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Original article

# Indications and Results of Obstetric Ultrasound in 392 Cases at the Fada N'Gourma Regional University Hospital (CHRU)

Indications et résultats de l'échographie obstétricale à propos de 392 cas au Centre Hospitalier Régional Universitaire (CHRU) de Fada N'Gourma

M Soro*[1], M Ilboudo[2], MAB Koutou[1], D Segda[1], A Barry[3], B Ouedraogo[4], JL Kambire[5]

**Résumé**

Introduction : L'échographie obstétricale constitue un outil essentiel du suivi prénatal, permettant d'évaluer le bien-être fœtal et de dépister les anomalies. Dans ce contexte, cette étude visait à décrire les indications et les résultats de l'échographie obstétricale au CHRU de Fada N'Gourma afin de caractériser les modalités de recours à cet examen.

Méthodologie : Il s'agissait d'une étude transversale descriptive rétrospective menée du 1er janvier au 31 mars 2026, incluant 392 femmes enceintes ayant bénéficié d'une échographie obstétricale.

Résultats : L'âge moyen était de 27 ans et l'âge gestationnel moyen de 30 semaines d'aménorrhée. Les indications étaient dominées par les douleurs pelviennes (44,13 %) et le bilan morphologique (30,87 %). Les résultats échographiques ont montré une prédominance de grossesses évolutives (95,66 %), avec une présentation céphalique dans 86,99 % des cas et des paramètres biométriques globalement conformes à l'âge gestationnel. Les anomalies placentaires étaient rares (3,82 %) et la quantité de liquide amniotique était normale dans 91,58 % des cas.

Conclusion : L'absence d'échographie précoce compromet l'accès optimal aux soins prénatals et conduit à une utilisation tardive de cet examen, le plus souvent en réponse à des manifestations cliniques. Ces résultats soulignent la nécessité d'adapter les stratégies de santé maternelle, notamment en renforçant l'accessibilité aux soins et en développant des approches innovantes pour le suivi des grossesses.

Mots-clés : échographie, Obstétrique, indications

**Abstract**

Introduction: Obstetric ultrasound is an essential tool in prenatal care, enabling the assessment of fetal well-being and the detection of anomalies. In this context, this study aimed to describe the indications and outcomes of obstetric ultrasound at

the Fada N'Gourma University Hospital in order to characterize the patterns of use of this examination.

Methodology: This was a retrospective descriptive cross-sectional study conducted from January 1 to March 31, 2026, involving 392 pregnant women who underwent an obstetric ultrasound.

Results: The mean age was 27 years, and the mean gestational age was 30 weeks of amenorrhea. The primary indications were pelvic pain (44.13%) and morphological assessment (30.87%). Ultrasound findings showed a predominance of normal pregnancies (95.66%), with cephalic presentation in 86.99% of cases and biometric parameters generally consistent with gestational age. Placental abnormalities were rare (3.82%), and amniotic fluid volume was normal in 91.58% of cases.

Conclusion: The lack of early ultrasound screening compromises optimal access to prenatal care and leads to delayed use of this examination, most often in response to clinical symptoms. These results highlight the need to adapt maternal health strategies, particularly by improving access to care and developing innovative approaches for pregnancy monitoring.

Keywords: ultrasound, Obstetrics, indications.

## Introduction

Prenatal surveillance is an essential element of maternal and fetal health, aiming to prevent complications and improve pregnancy outcomes [1]. Obstetric ultrasound, integrated into prenatal care, allows the evaluation of fetal vitality, dating of pregnancy, and early detection of anomalies [2]. It is recommended by the World Health Organization as a key examination during pregnancy [3]. However, in resource-limited countries, particularly in sub-Saharan Africa, its use remains insufficient due to constraints of accessibility, availability of equipment, and qualified personnel [4]. This low utilization is associated with an increase in maternal and neonatal complications [5]. Furthermore, data on the indications and results of obstetric ultrasound in hospital settings remain limited in several African contexts.

In this context, the analysis of prescription practices and obstetric ultrasound results appears essential to better guide pregnancy management strategies. This study thus aimed to describe the indications and main results of obstetric ultrasound at the CHRU of Fada N'Gourma.

## Methodology

This was a retrospective descriptive cross-sectional study conducted in the Department of Medical Imaging of the Fada N'Gourma Regional University Hospital (CHRU), located in the Goulmou region and also receiving patients from the Sirba and Tapoa regions of Burkina Faso, in a context marked by insecurity. Our study was carried out over a three-month period, from January 1 to March 31, 2026, and concerned all pregnant women who underwent an obstetric ultrasound during this period. Sampling was exhaustive and included all those meeting the inclusion criteria, for a total of 392 pregnant women. Those who had undergone an obstetric ultrasound with complete and exploitable data were included, while incomplete records or non-obstetric examinations were excluded. The variables studied included sociodemographic characteristics (maternal age), indications for ultrasound, fetal ultrasound parameters (number of fetuses, presentation, biometry, morphological anomalies, fetal vitality, evolution of pregnancy, gestational age) as well as characteristics of the adnexa (placenta and amniotic fluid). Data were collected from ultrasound reports using a standardized form. Data analysis was performed with Stata software version 16; quantitative variables were expressed as mean ± standard deviation and qualitative variables as frequencies and percentages. On an ethical level, the study was conducted after administrative authorization from the General Director of the CHRU of Fada, with respect for anonymity and confidentiality of data.

