

**EPIDEMIOLOGY AND MANAGEMENT OF UTERINE FIBROIDS IN PATIENTS OF THE
TEACHING HOSPITAL OF COCODY-ABIDJAN****Bleu Gomé Michel^{1*}, Loué Védi André², Zougrou N'Guessan Ernest³, Kossonou Kossia Eugénie³ and
Kouakou Koffi³**¹Unit of Physiology, Department of Biodiversity and Sustainable Management of Ecosystems, Environmental Training and Research Unit, Jean Lorougnon Guédé University, Daloa, Côte d'Ivoire.²Departement of Gynaecology and Obstetrics, Teaching Hospital of Cocody, Medical Sciences Training and Research Unit, Félix Houphouët-Boigny University, Abidjan, Côte d'Ivoire.³Teaching and Research Unit of Endocrinology and Biology of Reproduction, Biosciences Training and Research Unit, Félix Houphouët-Boigny University, Abidjan, Côte d'Ivoire.***Corresponding Author: Dr. Bleu Gomé Michel**

Unit of Physiology, Department of Biodiversity and Sustainable Management of Ecosystems, Environmental Training and Research Unit, Jean Lorougnon Guédé University, Daloa, Côte d'Ivoire.

Article Received on 15/10/2022

Article Revised on 05/11/2022

Article Accepted on 25/11/2022

ABSTRACT

Uterine fibroids are a public health problem affecting women worldwide. The objective of this work was to carry out an epidemiological study of uterine fibroids and their management in patients of the teaching hospital of Cocody-Abidjan. It was a retrospective descriptive and analytical study which concerned 145 women carrying uterine fibroids. Data were collected from the register, patient files and operative reports and recorded on survey forms which included sociodemographic characteristics, medical and surgical history, gynaeco-obstetric history, reasons for consultation, clinical examinations and treatments. Results showed that the prevalence of uterine fibroids in this hospital was 2.4%. The age range 30-45 years and the blood group O⁺ were the most affected in women with the rates of 67.6% and 43.8% respectively. High blood pressure (15.9%) and myomectomy (7.5%) were mainly recorded concerning the medico-surgical history while gynaeco-obstetric history revealed the predominance of nulliparous (42.1%) and caesarean section (57.9%) for childbirth. The reason for consultation included genital haemorrhage dominated by metrorrhagia (64.5%) and complications such as anaemia (42.1%), pelvic pain (13.5%) and abdominal pain (9.2%). The majority of patients underwent ultrasound (97.9%) which showed that patients presenting a polymyomatous uterus (76.5%) and those with submucosal fibroids (39.7%) predominated. For the treatment, progestins were the most prescribed drugs (43.9%) and myomectomy was the preferred surgical treatment (50.6) for patients. Intraoperative bleeding was the main complication of surgical interventions (53.8%) which required blood transfusion. In conclusion, uterine fibroids affect the quality of life of women and measures must be taken by the public authorities for better management of this disease.

KEYWORDS: uterine fibroids, epidemiology, genital haemorrhage, treatment, myomectomy.**INTRODUCTION**

Uterine pathology is a major health problem in human populations, often the cause of women infertility and even sterility in many lifetimes.

Leiomyoma, commonly known as myoma or uterine fibroid, is the most common benign tumor in women of childbearing age.^[1] It affects 20 to 40% of women over 35.^[2,3] Usually small, ranging from a few millimeters to a few centimeters, leiomyomas are most often asymptomatic and symptoms only appear in 35 to 50% of patients with this disease.^[4]

Uterine fibroids are currently the most common indication globally for having a hysterectomy.^[5,6] They are more frequent in black women than in white women and represent respectively 1/3 and 1/5 of uterine

conditions in these two races.^[7,8,9] In Canada, they account for 30% of all hysterectomies, the second most common surgeries in women after caesarean section.^[10]

In the literature, few researchers have been interested in the epidemiology of fibroids, in particular its distribution in the population, its frequency, its impact and its cost in public health in Africa. Diagnosis is often late in this continent, at the stage of symptomatic polymyomatosis of the uterus and in this case, menorrhagia, metrorrhagia, menometrorrhagia, pelvic pain and infertility are the main reasons for gynaecological consultations.^[11,12,13] Inaccessibility to qualified health personnel and to ultrasound, which is the main examination for the detection of fibroids, is believed to be the cause of these late diagnoses. However, the pathophysiology of this disease is still not known although multiple hypotheses

are currently being made, the theory of hyperestrogenism prevailing every time.^[4,14,15]

Since uterine fibroids can have serious repercussions on quality of life and socio-economic conditions of women in Africa due to its high frequency and various complications, a more current study is important in order to better attract the attention of the Ivorian population and decision-makers on the extent and dangers of this disease.

Thus, the objective of this work was to carry out an epidemiological study of uterine fibroids and their management in patients of the gynaecology and obstetrics department of the teaching hospital of Cocody - Abidjan.

MATERIAL AND METHODS

Study site

The study was carried out in the department of gynaecology and obstetrics of the teaching hospital of Cocody in Abidjan, the economic capital city of Côte d'Ivoire. This department is consisted of 5 units: The delivery room, the gynaecological and obstetrical emergency unit, two surgical units (one for the programmed surgical interventions and one for obstetric surgical emergencies), the 56-bed inpatient unit and the outpatient unit.

Study Population

This population consisted of 145 women with uterine fibroids aged 20 to 66 years old, and distributed as follows:

- Patients who came on their own to the department for cases of complications;
- Patients evacuated or referred from other health centres of the country for better management.

Inclusion criteria

Any patient admitted to the gynaecology and obstetrics department and carrying uterine fibroid, whether or not associated with other pathologies and whatever the indication was included in this study.

Exclusion criteria

All patients without uterine fibroids in the gynaecology and obstetrics department were excluded. It was also excluded patients with files completely devoid of information as well as those whose files could not be found.

Type of study

This was a retrospective descriptive and analytical study with data collection on all patients with uterine fibroids admitted to the gynaecology and obstetrics department who received medical or surgical treatments from January 1, 2020 to August 31, 2021. This study involved 145 patients' charts. The information was recorded and analysed over a period of approximately three months, from September 04 to December 07, 2021.

