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Surgical Management of Sciatica due to Lumbar Disc Herniation: Epidemiology, Quality of Life and Postoperative Outcome at Yaounde Military Hospital: A Retrospective Study

Prise en charge chirurgicale de la sciatique par une hernie discale lombaire : épidémiologie, qualité de vie et évolution postopératoire à l'Hôpital Militaire de Yaoundé – étude rétrospective

Djoubairou BO[1], Agbéko Komlan Doléagbénou A[2], Gbassara Koulagna B[3], Figuim B[4], Mfouapon-Ewane HB[4], Motah M[1], Djientcheu VDP[4]

Original Article

1. Department of Surgery, Faculty of Medicine and Pharmaceutical Sciences, University of Douala, Cameroon.
2. Neurosurgery Unit, CHU Sylvanus Olympio, Lomé, Togo.
3. Department of Surgery, Faculty of Health Sciences, University of Nairobi, Kenya. ORCID: 0009-0001-3545-7639
4. Department of Surgery, Faculty of Medicine and Biomedical Sciences, University of Yaoundel, Cameroon.

Corresponding author: Ben Ousmanou Djoubairou, MD Neurosurgeon, Department of Surgery, Faculty of Medicine and Pharmaceutical Sciences, Douala, Littoral Region, Military Hospital of Yaoundé, Cameroon. Email: bendjoubairou@yahoo.fr | Phone: +237 672 997 544

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Mots-clés: Hernie discale lombaire ; Discectomie ; Résultats fonctionnels ; Oswestry Disability Index ; Reprise du travail ; Afrique subsaharienne ; Neurochirurgie ; Cameroun

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ABSTRACT

Background: lumbar disc herniation (LDH) is a major cause of sciatica and disability in young and middle-aged adults. This study evaluated the epidemiological features, clinical profile, and postoperative outcomes of patients operated on for LDH at the Yaounde Military Hospital.

Methods: a retrospective analytical study was carried out from January 2018 to December 2025 in the Neurosurgery Department. Twenty-five patients with complete postoperative follow-up were included. Sociodemographic, clinical, surgical, and postoperative parameters were analyzed using Stata® 17.0. Functional status was assessed with the Oswestry Disability Index (ODI), and return-to-work status at three months was recorded.

Results: the mean age was 43.6 ± 11.6 years, with a male predominance (68%). The most affected levels were L4–L5 (52%) and L5–S1 (40%). ODI scores improved markedly from a preoperative mean of 82.8% to 25% postoperatively. Complication rates were low (8%), consisting of one cerebrospinal fluid leak and one superficial wound infection. At three months, 92% of patients had resumed work, with 81.5% doing so through part-time reintegration. No socio-demographic or clinical variable was significantly associated with return-to-work outcomes ($p > 0.05$).

Conclusion: surgical discectomy for LDH at the Yaounde Military Hospital led to substantial functional improvement and a high early return-to-work rate. These findings support its effectiveness and safety, even in resource-limited settings, and underscore the importance of improving postoperative rehabilitation and expanding regional research.

RESUME

Introduction : La hernie discale lombaire est une cause majeure de sciatalgie et de handicap. Le but de cette étude était d'évaluer les caractéristiques épidémiologiques, cliniques et thérapeutiques des patients opérés d'une hernie discale lombaire à l'Hôpital Militaire de Yaoundé.

Méthodes : une étude analytique rétrospective a été conduite de janvier 2018 à décembre 2025 au sein du service de neurochirurgie. Vingt-cinq patients disposant d'un suivi postopératoire complet ont été inclus. Les paramètres socio-démographiques, cliniques, opératoires et postopératoires ont été analysés. Le statut fonctionnel a été évalué par l'Oswestry Disability Index, et la reprise du travail à trois mois a été enregistrée.

Résultats : L'âge moyen était de 43,6 ± 11,6 ans avec une prédominance masculine (68 %). Les niveaux L4–L5 (52 %) et L5–S1 (40 %) étaient les plus touchés. Le score ODI moyen est passé de 82,8 % en préopératoire à 25 % en postopératoire. Le taux de complications était faible (8 %). À trois mois, 92 % des patients avaient repris le travail. Aucune variable socio-démographique ou clinique n'était associée au statut de reprise du travail ($p > 0,05$).

Conclusion : la discectomie lombaire réalisée a permis une amélioration fonctionnelle notable et un taux élevé de reprise précoce du travail, confirmant son efficacité et sa sécurité.

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Introduction

Lumbosciatica due to a lumbar disc herniation (LDH) represents a frequent and significant challenge in neurosurgery. Indeed, displacement of the nucleus pulposus beyond the normal margins of the intervertebral space causes compression or irritation of a lumbar nerve root, leading to radicular pain that is often debilitating [1]. The incidence of lumbar radiculopathy related to an LDH is estimated in some series at 0.3 to 2.7 per 1,000 person-years for surgical definitions [1]. Prevalence points of symptomatic disc herniation have also been reported, ranging from 0.2% to 3% depending on the population studied [2]. The most frequently affected age group is typically between 30 and 50 years old, with a slight male predominance. Clinically, lumbosciatica due to herniated discs (HDL) manifests as lumbar pain radiating down the lower limb, often accompanied by signs of nerve root tension, sensory or motor disturbances, or even neurological deficits. This presentation has a significant functional impact (reduced mobility, inability to work, impaired quality of life) and represents a major socioeconomic cost [3].

