



Research Article

Overview of Pediatric Cranioencephalic Computed Tomography Examinations at the Ouahigouya Regional University Hospital Center, 2023-2024

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Abstract

Objective: To study the practice of cranio-encephalic computed tomography (CT) in children at the medical imaging department of the Ouahigouya Regional University Hospital Center, from January 1, 2023, to December 31, 2024. **Materials and Methods:** We conducted a descriptive cross-sectional study with retrospective data collection. The study ran from January 1, 2023, to December 31, 2024, at the medical imaging department of the Ouahigouya Regional University Hospital Center. **Results:** We included 403 reports. The sex ratio was 1.36. Mean patient age was 56.60 months. Most patients came from the health districts of Ouahigouya (78.61%). The main referring departments were neurosurgery (45.57%) and pediatrics (28.61%). The leading indications were head trauma (38.21%), delayed or regressing psychomotor development (14.39%), and seizures (14.14%). Mean radiation doses for the age groups under 1 year, 1 to 5 years, 5 to 10 years, and 10 to 15 years were 1121.67 mGy.cm, 1343.28 mGy.cm, 1431.04 mGy.cm, and 1525.65 mGy.cm, respectively. CT findings were abnormal in 61.79% of cases. The most common CT lesions were traumatic (24.56%), followed by malformative (16.87%) and degenerative (15.14%) findings. The indication matched the CT findings in 62% of cases. **Conclusion:** Radiation doses delivered to children were markedly higher than diagnostic reference levels. MRI, the preferred technique for pediatric brain imaging, deserves wider use.

Keywords

Computed Tomography, Child, Cranio-encephalic, Ouahigouya

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1. Introduction

Computed tomography (CT), also known as X-ray scanning or computer-assisted axial tomography, is a medical imaging technique. It measures X-ray absorption by tissue and processes the data digitally to reconstruct two- or three-dimensional images of anatomical structures [1, 2]. Before CT became available, diagnosis of pediatric cranio-encephalic disease relied mainly on transfontanellar ultrasound and skull radiography. Transfontanellar ultrasound is highly sensitive to fluid-filled or hemorrhagic central lesions but less sensitive to non-fluid white matter abnormalities [3]. Radiography detects skull bone lesions well but lacks sensitivity for intracranial lesions [4].

In Burkina Faso, CT scanning has been available since 1999, at the Yalgado Ouédraogo University Hospital Center (CHUYO) [5]. The country now has about thirty CT scanners across public and private facilities in different regions. The Ouahigouya Regional University Hospital Center received its first single-slice scanner in May 2013 [5]. This scanner was replaced in May 2021 by a 32-slice helical scanner, which now meets the diagnostic needs of the Yaadga region [6]. The North region has no MRI unit, so CT remains the only effective diagnostic tool for cranio-encephalic disease there. Its use has grown further under the free healthcare policy for children aged 0 to 5, which improves access [7].

Pediatric CT use raises several concerns and calls for caution because of X-ray exposure. Numerous studies have linked pediatric CT use to cancer risk [8, 9]. As a result, experts recommend reducing X-ray doses and using CT more judiciously in children. The ALARA principle (As Low As Reasonably Achievable), applied in developed countries, prioritizes ultrasonography and magnetic resonance imaging (MRI) for pediatric imaging [10, 11]. In our setting, however, MRI remains scarce and hard to access. The nearest MRI unit to Ouahigouya sits 180 kilometers away [12].

Several African studies have examined pediatric cranio-encephalic CT practice. These studies found radiation doses above international standards. This was the case in a study conducted at two imaging centers in Douala, Cameroon, by Mbozo'o Mvondo et al. [13], and in a study at two imaging departments in Lomé by Tchaou et al. [14]. In Burkina Faso, a study at Sourou Sanou University Hospital Center by Tankoano et al. [15] found radiation doses three times higher than international recommendations. A similar pattern, with doses twice as high as international recommendations, appeared in a study by Ouédraogo et al. [16] at the university hospital centers of Ouagadougou.