Data collection

For this study, information was collected from the register, patient files and operative reports, then recorded on survey forms which included the following parameters:

- The identity of the patients;
- Sociodemographic characteristics;
- Medical and surgical history;
- Gynaeco-obstetric history;
- The lifestyle;
- Reasons for consultation;
- Clinical examinations;
- The treatments.

Data analysis

The parameters were analysed by descriptive statistics in SPSS (Soft Package Social Sciences) software version 25 and Excel 2013 software. Data were presented as mean \pm standard error on the mean. The p value was used to assess the significance of the difference between the means. This difference was significant if $p < 0.05$, highly significant if $p < 0.01$ and non-significant for $p > 0.05$.

RESULTS

Prevalence of fibroid

During the period from January 1, 2020 to August 31, 2021, the gynaecology and obstetrics department of the teaching hospital of Cocody recorded 5,982 files. Among these files, 145 patients were carriers of uterine fibroids, which corresponds to a prevalence of 2.42%.

Sociodemographic characteristics of patients

Age of patients

The minimum age of the patients was 20 years and the maximum age 66 years with an average of 39.47 ± 0.68 years. The dominant age group of patients in this study was 30-45 years with a rate of 67.6% and the lowest rate of 4.1% was for the age group over 55 (Figure 1).

Profession

Among the 145 fibroid carriers, 32 were employed (26.2%) against 113 women in the informal sector (housewives, household helpers, shopkeepers, students and artisans) representing a total percentage of 73.8%.

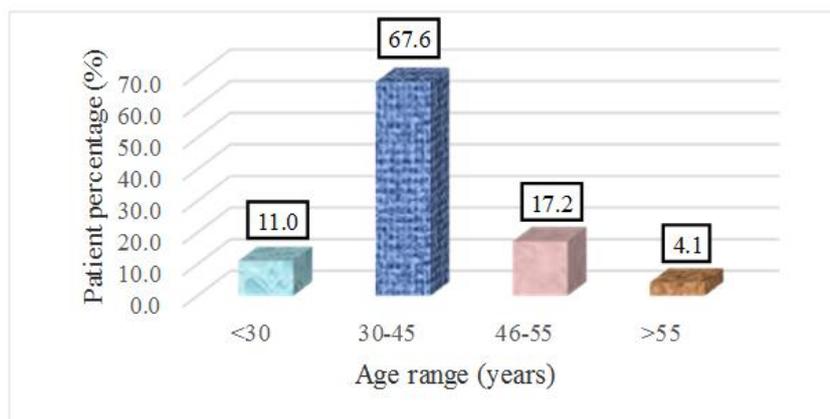


Figure 1: Distribution of patients according to age groups.

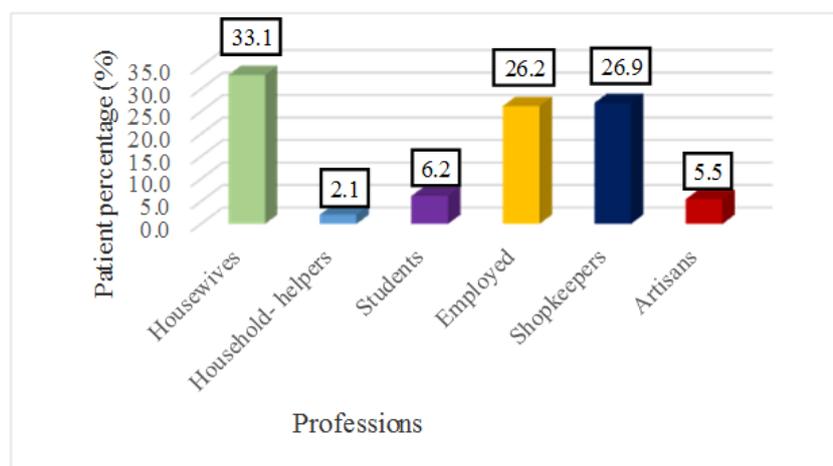


Figure 2: Distribution of patients according to profession.

Ethnic group

The Baoulé ethnic group was the most represented in this study with a frequency of 26.5% followed by the Agni (15.7%) and Attié (10.8%) ethnic groups. The Abron, Ebrié, Godié, Koyaka, Wobè, Koulango and Yorouba ethnic groups were the least represented with a rate of 1.2% each (Figure 3).

Blood group

In our study, patients with blood group O⁺ were the most represented (43.8%) while those with group B⁻ were the least represented (0.8%) (Figure 4).

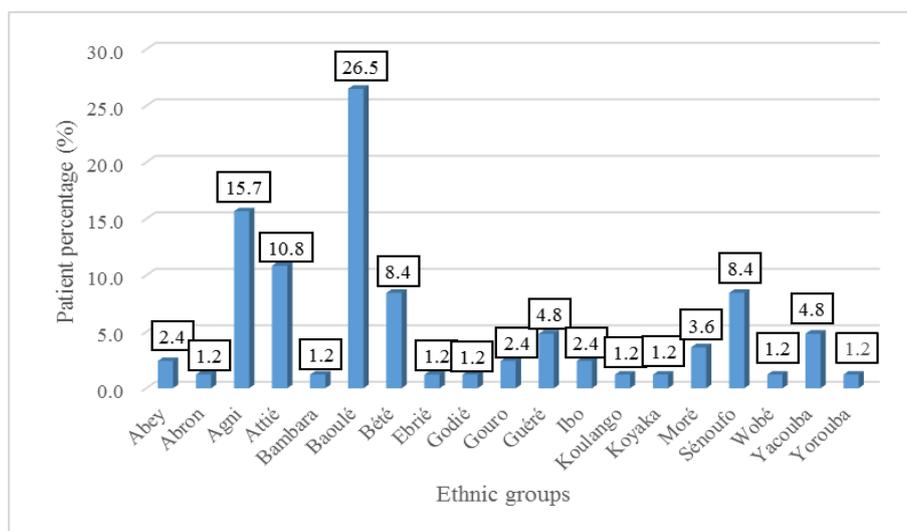


Figure 3: Distribution of patients according to ethnic groups.