**Results**

A total of 392 pregnant women meeting our inclusion criteria underwent an obstetric ultrasound. The mean age was 27 years ± 3.2 years. The mean gestational age was 30 weeks of amenorrhea ± 2.1.
Table I presents the distribution of pregnant women according to the indications for obstetric ultrasound.
Regarding biometry, the mean biparietal diameter, abdominal circumference, and femur length were 77 mm ± 1.4, 262 mm ± 2.4, and 60 mm ± 1.2, respectively. The mean fetal weight was 1592 grams ± 23.
Table II presents the distribution of fetal characteristics.
Table III presents the distribution of ultrasound characteristics of the adnexa.

Table I: Distribution of pregnant women according to indications for obstetric ultrasound (n=392)

| Indications | Number (n=392) | Percentage (%) |
|---|---|---|
| Morphological assessment | 121 | 30.87 |
| Metrorrhagia | 12 | 3.06 |
| Pelvic pain | 173 | 44.13 |
| Absence of active fetal movements | 6 | 1.53 |
| Evolutionary control of pregnancy | 55 | 14.03 |
| Suspicion of arrested pregnancy | 8 | 2.04 |
| Others | 17 | 4.34 |

Table II: Fetal ultrasound characteristics (n=392)

| **Variables** | **Numbers (n=392)** | **Percentage (%)** |
|---|---|---|
| **Number of intrauterine fetuses** | | |
| 1 | 356 | 90.81 |
| 2 | 32 | 8.16 |
| More than 2 | 4 | 1.02 |
| **Fetal presentation** | | |
| Cephalic | 341 | 86.99 |
| Breech | 45 | 11.48 |
| Others | 6 | 1.53 |
| **Presence of fetal morphological anomaly** | | |
| Yes | 33 | 8.42 |
| No | 359 | 91.58 |
| **Active fetal movements** | | |
| Present | 375 | 95.66 |

Table III: Ultrasound characteristics of the adnexa (n=392)

| Variables | Numbers (n=392) | Percentage (%) |
|---|---|---|
| **Placental abnormalities** | | |
| Yes | 15 | 3.82 |
| No | 377 | 96.17 |
| **Amniotic fluid** | | |
| Normal | 359 | 91.58 |
| Hydramnios | 4 | 1.02 |
| Oligohydramnios | 29 | 7.40 |

## Discussion

In our study, the mean age of the patients was 27 years, which is consistent with the demographic profile of pregnant women in sub-Saharan Africa, characterized by a young population of reproductive age [6]. This result is consistent with that found by Kambou et al. in Burkina Faso, who showed that the mean age of obstetric ultrasounds performed at the Bogodogo University Hospital was 27.54 years (±6.19) [7]. The mean gestational age of 30 weeks of amenorrhea could reflect a relatively late recourse to obstetric imaging services. This finding is in agreement with several studies conducted in similar contexts, where late prenatal consultations are frequent due to socioeconomic and geographical constraints [8]. Similarly, Kambou et al. noted that the gestational age in 12.99% was greater than 37 weeks, while in 66.37% it was greater than 24 weeks of amenorrhea [7]. This difference could also reflect the specific constraints of the security context in the Goulmou region, where population displacement, insufficient healthcare provision in certain localities, and geographical access difficulties frequently lead to late recourse to prenatal consultations and complementary examinations, particularly obstetric ultrasound.

In the specific context of Goulmou in Burkina Faso, marked by persistent insecurity, obstetric ultrasounds are performed late, a few weeks before delivery or when a pregnancy complication occurs [9]. Thus, the profile observed in this study probably reflects the direct consequences of these constraints on access to prenatal care.

The indications for obstetric ultrasound were dominated by pelvic pain (44.13%), followed by morphological assessment (30.87%). Obstetric ultrasound is prescribed at different stages of pregnancy in order to confirm pregnancy, evaluate fetal vitality and growth, date gestation, screen for anomalies, monitor fetal position, and identify possible complications [10]. Kambou et al. found that the main indication was pre-eclampsia in 60.71% of cases. Furthermore, N'Scho et al. in Côte d'Ivoire found that the main indication was prenatal assessment in 69.4% [11]. This predominance of symptomatic indications suggests that ultrasound is mainly used as a diagnostic tool in response to clinical signs, rather than as a systematic screening examination. These differences could be explained by the characteristics of the studied