Given the variability in radiation doses observed across different regions of Burkina Faso and the absence of nationally established diagnostic reference levels (DRLs), we undertook this study to evaluate the practice of pediatric cranioencephalic CT in the Department of Medical Imaging of the Regional University Hospital Center of Ouahigouya over the period from January 1, 2023, to December 31, 2024.

2. Materials and Methods

2.1. Study Setting

This study was conducted in the Department of Medical Imaging of Ouahigouya Regional University Hospital Center, Burkina Faso. The department receives imaging requests from healthcare facilities throughout the Yaadga, Bankui, Sourou, and Soum regions, as well as from several border towns in neighboring Mali. The department operates a 32-slice helical CT scanner (Siemens Somatom Go Up 32).

The department began performing CT exams in May 2021. It operates continuously. Non-urgent CT exams run by appointment, Monday through Friday, from 7:30 a.m. to 5:30 p.m. For children under 5, CT scans take place on Thursdays, after a preanesthetic consultation clears the child for sedation. Emergency CT scans are available every day of the week, at any hour.

2.2. Study Design and Period

We conducted a descriptive cross-sectional study with retrospective data collection, over 24 months, from January 1, 2023, to December 31, 2024, at the medical imaging department of the Ouahigouya Regional University Hospital Center.

2.3. Study Population

The study included all children younger than 15 years who underwent cranioencephalic CT in the Department of Medical Imaging during the study period.

2.3.1. Sampling

A consecutive census sampling strategy was used, including all eligible pediatric patients who underwent cranioencephalic CT during the study period.

2.3.2. Inclusion and Exclusion Criteria

Inclusion criteria: Children younger than 15 years who underwent cranioencephalic CT at the Regional University Hospital Center of Ouahigouya between January 1, 2023, and December 31, 2024.

Exclusion criteria: Children younger than 15 years who underwent cranioencephalic CT during the study period, but whose radiology report or CT images were unavailable.

2.4. Data Collection and Sources

2.4.1. Data Collection Procedure

Data were extracted retrospectively from CT examination reports and the departmental CT examination register.

2.4.2. Data Collection Tools

We recorded data on a paper data extraction form. We then entered the form data digitally into Excel 2016 (French version) on a laptop computer. We analyzed the data with Stata 2019, after importing the database from Excel.

2.4.3. Data Sources

Data were obtained from the departmental CT examination registers, electronic CT reports, and archived CT images maintained by the Department of Medical Imaging of the Regional University Hospital Center of Ouahigouya.

2.5. Study Variables

The variables included:

- 1) Sociodemographic data: age and sex;
- 2) Administrative data: date of examination, referring health district, and referring clinical department;
- 3) CT examination characteristics: non-contrast CT, contrast-enhanced CT, and radiation dose (dose-length product);
- 4) Clinical indications for CT examination;
- 5) CT findings; and
- 6) Concordance between indication and CT findings.

2.6. Data Analysis and Processing

Data entry was performed using Microsoft Excel 2019, and statistical analyses were conducted using Stata version 2019.

Descriptive analyses were performed for all study variables. Categorical variables were summarized as frequencies and percentages, whereas continuous variables were expressed as means and standard deviations.

The concordance between the clinical indication and CT findings was also assessed.

2.7. Ethical Considerations

Authorization to collect study data was obtained from both the Head of the Department of Medical Imaging and the Director General of Ouahigouya Regional University Hospital Center.

Patient confidentiality was strictly maintained throughout the study. Data collection forms were anonymized, and all collected information was handled in accordance with applicable ethical and professional standards.

3. Results

The Ouahigouya Regional University Hospital Center performed 545 cranio-encephalic CT scans in children during the study period. We had access to 403 of these reports, or 74% of cases.