Initial treatment is generally conservative (rest, anti-inflammatories, physiotherapy, activity modification). When this treatment fails—particularly in cases of persistent nerve root pain, neurological deficits, or significant functional impairment—surgery to decompress the disc (endoscopy, minimally invasive surgery, and conventional open surgery) becomes the preferred option [4]. Postoperative outcomes are generally satisfactory: for example, a cohort study of 1,195 patients who underwent discectomy showed significant improvements in pain scores, the Oswestry Disability Index, and the EuroQoL-5D at 3 and 12 months [5]. However, the outcome is not always excellent: a recent review indicates that approximately 25% to 33% of patients report unsatisfactory results after surgery [6]. Furthermore, specific data regarding quality of life, return to work, and postoperative complications vary depending on geographical context, surgical techniques, and institutional follow-up.

In Cameroon, and more specifically at the Yaounde Military Hospital, data concerning the surgical management of lumbosciatica related to a herniated disc remain limited. The epidemiological profile of patients undergoing surgery, the pre-operative impact on quality of life, functional outcomes, return to work, and post-surgical complications are not well documented in this context; moreover, patients' fear of surgery delays treatment and impacts post-operative outcomes. This gap makes it difficult to optimize care policies and compare results internationally.

It is within this context that the present study was conducted. It aims to describe the epidemiological and clinical profile of patients operated on for sciatica secondary to a lumbar disc herniation at the Yaounde Military Hospital, as well as to assess quality of life before and after surgery, identify post-operative complications, and measure return to work at 3 months (partial return vs. full return). This data will enrich the local literature, provide useful guidelines for patient care, inform clinical decisions in this specific context, and, above all, demystify and popularize surgery.

Methodology:

This study was designed as a retrospective analytical investigation carried out in the Neurosurgery Department of the Yaounde Military Hospital over an eight-year period, from January 2018 to December 2025. It included all patients who underwent surgical management for lumbar disc herniation within the department. Data were obtained from individual medical files, operative registers, and postoperative follow-up consultations, allowing a comprehensive review of socio-demographic, clinical, operative, and recovery-related information.

The source population consisted of all patients operated on for lumbar disc herniation in the Neurosurgery Department during the study period. From this population, the study population included only those whose records were complete and who had adequate postoperative follow-up to assess functional outcomes, quality of life, and return-to-work status. These patients had full documentation of demographic characteristics, clinical presentation, radiological findings, operative details, and postoperative evolution.

Eligible participants were patients who underwent surgery for lumbar disc herniation between January 2018 and December 2025 and who had complete medical records containing all relevant preoperative, operative, and postoperative variables. Only patients with at least three months of postoperative follow-up, allowing assessment of return-to-work status, were included. Patients with incomplete or missing records, those operated on for other lumbar pathologies such as lumbar stenosis, tumors, or traumatic lesions, as well as patients lost to follow-up before the functional assessment, were excluded.

Sampling was exhaustive, incorporating all medical files that fulfilled the predefined eligibility criteria. A total of 25 patient records meeting these conditions were retained for analysis.

The variables analyzed included socio-demographic characteristics such as age, sex, year of surgery, and occupation; preoperative clinical variables including duration of symptoms, affected side, type of herniation, neurological deficits, and disc level; operative variables such as surgical technique and duration of surgery; and postoperative variables including length of hospital stay, complications, need for re-operation, pre- and postoperative pain scores,

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and Oswestry Disability Index. Functional follow-up variables included return-to-work status, type of work schedule resumed, and time taken to return to work.

Data collection relied on a detailed review of individual patient records, the operating room logbook, and structured postoperative follow-up questionnaires completed during routine control visits. All extracted information was systematically recorded on a standardized data collection sheet established prior to the study.

Data entry and statistical analysis were performed using Stata version 17.0. Quantitative variables were summarized through measures of central tendency and dispersion, including means, standard deviations, and observed ranges, and were illustrated when necessary with histograms and box-plots. Qualitative variables were expressed as absolute frequencies and percentages and presented in tables or graphical representations. Analytical procedures included Pearson's chi-square test to assess associations between categorical variables, and Student's t-test to compare quantitative variables such as age between groups. The statistical significance threshold was fixed at $p < 0.05$.

The study adhered to the ethical standards outlined in the Declaration of Helsinki. Confidentiality and anonymity of all patients were strictly preserved throughout the research process. Authorization to access clinical records and conduct the study was obtained from the Head of the Neurosurgery Department and the Ethics Committee of the Yaounde Military Hospital.