populations, the referral level of the health facilities, as well as the management contexts. While Kambou et al.'s study was conducted in a university hospital center receiving more high-risk pregnancies, N'Scho et al.'s study concerned a primary-level facility where ultrasounds were more integrated into prenatal follow-up. Conversely, in our context marked by insecurity and difficulties in accessing care, women often consult late, which favors the prescription of ultrasounds in the face of clinical manifestations rather than as part of systematic screening. Similar results have been reported in several African studies, where ultrasounds are often performed in the presence of suspected complications [12]. Gaudineau found that the main indications for ultrasound were the diagnosis of fetal presentation, confirmation of cephalic presentation, threat of preterm delivery, and multiple pregnancies [13]. In contexts of security fragility, this phenomenon is greatly accentuated by the irregularity of prenatal follow-up with limited performance of the ultrasounds recommended in the first and second trimesters [14]. Thus, our results suggest that obstetric ultrasound is more used as a diagnostic examination in the face of suspected complications than as a systematic screening tool during pregnancy [15]. From a programmatic standpoint, these results show that obstetric ultrasound remains primarily an examination of recourse rather than a preventive prenatal follow-up tool. They underline the need to strengthen its early integration into prenatal consultations, particularly in the first and second trimesters. In the context of insecurity, strengthening the capacities of peripheral structures and improving the referral system could promote earlier screening of obstetric complications.

The ultrasound results showed a predominance of ongoing pregnancies (95.66%) with a majority of cephalic presentations (86.99%), which is consistent with literature data [16]. Kambou et al. found that ongoing pregnancies, twin pregnancies, and pathological ultrasound pregnancies represented 97.49%, 2.72%, and 11.80% of cases, respectively [7]. The observed fetal biometric parameters were generally consistent with gestational age, reflecting satisfactory fetal growth. Furthermore, placental abnormalities were rare (3.82%) and the amount of amniotic fluid was normal in the majority of cases (91.58%), results comparable to those reported in other African studies [17]. In Burundi, Murekatete et al. found pathological ultrasound results in 64.45% [18]. This proportion, largely higher than that observed in our study, could be linked to differences in the profiles of included patients and recruitment criteria. The Burundian study concerned exclusively patients hospitalized in specialized services, likely to present more complicated pregnancies, while our study included all pregnant women referred for an obstetric ultrasound, regardless of their risk level.

Several reports have shown that security crises lead to disorganization of health systems, reduction in healthcare provision, and decreased attendance at health facilities, with late recourse to ultrasound and a predominance of symptomatic indications. These observations suggest that insecurity profoundly modifies the care pathway of pregnant women, transforming obstetric ultrasound from a preventive follow-up tool into a late diagnostic examination [9,19,20].

This study has the merit of providing original data on the profile of indications and results of obstetric ultrasound in a context of insecurity, still poorly documented in the literature. However, several limitations can be pointed out, notably the absence of certain relevant variables such as socioeconomic status, gravidity, parity, or the number of prenatal consultations, which were not systematically recorded in the ultrasound reports that served as the data source. Their absence did not allow us to explore certain factors likely to influence recourse to obstetric ultrasound. Prospective studies, based on more exhaustive data collection integrating these variables, will allow a better understanding of the determinants of obstetric ultrasound use in this context.

This study is likely to be affected by a selection bias, since it only concerned pregnant women who underwent an obstetric ultrasound at the CHRU of Fada N'Gourma. The results therefore reflect the profile of

users of this service and cannot be generalized to all pregnant women in the region, particularly those with limited access to care due to the context of insecurity. Despite these limitations, the results obtained highlight the need to adapt maternal health strategies to security contexts. It is therefore essential to strengthen access to prenatal care, particularly through the deployment of mobile services, training of health personnel in basic ultrasound [21]. These measures would contribute to improving pregnancy follow-up, promoting early detection of complications, and optimizing their management.

## Conclusion

This study highlights late recourse to obstetric ultrasound at the CHRU of Fada N'Gourma, characterized by essentially symptomatic indications despite predominantly reassuring ultrasound results. The majority of pregnancies were ongoing with generally reassuring ultrasound results. These results underline the need to adapt maternal health strategies in order to improve pregnancy follow-up in insecure areas.

## Author Contributions

All authors have read and approved the final version of the manuscript.

## Ethical and Deontological Considerations

We requested and obtained in advance the authorization of the senior managers of the CHRU of Fada before starting the study. Anonymity and confidentiality of the information collected were respected.

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***Correspondence**

SORO Mamadou

soromanes80@gmail.com

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1 : Department of Medical Imaging, Fada N'Gourma Regional University Hospital, Burkina Faso,
2 : Department of Planning, Hospital Information and Research, Fada N'Gourma Regional University Hospital, Burkina Faso,
3 : Department of Medical Imaging, Tengandogo University Hospital, Burkina Faso
4 : Department of Medical Imaging, Dori Regional Hospital, Burkina Faso.
5 : Department of General and Visceral Surgery, Fada N'Gourma Regional University Hospital.

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**Conflict of interest :** None

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