3.1. Data Collection and Sources

3.1.1. Patient Age

Mean patient age was 56.60 months, ranging from 0 days to 168 months (14 years). The standard deviation was 55.51 months. The [0-60 month] age group accounted for 260 cases (64.52%). Table 1 summarizes patients by age group.

Table 1. Patients by age group.

Age (months)	Count	Frequency (%)
[0-60]	260	64.52
[60-120]	76	18.85
[120-168]	67	16.63
Total	403	100

3.1.2. Sex

Our study population included 230 male patients (57.03%) and 173 female patients (42.93%). The sex ratio was 1.32.

3.2. Radiation Dose

The mean radiation dose was 1246.99 mGy.cm, ranging from 315 mGy.cm to 5815 mGy.cm. The standard deviation was 740.80 mGy.cm. Table 2 shows the mean radiation dose by age.

Table 2. Mean radiation dose by age.

Age (months)	Mean radiation dose (mGy.cm)
[0-12]	1121.67
[12-60]	1343.28
[60-120]	1431.04
[120-148]	1525.65

3.3. Contrast Use

We used contrast in 226 cases (56.07%) and did not use it in 177 cases (43.92%).

3.4. Indications for CT Scanning

The leading indications for cranio-encephalic CT were head trauma (154 cases, 38.21%), delayed or regressing psychomotor development (58 cases, 14.39%), and seizures (57 cases, 14.14%). Table 3 shows cases by indication.

Table 3. CT scans by indication.

Indication	Count (n=451)	Frequency (%)
Head trauma	154	38.21
Delayed or regressing psychomotor development	58	14.39
Seizures and epilepsy	57	14.14
Macrocrania	31	7.69
Abnormal transfontanellar ultrasound	29	7.20
Signs of cerebral infection	28	6.95
Malformation workup	21	5.29
Postoperative evaluation	13	3.23
Altered consciousness	13	3.23
Suspected meningitis sequelae	11	2.73
Localized head swelling or collection	9	2.23
Suspected severe malaria sequelae	8	1.99
Ophthalmologic and ENT disorder evaluation	8	1.99
Microcephaly	4	0.99
Headache	4	0.99
Other*	3	0.74

* Right hemibody motor deficit (1), abnormal EEG pattern (1), workup for neonatal distress (1).

3.5. CT Findings

CT findings were normal in 139 cases (34.49%) and showed lesions in 249 cases (61.79%). Findings were equivocal in 15 cases (3.72%), which prompted a follow-up exam in all cases.

3.5.1. Follow-Up Exams for Equivocal Findings

For equivocal findings, MRI was recommended in 11 cases. Table 4 shows cases by recommended follow-up exam.

Table 4. Cases by recommended follow-up exam.

Exam	Count
MRI	11
CT with contrast	2
Histological exam	1
EEG	1
Total	15

3.5.2. Types of Pathologies Observed

The most common findings were traumatic, malformative,

and degenerative pathology, in 99 cases (24.59%), 68 cases (16.87%), and 61 cases (15.14%), respectively. Table 5 shows cases by pathology type.

Table 5. Cases by CT pathology type.

Pathology type	Count (n=260)	Frequency (%)
Traumatic	99	24.59
Malformative	68	16.87
Degenerative	61	15.14
Infectious	17	4.47
Tumoral	13	3.23
Vascular	2	0.5

Some patients had multiple or combined lesions.

(i). Traumatic Pathologies

Traumatic lesions were dominated by facial bone fractures (31 cases, 31.31%) and depressed skull fractures (25 cases, 25.25%). Table 6 shows cases by type of traumatic lesion.

Table 6. Cases by type of traumatic lesions.

Lesion type	Count (n=173)	Frequency (%)
Facial bone fracture	31	31.31
Depressed skull fracture	25	25.25
Linear skull fracture	24	24.24
Pneumocephaly	21	21.21
Soft tissue contusion	20	21.21
Subarachnoid hemorrhage	18	18.18
Acute subdural hematoma	11	11.11
Cerebral contusion	8	8.08
Epidural hematoma	4	4.04
Suture diastasis fracture	3	3.03
Acute intraparenchymal hematoma	3	3.03
Spinal fracture	3	3.03
Chronic subdural hematoma	1	1.01
Intraventricular hemorrhage	1	1.01

Some patients had multiple or combined lesions.