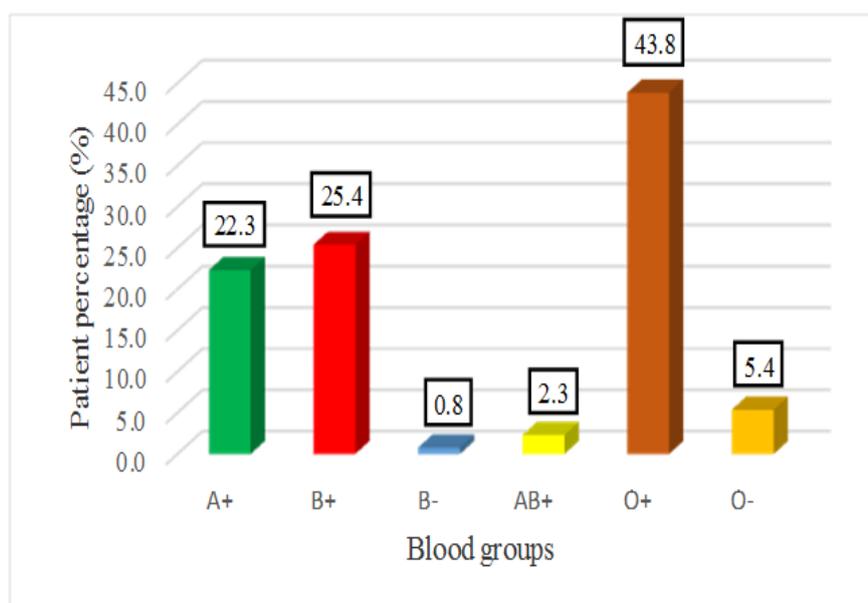


Figure 4: Distribution of patients according to blood groups.

Admission procedures

The results showed three modes of admission of patients which are: evacuees, referrals and those who came on their own. The predominant mode was that of evacuees (41.7%), followed by those who came on their own (36.8%) and finally 21.5% of referrals.

Medical and surgical history

Among the 145 patients with fibroma, 45 of them (31.0%) presented a medical history dominated by high blood pressure (15.9%) and 26 patients (17.9%) had a surgical history of which myomectomy (7.5%) was the most important. The remaining 74 women (51.0%) had no history (Table 1).

Table 1: Distribution of patients according to medical and surgical history.

| Type of history | History | Patients (n=145) | Total |
|-----------------|---------------------|------------------|------------|
| Medical | High blood pressure | 23 (15.9%) | 45 (31.0%) |
| | Diabetes | 6 (4.1%) | |
| | Other | 16 (11.0%) | |
| Surgical | Myomectomy | 11 (7.5%) | 26 (17.9%) |
| | appendectomy | 5 (3.4%) | |
| | Hysteroscopy | 3 (2.0%) | |
| | Salpingectomy | 2 (1.3%) | |
| | cystectomy | 2 (1.3%) | |
| | other | 3 (2.0%) | |
| No history | - | 74 (51.0%) | 74 (51.0%) |

Gynaeco-obstetric history

The mean gravidity in this study was 2.64 ± 0.04 with extremes of 0 to 8. Multigravida were the most numerous (29.7%) and large multigravida were the least represented (4.8%) (Figure 5). Parity was dominated by nulliparous who represented 42.1% of women carrying fibroids whereas multiparous had the lowest rate (4.8%). The mean parity was 1.48 ± 0.147 children with extremes ranging from 0 to 7 (Figure 6).

had already given birth at least once, including 84 patients (57.9%) by caesarean section and 14 (9.6%) vaginally. Finally, 93.8% of the women consulted were not pregnant.

The table 2 showed the distribution of patients according miscarriage. Among them, 46 (31.7%) had miscarriages with a predominance of 2 miscarriages (13.8%) and 88.1% were premenopausal. Almost all of the patients (99.1%) did not use a contraceptive compared to 0.9% of those who did. This study also revealed that 98 patients

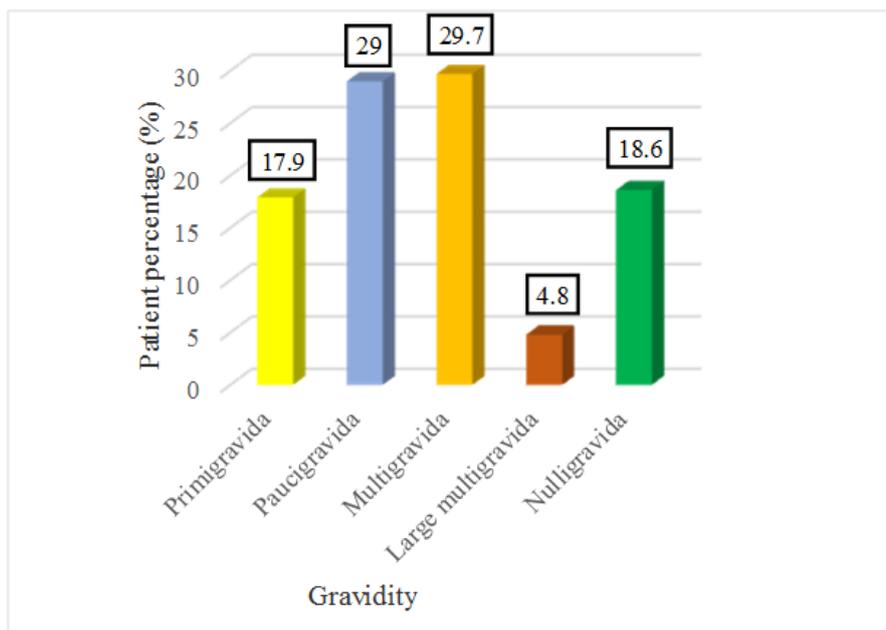


Figure 5: Distribution of patients according to gravidity.

