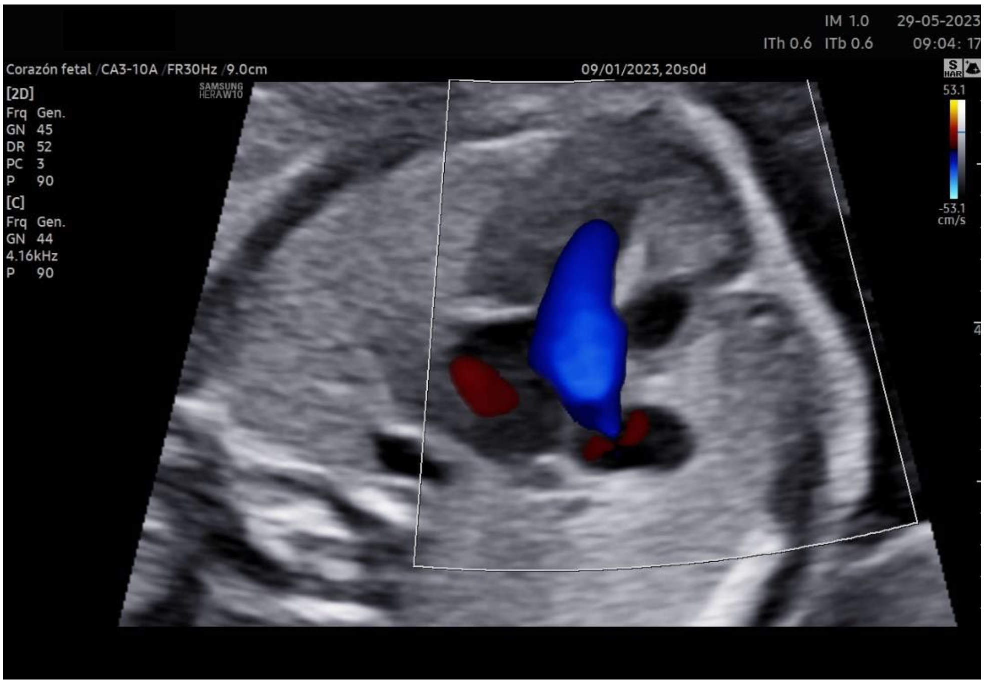
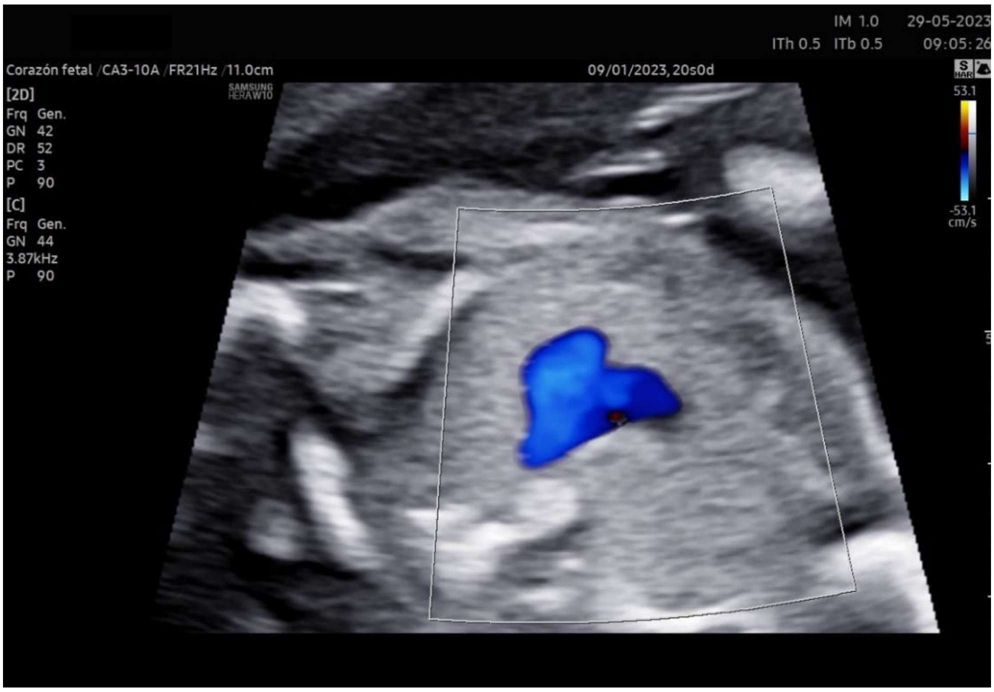