(ii). Malformative Pathologies

Hydrocephalus was the most common malformative finding (42 cases, 61.76%). Table 7 shows cases by type of malformative pathology.

Table 7. Cases by type of malformative pathologies.

Pathology	Count (n=70)	Frequency (%)
Hydrocephalus	42	61.76
Hydranencephaly	5	7.35
Corpus callosum and cavum agenesis	4	5.88
Schizencephaly	3	4.41
Dandy-Walker malformation	3	4.41
Ventricular ectasia	3	4.41
Meningoencephalocele	3	4.41
Holoprosencephaly	3	4.41
Myelomeningocele	2	2.94

Pathology	Count (n=70)	Frequency (%)
Other*	4	5.88

* Cortical dysplasia (1), isolated ventricular enlargement (1), micro-lissencephaly (1), microcephaly without parenchymal abnormality (1).

(iii). Degenerative Pathologies

Cerebral atrophy was the most common degenerative finding (53 cases, 86.88%). Table 8 shows cases by type of degenerative pathology.

Table 8. Cases by type of degenerative pathologies.

Pathology	Count (n=88)	Frequency (%)
Cerebral atrophy	53	86.88
Porencephalic cavity	13	21.31
Hypoxic-ischemic encephalopathy	8	13.11
Encephalomalacia	6	9.83
Leukomalacia	5	8.19
Hemispheric sequelae	2	3.27
Leukoaraiosis	1	1.63

(iv). Infectious Pathology

Meningoencephalitis was the most common infectious finding (7 cases). Table 9 shows cases by type of infectious pathology.

Table 9. Cases by type of infectious pathologies.

Pathology	Count (n=18)
Meningoencephalitis	7
Cerebral empyema	4
Cerebral abscess	3
Encephalitis	2
Meningitis	2

(v). Tumoral Pathology

Extra-parenchymal intracranial tumors were the most common tumoral finding (7 cases). Table 10 shows cases by type of tumoral pathology.

Table 10. Cases by type of tumoral pathology.

Pathology	Count (n=14)
Extra-parenchymal intracranial tumor	7
Intra-parenchymal intracranial tumor	4
Fontanelle epidermoid cyst	1
Parotid tumor mass	1
Scalp tumor	1

(vi). Vascular Pathology

We found two cases of hemorrhagic stroke.

3.6. Effects of Lesions on the Brain Parenchyma

Intracranial lesions had a downstream impact in 22 cases

(5.46%). Transependymal resorption (8 cases) and subfalcine herniation (7 cases) were the main types of impact. Table 11 shows cases by type of impact.

Table 11. Cases by type of intracranial lesion impact.

Impact	Count
Transependymal resorption	8
Subfalcine herniation	7
Mass effect	4
Cerebral edema	2
Cerebral thinning	1
Total	22

3.7. Concordance Between Indication and CT Findings

The initial indication matched the CT findings in 248 cases (62%), while 152 cases (38%) showed discordance. Table 12 shows indications by concordance and discordance.

Table 12. Indications by concordance and discordance.

Indication	Match	Count	Percentage (%)
Seizures (n=57)	Yes	29	50.87
	No	28	49.12
Delayed or regressing psychomotor development (n=58)	Yes	40	68.96
	No	18	31.03
Signs of cerebral infection (n=28)	Yes	14	50
	No	14	50
Macrocrania (n=31)	Yes	30	96.77
	No	1	3.22
Abnormal transfontanellar ultrasound (n=29)	Yes	19	65.51
	No	10	34.48
Localized head swelling or collection (n=9)	Yes	9	100
	No	0	0
Ophthalmologic and ENT disorder evaluation (n=8)	Yes	4	50
	No	4	50

4. Discussion

4.1. Limitations

We identified certain limitations linked to the retrospective, descriptive nature of our study.