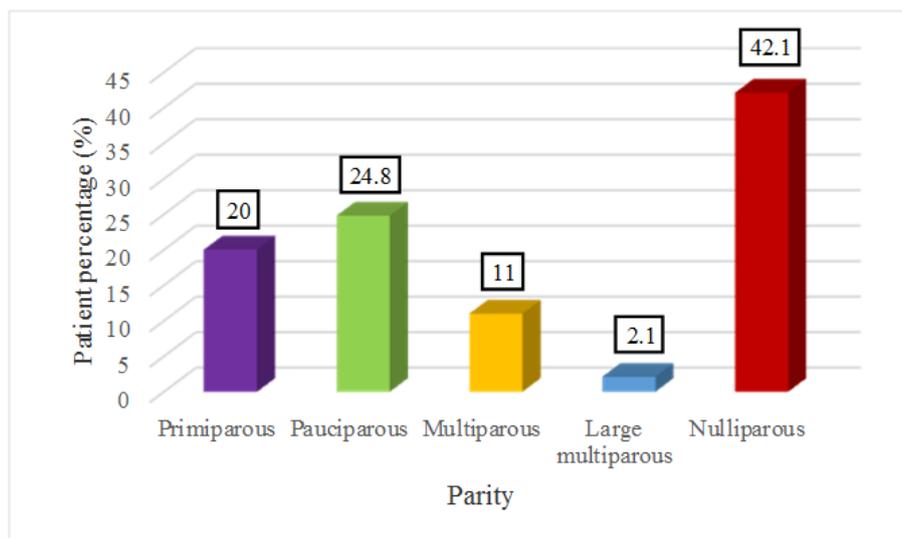


Figure 6: Distribution of patients according to parity.

Table 2: Distribution of patients according to miscarriage.

| Miscarriage | Effective (n=145) | Percentage (%) |
|-------------|-------------------|----------------|
| 0 | 99 | 68.3 |
| 1 | 20 | 13.8 |
| 2 | 25 | 17.2 |
| 5 | 1 | 0.7 |

Lifestyle

The results revealed that 86.2% of patients did not drink alcohol compared to 13.8% who did. Regarding tobacco, the analyses showed that 91.7% of the patients did not smoke cigarettes against 8.3% of the smokers.

Reasons for consultation

The reason for consultation of women carrying fibroids included genital haemorrhage which concerned 107 patients (73.8%) mostly represented by metrorrhagia

(64.5%), followed by menometrorrhagia (18.7%) and menorrhagia (16.8%).

In addition, complications related to this disease were the reason for the consultations. These complications which concerned 140 (96.5%) women were dominated by anaemia with 42.1% of cases whereas the combination of pelvic pain and urinary disorders was the least represented (0.7%) as much as the combination anaemia + pelvic pain + abdominal pain (Table 3).

Table 3: Distribution of patients according to fibroid complications.

| Complications | Effective (n = 145) | Percentage (%) |
|---|---------------------|----------------|
| Anaemia | 59 | 42.1 |
| Pelvic pain | 19 | 13.5 |
| Pelvic pain + anaemia | 18 | 12.8 |
| Abdominal pain | 13 | 9.2 |
| Pelvic pain + abdominal pain | 6 | 4.2 |
| Abdominal pain + anaemia | 6 | 4.2 |
| Pelvic pain + urinary disorders | 1 | 0.7 |
| Pelvic pain + abdominal pain + anaemia | 1 | 0.7 |
| Others complications (constipation, abdomino-pelvic mass, coma, etc.) | 4 | 2.8 |
| No complication | 5 | 3.5 |

Management of patients

Physical examination

Ultrasound

The analytical study revealed that 142 patients with a rate of 97.9% underwent an ultrasound of which 137 pelvic ultrasound (94.5%) versus 5 obstetric ultrasound (3.4%).

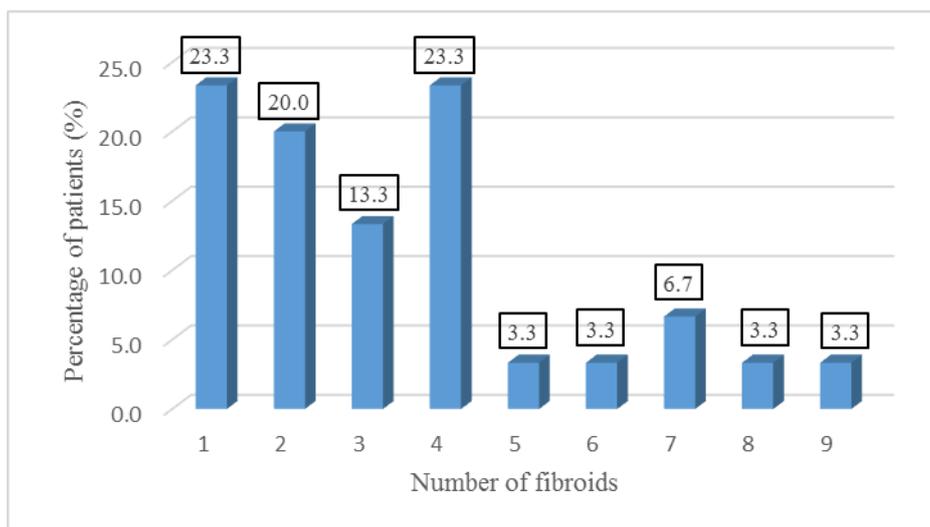
Type of fibroid

During the analysis, patients with submucosal fibroids predominated with a rate of 39.7% followed by those who presented with sub-serous fibroids with a proportion

of 34.8% and the low rate of 25.5% returns to women with intramural or interstitial fibroids.

Size and number of fibroids

The average size of the fibroids was 58.04 ± 5.55 mm with extremes ranging from 2 to 113 mm. The results of this analysis also showed that the patients presenting a polymyomatous uterus predominated with a rate of 76.5% than those presenting a myomatous uterus with a proportion of 23.3%. Patients presenting 4 fibroids were predominant (Figure 7).

**Figure 7: Distribution of patients according to the number of fibroids.**

Treatment

Medical and surgical treatment

This analysis showed that concerning medical treatment, 43.9% of the patients were treated with progestins against 56.1% who were treated with other drugs such as antibiotics, anti-inflammatory drugs, and analgesics. Also, 53.1% of them underwent surgery of which 50.6% were myomectomized compared to 49.4% of the patients who underwent hysterectomy.