Figure 22



- Abdomen
    - Transverse plane in which a single rib is identified, and which includes the stomach and portal sinus: AC measurement (Figure 23)
    - Transverse plane at the renal level (Figure 24). Evaluation of the renal pelvis. If the renal pelvis is measured, this will be done in an anterior-posterior direction, preferably at 12 o'clock or 6 o'clock and perpendicular to their maximum axis.
    - Transverse plane at bladder level with colour Doppler application to identify the umbilical arteries (Figure 25)

      Plane that includes the fetal insertion of the umbilical cord (Figure 26).
- Diaphragm. The images will be acquired preferably with the dorsum in a posterior position.
    - Sagittal plane in which the lung parenchyma, diaphragm and right kidney are identified (Figure 27)
    - Sagittal plane in which the lung parenchyma, diaphragm, stomach and left kidney are identified (Figure 28).

Figure 23

Figure 24

Figure 25

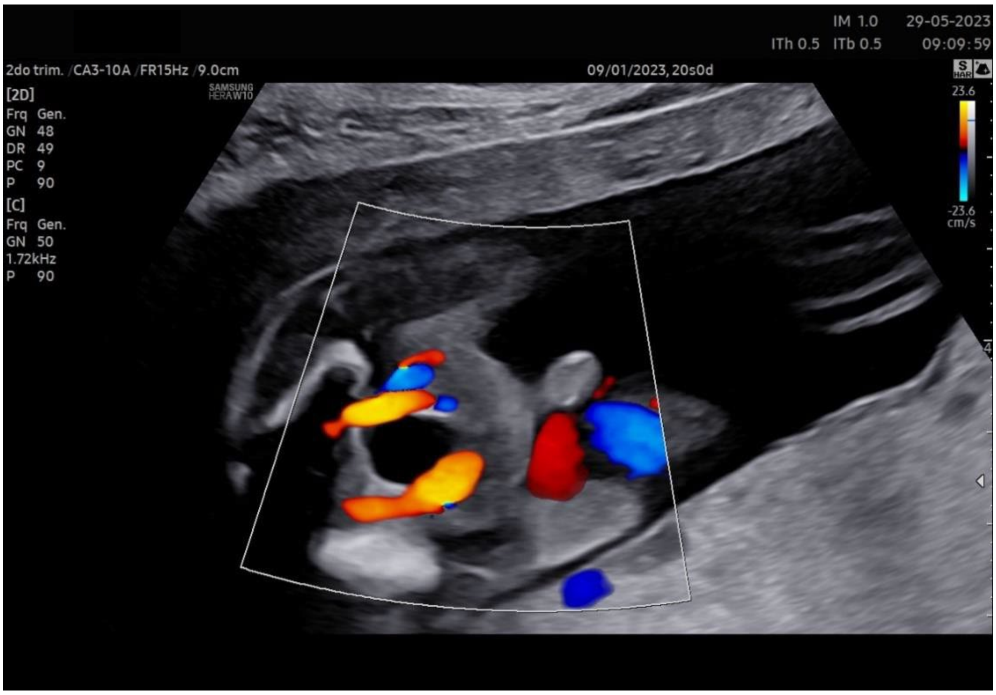


Figure 26

Figure 27

Figure 28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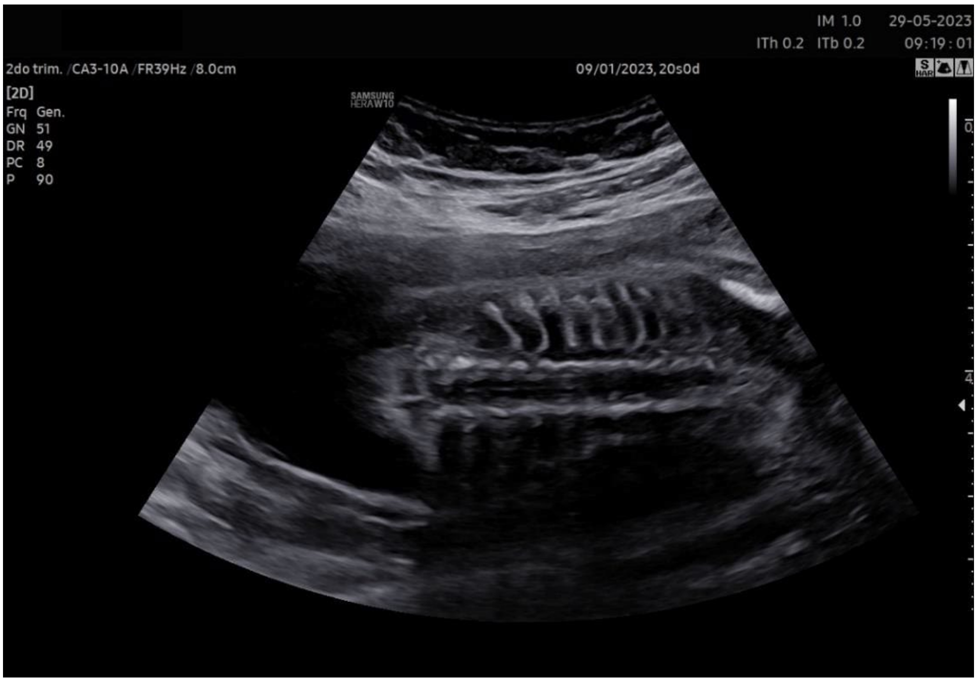
09/01/2023, 20s0d
[2D]
Frq Gen.
GN 48
DR 49
PC 8
P 90