Of 545 cranio-encephalic CT scans performed during the study period, only 403 reports were available, a 26% rate of missing data. Not every child with clinical findings that might have warranted a CT scan underwent one. Burkina Faso's national policy of free care for children aged 0 to 5 made CT scanning more accessible for this age group than for others in our study population. These factors exposed our study to selection bias.

Because our study was retrospective, some variables had missing or incomplete data, which exposed our study to information bias.

4.2. Sociodemographic Characteristics

The 0-to-5-year age group accounted for 64.52% of cases. Several studies conducted in Burkina Faso found a similar predominance of the 0-to-5-year age group: Ouédraogo et al. in Ouagadougou in 2023 [17], Ouédraogo et al. [16] in Ouagadougou in 2024, and Tankoano et al. [15] in Bobo-Dioulasso in 2018, reported proportions of 81.03%, 86.41%, and 60%, respectively.

The high proportion of children aged 0 to 5 likely reflects the free healthcare policy in effect in Burkina Faso since 2016 for this segment of the pediatric population [7].

Male sex predominated, with a sex ratio of 1.32. Our results align with those of N'Goan-Domoua et al. [18] in Côte d'Ivoire in 2013, Konaté et al. [19] in Mali in 2020, and Ouédraogo et al. in Ouagadougou in 2023, who found a male predominance with sex ratios of 2.03, 1.46, and 1.35, respectively. Similar results appeared for non-traumatic cases in Burkina Faso, in studies by Yanogo et al. [20] in Ouagadougou in 2022 and Ouédraogo et al. [16] in Ouagadougou in 2024, which reported sex ratios of 1.46 and 1.26, respectively.

Our results are consistent with national demographic data. The results of Burkina Faso's fifth general population and housing census found a male predominance in the 0-to-14-year age group [21].

4.3. Contrast Use

We used contrast in 56.07% of cases. This proportion is lower than the 79.25% reported by Ouédraogo et al. [16] in Ouagadougou in 2024, whose study focused on non-traumatic pediatric cranio-encephalic CT scans. This difference may reflect the fact that about a third of the cases in our study involved traumatic pathology, which generally does not require contrast injection. Radiologists weigh the initial clinical context together with findings on non-contrast images. Given the unavailability of MRI in our setting, contrast-enhanced CT

serves as an alternative.

4.4. Radiation Dose

In our study, the mean radiation dose for children under 1 year, 1 to 5 years, 5 to 10 years, and 10 to 15 years was 1121.67 mGy.cm, 1343.28 mGy.cm, 1431.04 mGy.cm, and 1525.65 mGy.cm, respectively. According to the literature, DRLs for cranio-encephalic CT vary across countries and age groups. In the absence of established national DRLs, we compared our mean dose length products with French DRL recommendations. Radiation doses delivered to children in our study were markedly higher than the French DRLs for the brain, which are 320 mGy.cm for children 0 to 1 year, 360 mGy.cm for those 1 to 5 years, and 470 mGy.cm for children 5 to 10 years [22].

Our results were similar to those of Tankoano et al. in Bobo-Dioulasso in 2019, Ouédraogo et al. in Ouagadougou in 2024, and Ouédraogo et al. in Ouagadougou in 2023, who also found radiation doses above the French DRLs across all age groups.

These results may reflect, on one hand, multiple acquisitions during exams, which can increase the delivered dose, and on the other, the technical characteristics and acquisition protocols of the CT equipment, which may not be optimized for radiation protection.