Intraoperative and postoperative complications

This survey recorded 78 patients (53.8%) who bled during the operation and 62.1% of the patients underwent a blood transfusion (all the patients who bled and some

who did not) against 37.9% of the non-transfused. However, 11 patients (7.6%) showed postoperative bleeding while 12.4% of patients were transfused after the operation compared to 87.6% of patients who did not have any postoperative problem.

Correlation

The results showed that the correlation between the number of fibroids and profession was highly significant ($p = 0.007$, Pearson correlation = 0.479). This correlation was quite strong. Concerning the correlation between fibroid size and postoperative bleeding, the analysis showed that the link was significant ($p = 0.045$ and Pearson's correlation = -0.396); but this link was weak.

DISCUSSION

In this study, the prevalence of uterine fibroids was 2.42% compared to all gynaeco-obstetric pathologies during the study period. This prevalence is higher than that of Diallo^[16], carried out in 2018, From January 01 to December 31, in commune VI of the district of Bamako (Republic of Mali) on 6,577 women which obtained a rate of 1.80%. However, it is much lower than the prevalence obtained by Yu *et al.*^[17] in the United States, concerning 136,317 women enrolled 2005 through 2014 in Kaiser Permanente Washington, which was 9.6% and that of 14% obtained by Hortence *et al.*^[18] in Yaoundé (Cameroun) on 3,512 women from 2013 to 2018. Several studies have shown that the frequency of fibroids varies from one country to another, depending on the place of study, the number of cases studied and the period of study.^[12; 19; 20] These factors could explain the difference between our result and those of these authors.

Analysis of the patients' age showed that the minimum age of the patients was 20 years and the maximum age 66 years with an average of 39.47 years. The dominant age group of patients was between 30-45 years with a proportion of 67.58%. This result was similar to that of Magassouba^[21] which obtained during a study in Bamako the dominant age groups of 35-44 years (53%) with women aged from 18 to 66 years. Diallo^[16] obtained the same dominant age group with a high proportion of 75.63% on women whose age ranged from 25 to 63 years. However, this dominant group differed from that of between 20-34 years (57.50%) found by Traoré^[19] in Kayes (Mali). This difference could be explained by the fact that the study population of this author was younger with the patients' minimum age of 24 years and maximum age of 46 years, while in our study and that of Magassouba^[21] or Diallo^[16], the maximum age was 66 or 63 years. In another study carried out in the United States by Whiteman *et al.*^[22] among women 15-54 years old, a dominant age group of 45-49 years was found, which suggested a much later development of this pathology in this country compared to ours where it would occur earlier.

Within the professional framework, housewives dominated with a rate of 33.1% followed by shopkeepers (26.9%) and employed (26.2%). Balde *et al.*^[5] obtained in the university hospital of Conakry (Republic of Guinea) roughly similar results with 35.5% of housewives, 27.7% both for employed and for women practicing a liberal profession. These rates were different from those of Danioko^[23] who obtained 64.30% of housewives, 18.4% of employed and 14.1% of shopkeepers in his study carried out in Kati (Republic of Mali). The high rate of housewives and the low rate of employed and shopkeepers obtained by this author would suggest a low rate of literacy and socio-professional integration of women in his study area.

This study showed that "Baoulé" was the dominant ethnic group with a proportion of 26.5%, followed by

"Agni" (15.7%) "Attié" (10.8%) ethnic groups among the patients. These three ethnic groups in addition to other groups belong to Akan, a large group mainly represented in the Ivorian population (42%), compared to other ethnic groups. This would explain their predominance in medical consultation records. In Ghana, a country where Akan group is also mainly represented (47.5%), Sarkodie *et al.*^[24] founded that 45.9% of patients with fibroids belonged to this group. In addition, a genetic predisposition could explain the predominance of the Akan ethnic groups (57.8%) in the distribution of uterine fibroids in this study. It is well-documented that genetic factors may influence the distribution of leiomyomas. Chromosomic abnormalities due to mutations in cell growth regulation has been revealed by some authors in large part of this pathology.^[25, 26, 27]

Patients with blood group O rhesus (+) predominated with a rate of 43.8% (57 cases). This suggests that the O⁺ group could be a factor favouring the occurrence of uterine fibroids.

Medical history was present in 45 patients. Hypertension was the most marked history (15.9%), followed by ulcer with 11.03% and diabetes with 4.1% of cases. Boynton-Jarret *et al.*^[28] have already highlighted the dose-effect relationship between hypertension and uterine fibroids. As a result, hypertension represents an important risk factor for the disease which would explain its high rate in patients. Surgical history was mostly related to uterine fibroid. Thus, 7.5% of the patients had already suffered from uterine fibroids before the period of our study and after undergoing a myomectomy, they recurred. Diallo^[16] and Danioko^[23] obtained the rates of 2.52% and 9.7% of myomectomy respectively. This means that some women who have had a myomectomy are not immune to a possible recurrence. The persistence of certain risk factors, genetic or family predispositions as well as high secretions of steroids could be the cause of these recurrences.

During the study, the nulliparous were illustrated as being the most affected women by uterine fibroids with a rate of 42.1% of the cases, followed by the pauciparous representing 24.8% of the cases. These proportions are slightly different from those obtained by Bamba^[29] during a study in the same hospital. This author found a higher rate of nulliparous (49.2%) and a lower rate of pauciparous (20.8%). In addition, Elouardighi^[30] in a study carried out in Marrakech (Morocco) obtained a much higher rate of nulliparous (55.3%) while the pauciparous were very weakly represented (12%). Likewise, Isah *et al.*^[31] found 61.7% of nulliparous and 9.1% pauciparous in Abuja teaching hospital (Nigeria) while Sakodie *et al.*^[24] obtained 48.9% nulliparous in Accra (Ghana). These different results showed that the risk of fibroids decreased when the parity number increased. Therefore, parity can be considered as a protective factor against uterine fibroids.