- Skeletal
  - Spine. The images will be acquired preferably with the dorsum in an anterior position.
    - Mid-sagittal in which the lumbosacral, dorsal and cervical spine can be identified, surrounded by amniotic fluid. (Figure 29)
    - Coronal in which the vertebral processes of the lumbosacral, dorsal and cervical spine are identified. (Figure 30)

Figure 29

Figure 30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09/01/2023, 20s0d
SAMSUNG HERA W10
[2D]
Frq Gen.
GN 51
DR 49
PC 8
P 90

- Identification of all four limbs.
    - Measurement of the femur length (Figure 31).
    - Planes that allow the identification of the long bones of the 4 extremities, the 5 fingers of both hands and the orientation of the feet. (Figures 32-33).
- Genitalia. Normal male (Figure 34) or female genitalia.

Figure 31

Figure 32


IM 1.0
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09:27:57
2do trim. /CA3-10A /FR39Hz /9.0cm
09/01/2023, 20s0d
[2D]
Frq Gen.
GN 50
DR 49
PC 8
P 90

Figure 33

Figure 34

If anomalies are detected, acquisition of abnormal static planes and the most representative video clips must be performed.

If any marker of trisomy of chromosome 21 is detected during the morphological scan, the rest of the markers will be studied and the baseline risk of the pregnant woman will be recalculated by maternal age, 1st trimester combined test or 2nd trimester biochemical test, according to the table in the Prenatal Diagnosis Clinical Guide. (see section 3.2).

3) THIRD TRIMESTER ULTRASOUND
   - Fetal biometry. These will be acquired in standardised sections following strict quality criteria (ISUOG Guidelines 2022). The measurements to be taken are: Biparietal Diameter (BPD); Head Circumference (HC); Abdominal Circumference (AC); Femur Length (FL). As of week 24, the Estimated Fetal Weight (EFP) will be calculated from the BPD, HC, AC and FL using Hadlock curves (*Hadlock FP et al. Am J Obstet Gynecol 1985; 151(3): 333*), or from the AC and LF, if cephalic measurements are not applicable (*Hadlock FL, et al. Radiology 1984;150:535*) and percentile according to GA and fetal sex. If fetal weight below the 10th percentile, fetoplacental Doppler using the Pulsatility Index of the uterine artery, umbilical artery, middle cerebral artery, and calculation of the cerebroplacental ratio (see Doppler chapter of aforesaid book).
   - Ultrasound planes for reassessment of the fetal anatomy. Fetal anatomy will be reassessed if maternal-fetal conditions allow it, insisting on the assessment of possible evolving fetal pathology: nervous system, nephro-urological, cardiovascular and digestive system.