4.5. Indications for CT Scanning

The leading indications for cranio-encephalic CT were head trauma (38.21%), delayed or regressing psychomotor development (14.39%), and seizures (14.14%). Our results are similar to those of Ongolo-Zogo et al. [23] in Cameroon in 2012 and Tchaou et al. [14] in Togo in 2016, who also found head trauma to be the leading indication for CT, in 22.8% and 17.31% of cases, respectively. This predominance of head trauma as an indication in our series may reflect the high frequency of falls and road traffic accidents in the pediatric population in our setting [24].

Delayed or regressing psychomotor development and seizures were the leading indications among non-traumatic cases. Our results are similar to those of Ouédraogo et al. [16] in Ouagadougou in 2023 and Tankoano et al. [15] in Bobo-Dioulasso in 2018, who reported similar findings, with seizures accounting for 19.26% and 18.33% of cases, respectively. The proportions for delayed or regressing psychomotor development in Ouédraogo et al. and Tankoano et al. were 31.10% and 17.22%, respectively. This trend may largely reflect low uptake of prenatal and postnatal care in our setting, according to the Burkina Faso Ministry of Health's 2024 statistical yearbook [25]. Low prenatal care attendance in the North region deprives pregnant women of early screening and management of obstetric conditions that can impair fetal neurological development. Likewise, after delivery, inadequate postnatal monitoring limits the detection of neonatal complications. These factors can all lead to motor sequelae, psychomotor delay, and epilepsy.

4.6. CT Findings

CT scans showed lesions in 61.79% of cases. These results are comparable to those of Ongolo-Zogo et al. [23] in Cameroon in 2012 and Amadou et al. [26] in Togo, who reported CT abnormalities in 67.2% and 69.67% of cases, respectively.

Findings were equivocal in 3.72% of cases, which prompted a follow-up exam in every case. MRI was the most frequently recommended follow-up exam, in 11 of 15 cases. A similar pattern appeared in the study by Ouédraogo et al. [16] in Ouagadougou, where MRI was recommended in 83.33% of equivocal cases.

These findings underscore the need for MRI in brain imaging. MRI is the preferred exam for evaluating the brain outside the setting of acute trauma, according to international guidelines, given its greater sensitivity and lack of radiation exposure [27].

Traumatic lesions were the most common finding, in 24.59% of cases, followed by malformative pathologies, in 16.87% of cases. Other authors have reported a similar predominance of these two pathology types. Traumatic and malformative pathologies appeared in studies by Nkole Aboughe et al. [28] in Gabon in 2021 and N'Goan-Domoua et al. [18] in Côte d'Ivoire in 2013, in 33% and 63.5%, and 18.8% and 23.6% of cases, respectively.

Bone lesions were the most common traumatic finding. Facial bone fractures, depressed skull fractures, and linear skull fractures occurred in 31.31%, 25.25%, and 24.24% of cases, respectively. This pattern echoes findings from Markovic et al. [29] in Belgrade in 2025, Dambatta et al. [30] in Nigeria in 2019, and N'Goan-Domoua et al. [18] in Côte d'Ivoire in 2013, who found fracture lesions predominated, in 46%, 38.9%, and 28.6% of cases, respectively.

Pneumocephaly and subarachnoid hemorrhage were the most common intracranial lesions, in 21.21% and 18.18% of cases, respectively.

In a systematic review conducted in Africa by Gupta et al. [31], bone lesions and cerebral contusions were the most common findings, in 28.32% and 16.77% of pediatric head trauma cases, respectively.

Hydrocephalus accounted for most malformative pathology, in 61.76% of cases. This finding is consistent with studies by Nkole et al. [28] in Gabon in 2021, N'Goan-Domoua et al. [18], and Ouédraogo et al. [16], who reported a high frequency of hydrocephalus, in 71.2%, 83.33%, and 70.12% of cases, respectively. This predominance of hydrocephalus may reflect insufficient prenatal follow-up and limited prevention of central nervous system malformations. According to the Burkina Faso Ministry of Health's 2024 statistical yearbook, fewer than 45.3% of pregnant women received a first-trimester prenatal consultation [25]. These consultations provide an opportunity for folic acid supplementation, which has proven effective at preventing neural tube defects in numerous studies [32]. However, this supplementation, which works best when

started at conception, is often initiated too late and is not sufficiently effective at preventing neural tube defects.

