

## INFORMATION ABOUT THE REFERRAL SCAN

### **What is an ultrasound scan?**

Ultrasound scanning is an imaging technique allowing the visualization of parts of the body by using high-frequency sound waves (ultrasound, not audible by human ear) able to go through the tissues. When the sound waves reach the fetus, echoes are produced and transformed into images on the ultrasound machine screen.

### **What is a referral scan?**

A referral scan is performed by experts in fetal medicine in case of suspected fetal abnormality at a screening ultrasound scan or the risk when of fetal malformations is increased due to maternal history or conditions.

### **Which are the indications for a referral scan?**

The main indication for a referral scan is the presence of a suspicious or abnormal finding during the screening ultrasound scan, and/or an unclear or unknown finding in any fetal anatomical structure. Other indications could be maternal conditions or a previous history of fetal malformations, leading to an increased risk for fetal malformations in the current pregnancy.

### **Which are the differences between referral and screening ultrasound scan?**

The main differences are:

**1) Population:** the screening ultrasound scan is recommended for all the pregnant women, whereas the referral scan is recommended only for pregnant women considered to be at increased risk for fetal malformations.

**2) Aim:** the aim of the screening ultrasound scan is to suspect a fetal abnormality, whereas the referral scan is a "diagnostic" exam, with the aim to rule out or to confirm a specific fetal malformation.

**3) Operators:** the referral scan is performed by doctors experienced in the diagnosis and management of fetal malformations.

**4) How it is performed:** the referral scan often requires both trans-abdominal and trans-vaginal approach.

### **Is the ultrasound scan safe for the baby?**

Ultrasound has been used in obstetric practice for over thirty years and no harmful effects on the fetus, including long term, have been reported. For this reason, with the current procedures, the diagnostic use of ultrasound is considered safe during pregnancy.

### **When should a referral scan be done?**

If the indication to the referral scan is a suspected fetal abnormality, the scan must be performed as soon as possible at any gestational age. If the indication is a maternal or familiar disease,

conditions often present before pregnancy, the referral scan does not need to be performed urgently, but could be planned in advance. If there is no need to perform it earlier, the preferred gestational age is at 19-21 weeks of gestation (when the II trimester screening scan is routinely performed).

### **What happens if a fetal abnormality is not confirmed at the referral scan?**

If the fetal abnormality is not confirmed by the referral scan, no more additional exams are required, and the patient can carry on with the routine antenatal care program.

### **What happens if a fetal abnormality is confirmed or detected by the referral scan?**

If a fetal abnormality is diagnosed at the referral scan, the couple should receive detailed information on the pathological condition detected, and counseled about management options, including further investigations for a better definition of the fetal prognosis. Moreover, a multidisciplinary counseling should be also provided. It is a patient's right to seek for a second opinion and the Referral Center should be supportive and collaborative.

### **How accurate is the referral scan?**

The accuracy of the referral scan is higher than the screening scan, however there is high variability depending on the specific abnormality.

Limitations of the referral scan are:

- **Indication:** the accuracy is highly dependent to the indication for the referral scan.
- **Gestational age:** at earlier gestational ages, some fetal abnormalities are not detectable due to the small size of the fetus, or to their evolving nature, becoming visible later in pregnancy. On the other hand, at later gestational ages, it is more difficult for the ultrasound waves to get through fetal structures and the resulting ultrasound images can be less clear.
- **Evolving fetal abnormalities:** a group of fetal malformations can appear only in the last trimester of pregnancy or even after birth. This phenomenon could lead to miss a fetal abnormality, or change the diagnosis and prognosis during pregnancy.
- **Limiting factors:** the ability to detect an abnormality does not necessarily depend on the severity of the defect, but on its size and obviousness of modification of the ultrasound view due to the defect. Therefore, it is possible that some fetal malformations may not be detected prenatally, even if severe, due to the limitations related to the ultrasound technique. The accuracy of the scan may also be limited by: an unfavorable position of the fetus in the uterus, reduced amount of amniotic fluid and other factors such as abdominal scars, twins, fibroids, and poor ultrasound penetration through the maternal abdominal wall (a common condition in obese pregnant women).

Considering all the above-mentioned reasons, even if the referral scan shows normal fetal anatomy, congenital malformations cannot be certainly excluded.

**Can a fetal abnormality detected by the referral scan be not confirmed after birth?**

This is possible, especially for minor abnormalities. Moreover, it can also happen that some abnormalities may be transient and spontaneously resolve during pregnancy or after birth.

***INFORMED CONSENT TO THE REFERRAL SCAN***

***I hereby (name, surname) \_\_\_\_\_ declare that:***

- I have been correctly informed about the referral scan and understood the contents of this information.
- I had the opportunity of clarifying my doubts with a doctor and all my questions were satisfactorily answered.
- I agree to undergo the ultrasound examination, aware that some fetal conditions could be found at the referral scan and that this could lead to the need for multidisciplinary consultations and for further diagnostic tests.

***Date***

***Patient's signature***