c. INTERPRETATION OF IMAGES AND FINAL DIAGNOSIS

1) Scan quality. It is important that the particular conditions in which the examination was carried out are recorded in the report, including the Body Mass Index of the pregnant woman. The examination will be considered adequate, limited or suboptimal, depending on the view obtained.
2) Objectives
   - Pregnancy dating. The gestational age by Last Menstrual Period (LMP) is considered an unreliable parameter to date the pregnancy. The gestational age is established from the biometrics available from the first ultrasound examination.
     - If CRL < 84mm, dating by CRL (*Robinson HP BJOG 1975-Modified BUMS 2008*).
     - If CRL > 84mm and BPD < 60mm, BPD dating (*Papageorghiou AT. IG 21st. Lancet.2014*).
     - If BPD > 60mm and LMP true, date by LMP.
     - If BPD > 60mm and LMP uncertain:
       - If BPD < 85mm, BPD dating (Papageorghiou AT. IG 21st. Lancet.2014).
       - If DBP > 85mm, dating by HC and FL (Papageorghiou AT. IG 21st. UOG. 2016)
   - Check for proper fetal growth. Check the correlation of biometries with gestational age and between them in order to confirm the proportional and harmonious development of the foetus.
     - In those pregnant women for whom BPD is available from the 1st trimester ultrasound, and the second trimester ultrasound is performed between week 18-22, the growth percentile will be calculated. When a growth percentile < 10 is detected, the mean Pulsatility Index (PI) of the uterine arteries, the umbilical artery and the middle cerebral artery will be assessed. If a growth percentile < 10 is detected, an appointment will be made at the experienced reference hospital for growth monitoring.
     - As of week 24, the growth percentile will be calculated based on the estimated fetal weight (EFW) and fetal sex from the reference tables prepared in our population (*F. Figueras et al. Eur J Obstet Gynecol Reprod Biol 2008; 136: 20- 24*). If an EFW < the 10th percentile is detected, the mean PI of the uterine arteries, the umbilical artery and the

middle cerebral artery will be assessed and reported to the reference hospital's Growth Monitoring / IUGR Unit.

- Check the normal development of the different organs and systems and detect anatomical abnormalities of the foetus, placenta or the volume of amniotic fluid.
  - Attitude and fetal vitality
    - Check cardiac activity.
    - Fetal static. Fetal situation and position
    - Fetal dynamics. Presence of body and limb movements.
  - Fetal anatomical study
    - Head: Check skull size, morphology, integrity and density. It must be confirmed that the biometrics are correct, the skull is of oval morphology without protrusions or bone defects, with correct echogenicity, interrupted only by the sutures. Verification of the symmetry of the intracranial structures, location of the falx cerebri and identification of the normal arrangement of the cave of septum pellucidum and of the anterior horns of the lateral ventricles. Measurement of the lateral ventricles at the level of the atrium (less than 10 mm) and evaluation of the arrangement of the choroid plexus. Evaluation of the cisterna magna (less than 10 mm). Measurement of the transverse cerebellar diameter and identification of the vermis.
    - Face. Identification of orbits and eyeballs and subjective estimation of orbital distances. Verification of the integrity of the upper lip, nose, and evaluation of the fetal profile.
    - Neck. Evaluation of the contour and arrangement of the neck structures (thyroid and spine). Rule out the presence of masses.
    - Thorax. Verification of the integrity and morphology of the thorax, with correct size, shape and arrangement of the ribs. Evaluation of the ultrasound structure and pulmonary echogenicity, homogeneous, without masses or mediastinal displacement.
    - Heart. Basic echocardiography using two-dimensional ultrasound and application of colour Doppler. Check the situation and subjective estimation of the size of the heart in relation to that of the thorax. Analysis of the 5 basic planes: gastric chamber, 4 chambers, aortic outflow tract (5 chambers), pulmonary artery outflow tract and transverse cut at the level of the "V" in order to verify: symmetry of the ventricles and atria. Check the patency of the foramen ovale. Implantation of the mitral and tricuspid valves. Integrity of the interventricular septum. Subjective estimation of the diameters and crossing of the aorta and pulmonary artery and their relationship with the trachea. Check the direction of the flows in the transverse section at the level of the "V". Check the pulmonary venous return to the left atrium. Check that the heartbeat is regular and stable and the frequency within normal limits.
    - Abdomen. Confirmation of the visceral situs. Identification of the characteristics of the gastric chamber, liver and arrangement of the intrahepatic vessels, arrangement and echogenicity of the intestinal loops and integrity of the abdominal wall. Identification of the fetal insertion of the umbilical cord. Subjective evaluation of the structure of the cortex and renal parenchyma and estimation of

the anteroposterior diameter of the renal pelvis. Identification of the urinary bladder and the intrapelvic course of the umbilical arteries.

- Kidneys and bladder. Both kidneys must be identified with correct echogenicity, size and location, without significant pyelocalyceal dilatation. The bladder should always be identified during the examination. If necessary, the renal pelvis will be measured in the anterior-posterior direction, preferably with the back at 12 or 6 o'clock. The bladder will be measured in its longitudinal diameter.
- External genitalia. The correct morphology of the external genitalia must be evaluated.
- Identification of the four extremities. Check mobility. Confirm the integrity and arrangement of the 3 segments of each of them
    - Upper extremities: observe the opening of the hands and the presence of the 5 fingers
    - Lower extremities: check the characteristics of the sole of the foot, of the heels, and the orientation of the foot with the leg.
- Diaphragm. Identification of the integrity of both diaphragms in the longitudinal planes.
- Spine. Checking the integrity of the skin along the entire spine. Rule out the presence of scoliosis and identify the arrangement, ossification and integrity of the different vertebral segments in the 3 planes.