Forty-six (46) patients corresponding to a rate of 31.7% presented in their history at least one miscarriage. A higher rate of 35% was found by Traoré^[19] in Kayes (Mali). Our result was then different from that of Délabarré^[32] carried out in the maternity of Nancy (France) which obtained a lower rate of 25.3%. The development of uterine fibroids has been shown to be associated with an increased risk of miscarriage.^[33,34] This tumor in addition to its compressive effect causes irritability and contractility of the uterus and compromises the blood supply necessary for the development of the placenta and the fetus.^[35] The difference in our result with that of Délabarré^[32] could be explained by the fact that his study took place in a country with a very developed health system which allows better patient care compared to Côte d'Ivoire. This difference could also be explained by the difference in number of patients concerned by these studies.

The results of this study showed that 88.1% of patients were premenopausal against 11.9% of postmenopausal. These proportions were different from those of Diallo^[16] which obtained a frequency of 95.5% of premenopausal and 4.20% of postmenopausal. Therefore, these results showed that the patients were for the most part in full genital activity. Indeed, a close link has been established between ovarian hormone secretions and the development of uterine fibroids.^[36,37] An elevated level of oestrogen and progesterone receptors has been established in uterine fibroids compared to normal uterine tissue of black African women.^[38] Very reduced at menopause, fibroids tend to regress and disappear even in the absence of therapy. This explains the fact that this pathology is found overwhelmingly in women in full genital activity.

The analysis showed that 57.9% of patients gave birth at least once by caesarean section and 9.6% vaginally. These results were different from those of Kone^[39] carried out in the commune V of Bamako which obtained a rate of 2.5% of caesarean sections. This difference could be explained by the fact that our study took place in a hospital centre which received a greater number of pregnant women with uterine fibroids evacuated (41.7%) or referred (21.5%) from other health centres for cases of complications. Also, the increased caesarean section rate in this study could be explained by an increase in mechanical and dynamic dystocia, scarred uterus due to previous myomectomies and the presence of voluminous isthmic fibroids preventing the vaginal route.

The reasons for consultation included genital haemorrhage which concerned 73.8% of patients and was dominated by metrorrhagia. This result was very different from that of Magassouba^[21] who obtained in his study carried out at the CHU of Point G in Mali, 39.1% of genital haemorrhage dominated by menorrhagia. The high rate of genital bleeding in our study could be explained by the difficulties of uterine retraction and involution related to the presence of fibroids.

Furthermore, fibroids lead to the development and dilation of endometrial venules or an increase in the size of the uterine cavity, which considerably increases bleeding during or outside of menstruation.^[40] In addition to genital bleeding, some fibroid complications were recorded as reason for consultations. The patients were affected by anaemia (42.1%), pelvic pain (13.5%), abdominal pain (9.2%) and anaemia associated to pelvic pain (12.8%) or abdominal pain (4.2%). Kone^[39] obtained in his study 42.5% of pelvic pain and 25% of abdominal pain. When genital bleeding indicated above occur more frequently and are not taken care of, they can induce in patients other complications such as anaemia. Their high rate in patients (73.8%) would therefore be the basis of the high rate of anaemia. Also, increased irritability and uterine contractility as well as compression caused by fibroids could explain pelvic or abdominal pain.

Concerning the management of fibroids, the analysis showed that 97.9% of women underwent ultrasounds dominated by pelvic ultrasound (94.5%). Similar results were obtained by Kone^[39] and Thiéro^[7] with the rates of 95.8% and 90.9% respectively. In addition, according to the study of Elouardighi^[30], 100% of patients had undergone this examination. Ultrasound allows to know the seat of the myomas. Knowledge of the seat of uterine myomas is of paramount importance in the choice of medical treatment.^[13] It provided information on the condition of other organs such as the cervix. These rates reflect the importance of ultrasound in the diagnosis and treatment of the disease.

Patients with submucosal fibroids predominated with a proportion of 39.7% followed by those with subserous fibroids with a rate of 34.8% and finally patients with intramural fibroids with a frequency of 25.5%. However, in the study of Monleón *et al.*^[41] carried out in Spain, subserous fibroids (35.5%) dominated, followed by intramural (34%) and submucous (23.4%) fibroids whereas intramural fibroids were most represented (40.9%) in comparison to submucous (35.4%) and subserous (26.3%) fibroids according to Isah *et al.*^[31] in Nigeria. These differences could be due to the different study areas. Also, the seat of fibroids depends on each organism and the physiological state of each woman.

The average size of the fibroids was 58.04 ± 5.55 mm. Patients with a polymyomatous uterus had a rate of 76.5% and those with a single myoma had a proportion of 23.3%. The high frequency of polymyomatous uterus could be explained by the late diagnosis of fibroids, generally at the stage of symptomatic polymyomatosis.

In terms of medical treatment, progestins were prescribed in 43.9% of patients, followed by other drugs (antibiotics, anti-inflammatories and analgesics) in 56.1% of them. Progestins are not indicated to reduce the volume of fibroids but in the context of the management of functional disorders of the endometrium. These

hormones notably improve the haemorrhagic manifestations of the disease.^[42]

A rate of 53.1% of patients underwent surgical operation for uterine fibroids dominated by myomectomy with a rate of 50.6% and hysterectomy with a frequency of 49.4%. The frequency of myomectomy was higher than the rate of 43.7% obtained by Muhammad *et al.*^[43] in Kano (Nigeria). On the other hand, this myomectomy rate was significantly lower than that of Chalal and Demmouche^[44] obtained in Sidi Bel Abbes (Algeria) which was 71.8%. As for hysterectomy, its frequency is higher than that of Magassouba^[21] with a proportion of 42.76%. These hysterectomies have been performed on patients with a large uterine volume who no longer wish to have children. The high rate of myomectomy could be explained by the fact that conservative surgery is the most practiced. Surgeons must consider also the age and the desire for children of the patients.

It had been recorded 53.8% of intraoperative bleeding of which 37.9% required a blood transfusion, while postoperative bleeding represented only 7.6% of patients. These rates were very high compared to those of Elouardighi^[30] in Morocco who obtained only 4.8% intraoperative haemorrhage, 80% of which required intraoperative transfusion. Also, per and postoperative complications could be due to the increase in the volume of the uterine fibroid.