Cerebral atrophy was the most common degenerative finding (61.76%). This pattern appeared in studies by Amadou et al. [26] in Togo in 2017 and Ouédraogo et al. [16] in Ouagadougou in 2024, who reported cerebral atrophy predominance in 40.52% and 46.54% of cases, respectively. Cerebral atrophy is defined as a loss of cerebral parenchymal volume relative to age norms. Although more common in older people, it also occurs in children. Reported causes of decreased cerebral parenchymal volume include birth asphyxia, trauma, infection, malnutrition, cytotoxic drugs, and radiation injury [33].

Meningoencephalitis was the leading infectious finding, in 38.88% of cases. A similar pattern appeared in studies by Ouédraogo et al. [16] in Ouagadougou in 2024 and Amadou et al. [26] in Togo in 2017, who reported meningoencephalitis predominance in 36.17% and 50% of cases, respectively.

Several factors may explain these findings. Burkina Faso lies within the Lapeyssonnie meningitis belt, an area of endemic meningitis [34]. In addition, meningitis vaccine coverage remains insufficient in our country, despite the introduction of the MenAfriVac vaccine in Burkina Faso in 2010 [35].

Intracranial tumors in our study were extra-parenchymal in half of cases. Our results are similar to those of Amadou et al. [26] in Lomé in 2017, who also found extra-parenchymal intracranial tumors in 50% of cases. In our setting, CT is the first-line exam for cranial tumor diagnosis, given its cost and availability. It has high sensitivity for detecting extra-parenchymal tumors, such as meningiomas and schwannomas, as well as tumors arising from adjacent brain structures. However, CT has limitations in characterizing and detecting some intra-parenchymal tumors. MRI remains the preferred exam for diagnosing intracranial tumors, given its superior tissue resolution [36].

Stroke occurred in 0.5% of cases. A similar pattern appeared in the study by Ouédraogo et al. [16], who found vascular pathology in 1.78% of cases. Likewise, the incidence of pediatric stroke in France is low, at an estimated 3 cases per 100,000 children. These results reflect the rarity of vascular pathology, particularly stroke, in children [37].

4.7. Concordance Between Indication and CT Findings

In our series, radiologic-clinical concordance occurred in 60.30% of cases. Our result falls slightly below that of Tchaou et al. [14] in Togo in 2016 and Tankoano et al. [15] in Bobo-Dioulasso in 2018, who reported concordance rates of 77% and 78.33%, respectively.

These results illustrate the limits of evaluating cranio-encephalic pathology in children, since clinical presentations are sometimes nonspecific, which makes the initial diagnostic orientation uncertain.

5. Conclusions

In our study, most patients who underwent cranio-encephalic CT were under 5 years old. Most patients came from the Ouahigouya health district. Nearly all prescriptions originated at the Ouahigouya Regional University Hospital Center, mainly from the neurosurgery and pediatrics departments.

Head trauma was the leading indication for CT scanning, followed by delayed or regressing psychomotor development and seizures.

Radiation doses delivered to children were markedly higher than diagnostic reference levels. Most CT scans showed abnormalities, and the pathology observed was dominated, in order of frequency, by traumatic lesions, congenital malformations, and degenerative disorders.

The initial indication matched the CT findings in most cases.

Abbreviations

CT	Computed Tomography
MRI	Magnetic Resonance Imaging
DRLs	Diagnostic Reference Levels

Author Contributions

Milckisedek Judicael Marouruana Some: Conceptualization, Data curation, Formal Analysis, Methodology, Validation, Writing – original draft

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Nina-Astrid Ouedraogo: Supervision

Data Availability Statement

The data supporting the outcome of this research work has been reported in this manuscript.

Conflicts of Interest

The authors declare no conflicts of interest.

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