o Placenta and umbilical cord.
- Echotexture and thickness.
- Evaluation of the lower edge of the placenta and its relationship with the Internal Cervical Os (ICO). If the placenta is < 10 mm from the ICO, examine, using the transvaginal approach, and schedule the 3rd trimester ultrasound follow-up at around 32 weeks to confirm the diagnosis and adjust the recommendations. The specific 3rd trimester control will not be necessary in low-lying placentas, where the placenta is between 10-20mm from the ICO, due to the high probability of migration (more than 90%). (See specific chapter: Placental abnormalities)
- Evaluate the insertion of the umbilical cord, in order to rule out marginal or velamentous cord insertion.
- Verification of the number of vessels of the umbilical cord, two arteries and one vein, which are usually observed in their intra-abdominal course in the axial section at bladder level.

o Amniotic Fluid (AF).
- Subjective evaluation.
- If an increase or decrease in AF is suspected, the semiquantitative evaluation will be carried out using the Deepest Vertical Pocket (DVP). A DVP between 2 and 8 cm is considered normal. Oligohydramnios is considered when DVP is < 2 cm and polyhydramnios when DVP is > 8 cm. In the event of detecting AF anomalies, action will be taken according to the specific protocols.

o Chromosomal anomaly assessment. When an increased NT > 99th percentile is found in the first trimester, the patient will be referred to the preconception counselling clinic and specific care will be provided according to the protocol (see prenatal diagnosis protocols and increased NT in the first trimester). If a reversed flow in the ductus venosus is found, the nasal bone and the presence of tricuspid regurgitation must be assessed and an early fetal echocardiography will be performed. Then the patient must be referred to an antenatal counselling clinic (see prenatal diagnostic protocol).

- Although the routine study of chromosomal markers is not recommended, if any of the following markers are detected during the anatomical examination (20-22 weeks), a targeted search for the rest of the markers will be carried out in order to reassess the previously diagnosed risk of Down syndrome, calculated by the first or second trimester screening or by maternal age if the screening is not available (see prenatal diagnosis protocol). Markers to watch out for are:
  - Ventriculomegaly
  - Nuchal fold
  - Femur length
  - Humerus length
  - Hyperechogenic intracardiac focus
  - Pelvic ectasia
  - Aberrant right subclavian artery (ARSA)
  - Hypoplastic or absent nasal bone
  - Echogenic intestine: echogenicity superior to bone.
- Markers of evolutionary anomalies. Sometimes the presence of one of the following markers can signify the beginning of a progressive structural abnormality. Schedule successive ultrasound checks in the relevant departments in case of detecting:
  - Intracranial neural tube defects markers: banana and lemon sign without detecting a vertebral defect.
  - Markers of intracranial anomaly. See indications for neurosonography in the specific protocol.
  - Heart disease markers. See indications for echocardiography in the specific protocol.
  - Digestive pathology markers: Absence of gastric chamber, "double bubble", significant intestinal dilatation, intestinal hyper-reflectivity.
  - Nephro-urological pathology markers. Pyelic dilatation, increased renal echogenicity/borderline renal size, failure to identify one or both kidneys, identification of pelvic kidney, megabladder.
  - Presence of other anomalies.
  - Borderline amount of amniotic fluid.

3. RESULTS

a. Normal. Scheduling of the successive ultrasound control at around 37 weeks.
b. Incomplete. Scheduling of ultrasound control in 1-2 weeks to complete the examination of the structures evaluated with limitations or not evaluated, specifying in the report which structures are involved.
c. Inconclusive (suspected anomaly).
If ultrasound markers associated with anomalies that are not yet evident (evolving) or that may be transitory are detected, schedule the interval of the following controls, assess the possibility of requesting complementary examinations to complete the information: TORCH serologies (if markers associated with infections are detected), fetal chromosome study, echocardiography, neurosonography, and consider referring to the relevant departments.

d. Pathological. Refer to the relevant reference department. Schedule the corresponding complementary examinations to complete the information.

4. MEDICAL REPORT

a. General data. Reference to scan quality.
b. Results
c. Diagnostic suspicion
    - Conclusions
    - Establish plan and schedule new controls
d. Include reference to the limitations of ultrasound.
   The objective of this paragraph is to inform patients and the reference specialists of the limitations of the technique even in the most optimal circumstances and to avoid false expectations.