Finally, the statistical analysis of the results showed that the correlation between the number of fibroids and the profession was significant ($p=0.007$) with a fairly strong link of 0.479. Lumbiganon *et al.*^[45] founded in their study a similar result. According to Kamiński and Rzempoluch^[46], intellectual work with the stress it produces, were risk factors for the development of fibroids. The correlation between postoperative bleeding and fibroid size was significant ($p=0.045$) with a weak link of -0.396.

CONCLUSION

The study of the epidemiology and management of uterine fibroids carried out at the Cocody-Abidjan teaching hospital showed that most of the women affected by this disease were nulliparous and the reasons for consultation were mainly represented by genital haemorrhage, anaemia, pelvic and abdominal pains. Ultrasound was the key examination for the diagnosis of uterine fibroids while progestins were the most prescribed drugs and myomectomy was the preferred surgical treatment for patients. Intraoperative bleeding was the main complication of surgical interventions which required blood transfusion.

This work could be further developed by increasing the study sample size, studying the long-term complications of surgical treatment and researching herbal medicines to boost medical treatment by making it even more effective.

This is an opportunity to call on public authorities to:

- Awareness of the population on the dangers of this disease;
- Organization of screening campaigns at a lower cost;
- Regular follow-up of women with family and genetic predispositions or with other risk factors such as hypertension or obesity.

These provisions would allow better management of this pathology which affects the quality of life of women.

REFERENCES

1. Bulun SE. Uterine fibroids. *N Engl J Med*, 2013; 369(14): 1344-1355.
2. Bazot M, Salem C, Froment V, Chopier J. Pathologie myométriale. *Encycl Méd Chir (Elsevier, Paris)*, Radiodiagnostic-Urologie-Gynécologie, 2002; 34-605-B-20, 18p.
3. Fernandez H, Gervaise A, Tayrac R. Fibrome utérin: EMC-Gynécologie, 2002; 570-A-10, p.1-12.
4. Tochie NJ, Badjang TG, Ayissi G, Dohbit SJ. Physiopathology and Management of Uterine Fibroids. In: "Fibroids", Intech Open. Edited by Hassan Abduljabbar, 2020, pp. 1-12. DOI: <http://dx.doi.org/10.5772/intechopen.94162>.
5. Baldé IS, Diallo BS, Conté I, Baldé O, Diallo MH, Diallo BC, Mamy MN, Sy T, Keita N. Fibroids: epidemiological aspects, clinical, surgical management and prognosis at the University Hospital in Conakry. *Rev Int Sc Méd*, 2015; 17(2): 118-124.
6. Lee KY, Raff JG, Douglass LA, Kasper KM, Kuster RM, Eckert GJ, Munshi IA, Peipert JFMD. Trends in Hysterectomy Rates and Approaches in the VA. *FEDERAL PRACTITIONER*, 2017; 18-22.
7. Thiéro D. Fibrome utérin: Aspects épidémiocliniques et thérapeutiques dans le service de gynéco obstétrique au centre de référence de la commune V pour 496 cas. Thèse de médecine, Bamako, Mali, 2004, 95 p.
8. Weiss G, Noorhasan D, Schott LL, Powell L, Randolph JF Jr, Johnston JM. Racial differences in women who have a hysterectomy for benign conditions. *Womens Health Issues*, 2009; 19(3): 202-210.
9. Eltoukhi HM, Modi MN, Weston M, Armstrong AY, Stewart EA. The health disparities of uterine fibroid tumors for African American women: a public health issue. *Am J Obstet Gynecol*, 2014; 210(3): 194-199.
10. Stankiewicz A, Pogany L, Popadiuk C. Prevalence of self-reported hysterectomy among Canadian women, 2000-2001 to 2008. *Chronic diseases and injuries in Canada*, 2014; 34(1): 34-39.
11. Okogbo FO, Ezechi OC, Loto, OM, Ezeobi PM. Uterine Leiomyomata in South Western Nigeria: A Clinical Study of Presentations and Management Outcome. *Afr Health Sci*, 2011; 11: 271-278.

12. Zimmermann A, Bernuit D, Gerlinger C, Schaefer M, Geppert K. Prevalence, symptoms and management of uterine fibroids: an international internet-based survey of 21,746 women. *BMC Womens Health*, 2012; 12: 6.
13. De La Cruz DSM, BUCHANAN ME. 2017. Uterine Fibroids: Diagnosis and Treatment. *Am Fam Physician*, 2017; 95(2): 100-107.
14. Nowak RA. Fibroids: pathophysiology and current medical treatment. *Baillieres Best Pract Res Clin Obstet Gynaecol*, 1999; 13(2): 223-238.
15. Okolo S. Incidence, aetiology and epidemiology of uterine fibroids. *Best Pract Res Clin Obstet Gynaecol*, 2008; 22(4): 571-588.
16. Diallo M. Aspects épidémiologiques et thérapeutiques du leiomyome utérin au centre de santé de référence de la commune VI pour 119 cas. Thèse de doctorat de médecine, Université de Bamako, Mali, 2021, 84 p.
17. Yu O, Scholes D, Schulze-Rath R, Grafton J, Hansen K, Susan D, Reed DS. A US population-based study of uterine fibroid diagnosis incidence, trends, and prevalence: 2005 through 2014. *Am J Obstet Gynecol*, 2018; 219: 591.e1-8.
18. Hortence FJ, Florent FY, Brigitte W, Enow MR. Uterine Fibroids in the Yaoundé Central Hospital: Epidemiological, Clinical and Therapeutic aspects. *J Obstet Gynecol Probl: JOGP*, 2021; 100021.
19. Traoré ST. Aspect clinique et thérapeutique du fibrome utérin à l'hôpital Fousseyni Daou de Kayes. Thèse de doctorat de médecine, Université de Bamako, Mali, 2011; 253 p.
20. Stewart EA, Cookson CL, Gandolfo RA, Schulze-Rath R. Epidemiology of uterine fibroids: a systematic review. *Int J Obstet Gynaecol (BJOG)*, 2017; 124: 1501-1512.
21. Magassouba D. Etude épidémiologique et thérapeutique du fibrome utérin, thèse de doctorat de médecine, Université de Bamako, Mali, 2009; 94 p.
22. Whiteman JK, Kuklina E, Jamieson DJ, Hillis SD, Marchbanks PA. Inpatient hospitalization for gynecologic disorders in the United States. *Am J Obstet Gynecol*, 2010; 202(6): 541.e1-6.
23. Danioko HT. Fibrome utérin: aspects épidémiologiques cliniques et thérapeutiques à la maternité de la garnison de Kati. Thèse de doctorat de médecine, Université de Bamako, Mali, 2009; 105p.
24. Sarkodie BD, Botwe BO, Adjei DN, Ofori E. Factors associated with uterine fibroid in Ghanaian women undergoing pelvic scans with suspected uterine fibroid. *Fertil Res Pract*, 2016; 2: 9.
25. Mäkinen N, Mehine M, Tolvanen J, Kaasinen E, Li Y, Lehtonen HJ, Gentile M, Yan J, Enge M, Taipale M, Aavikko M, Katainen R, Virolainen E, Böhling T, Koski TA, Launonen V, Sjöberg J, Taipale J, Vahteristo P, Aaltonen LA. MED12, the mediator complex subunit 12 gene, is mutated at high frequency in uterine leiomyomas. *Science*, 2011; 334(6053): 252-255.
26. Wise LA, Laughlin-Tommaso SK. Epidemiology of Uterine Fibroids – From Menarche to Menopause. *Clin Obstet Gynecol*, 2016; 59(1): 2-24.
27. Igboeli P, Walker W, McHugh A, Sultan A, Al-Hendy A. Burden of Uterine Fibroids: An African Perspective, A Call for Action and Opportunity for Intervention. *Curr Opin Gynecol Obstet*, 2019; 2(1): 287-294.
28. Boynton-Jarret R, Rich-Edwards J, Malspeis S, Missmer SA, Wright R. A prospective study of hypertension and risk of uterine leiomyomata. *Am J Epidemiol*, 2005; 161(7): 628-638.
29. Bamba I. Le fibrome utérin: aspect épidémiologique, clinique et prise en charge au CHU de Cocody. Thèse de doctorat d'Etat en médecine, Université de Cocody, Abidjan, Côte d'Ivoire, 2003; 101 p.
30. Elouardighi I. Les fibromes utérins : étude rétrospective au service de gynécologie obstétrique "B" du CHU Mohamed VI. Thèse de doctorat en médecine, Université Cadi Ayyad, Faculté de médecine et de pharmacie, Marrakech, Maroc, 2012; 141 p.
31. Isah AD, Adewole N, Agida ET, Omonua KI. A Five-Year Survey of Uterine Fibroids at a Nigerian tertiary hospital. *Open J Obstet Gynecol*, 2018; 8: 468-476.
32. Délabarre MN. Association fibrome et grossesse à propos de 79 cas. Thèse de doctorat de médecine, Université de Lorraine, Nancy, France, 2010 ; 92 p.
33. Benson CB, Chow JS, Chang-Lee W, Hill JA, Doubilet PM. Outcomes of pregnancies in women with uterine leiomyomas identified by sonography in the first trimester. *J Clin Ultrasound*, 2001; 29: 261-264.
34. Casini ML, Rossi F, Agostin R, Unfer V. Effects of the position of fibroids on fertility. *Gynecol Endocrinol*, 2006; 22: 106-109.
35. Waliach EE, Vu KK. Myomata uteri and infertility. *Obstet Gynecol Clin North Am*, 1995; 22: 791-799.
36. Omar M, Laknour A, Al-Hendy A, Yang Q. Myometrial progesterone hyper-responsiveness associated with increased risk of human uterine fibroids. *BMC Women's Health*, 2019; 19: 92. <https://doi.org/10.1186/s12905-019-0795-1>
37. Reis FM, Bloise E, Ortiga-Carvalho TM. Hormones and pathogenesis of uterine fibroids. *Best Pract Res Clin Obstet Gynaecol*, 2016; 34: 13-24. doi: 10.1016/j.bpobgyn.2015.11.015.
38. Morhason-Bello OI, Adebamowo AC. Epidemiology of uterine fibroid in black African women: a systematic scoping review. *BMJ Open*, 2022; 12: e052053.
39. Koné B. 2008. Fibrome utérin dans le service de gynécologie et d'obstétrique du centre de santé de référence de la commune V. Thèse de doctorat de médecine, Université de Bamako, Mali, 86 p.

40. Fortner KBSLM, Fox HE, Wallach EE. The Johns Hopkins manual of gynecology and obstetrics, third ed: Lippincott Williams and Wilkins: 2007.
41. Monleón J, Cañete ML, Caballero V, Campo MD, Doménech A, Losada MA, Calaf J. Epidemiology of uterine myomas and clinical practice in Spain: An observational study. *Eur J Obstet Gynecol Reprod Biol*, 2018; 226: 59-65.
42. Koskas M, Chabbert-Buffet N, Douvier S, Huchon C, Paganelli E, Derrien J. Role of medical treatment for symptomatic leiomyoma management in premenopausal women. *J Gynecol Obstet Biol Reprod*, 2011; 40(8): 858-874.
43. Muhammad Z, Yakasai IA, Abdulrahman A. Surgical management of uterine fibroids at Aminu Kano teaching hospital, Kano, Nigeria: a 5 year review. *Trop J Obstet Gynaecol*, 2013; 30(2): 113-122.
44. Chalal N, Demmouche A. Profil épidémiologique des fibromes utérins dans la région de Sidi Bel Abbes, Algérie. *PanAfr Med J*, 2013; 15: 7.
45. Lumbiganon P, Rugpo S, Phandhu-fung S, Laopaiboon M, Vudikamraksa N, Werawatakul Y. Protective effect of depot-medroxyprogesterone acetate on surgically treated uterine leiomyomas: a multicentre case-control study. *Br J Obstet Gynecol*, 1995; 103: 909-914.
46. Kamiński BT, Rzempełuch J. Evaluation of the influence of certain epidemiologic factors on development of uterine myomas. *Wiad Lek*, 1993; 46(15-16): 592-596.