Results:

A total of 25 patients who underwent surgery for lumbar disc herniation were included in this study between January 2018 and December 2025 (Table 1).

Table 1 : distribution of patients per year of surgery

Year of surgery	Number of patients	Proportion of patient (%)
2018	4	16
2019	1	4
2020	3	12
2021	2	8
2022	7	28
2023	6	24
2024	1	4
2024	1	4
Total	**25**	**100**

The year 2022 saw the highest number of procedures (28%), followed by 2023 (24%), reflecting a recent increase in surgical activity in the department. The mean age was 43.6 ± 11.6 years (range: 28–73 years).

The majority of patients were middle-aged adults, corresponding to the working population exposed to physical exertion. The series included 17 men (68%) and 8 women (32%), resulting in a male-to-female ratio of 2.1. Military personnel were the most frequent occupation (32.7%), followed by teachers (14.6%) and shopkeepers (14.1%). Public sector and security professions were thus predominant, potentially exposing patients to repeated physical strain. The average duration of symptoms before surgery was 14 months (range: 1–96 months). Nearly 76% of patients had experienced pain for less than 20 months. The right side was affected in 44% of cases, compared to 28% for the left side and 28% for bilateral involvement. Disc protrusions accounted for 96% of cases, compared to 4% of extrusions (Figure 1).

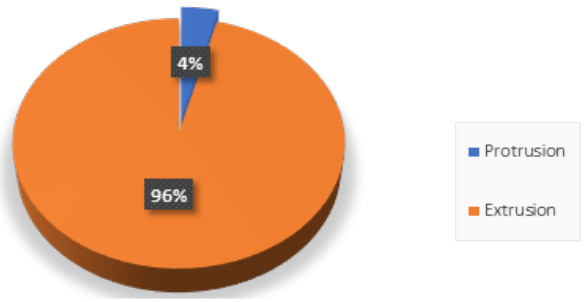

Figure 1 : type of herniated disc

No other forms of herniation (sequestered or migrated) were observed.

A sensory deficit was noted in 17 patients (68%), and a motor deficit in 8 patients (32%). The chi-square test between the type of herniation and the presence of a neurological deficit showed no significant difference ($\chi^2 = 0.49$; $p = 0.484$). The most frequently affected levels were L4–L5 (52%) and L5–S1 (40%) (Figure 2). Statistical analysis ($\chi^2 = 6.19$; $p = 0.103$) showed no significant correlation between disc level and the nature of the neurological deficit.

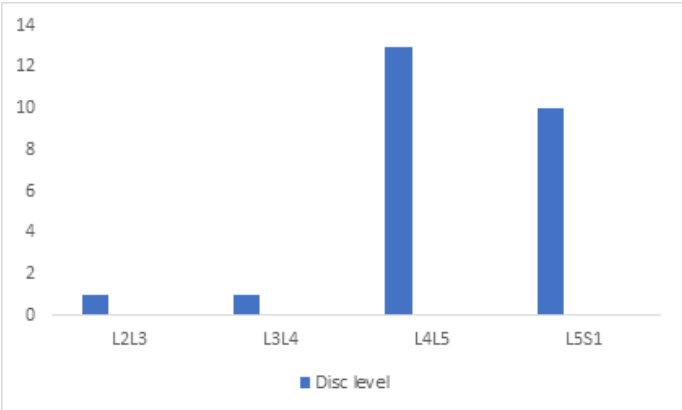

Figure 2: level of herniated disc

All patients underwent a conventional discectomy (Figure 3), the standard technique in the department.

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The mean operative time was 57.8 minutes (range: 45–120 minutes). Three extreme values (90, 105, and 120 minutes) were observed in patients experiencing intra-operative technical difficulties.

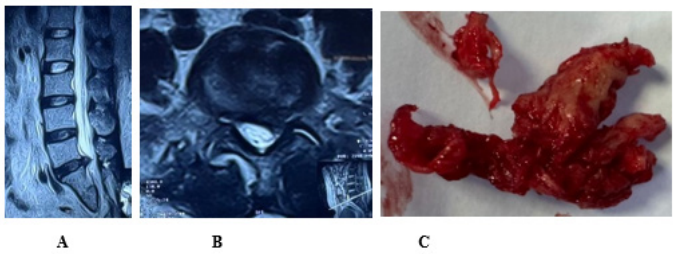

Figure 3: radiological and postoperative images of Herniated disc

A. Sagittal T2 lombar MRI, L5S1 herniated disc

B. Axial T2 lombar MRI, L5S1 left paramedial herniated disc with S1 nerve root compression

C. Postoperative image of herniated disc resection

The length of hospital stay ranged from 4 to 10 days, with an average of 7 days.

The majority of patients had a hospital stay of less than 20 days. Minor complications were observed in 8% of patients: 1 CSF leak (4%), 1 wound infection (4%). No major neurological complications were recorded. A single re-operation (4%) was performed for symptomatic recurrence. The other 24 patients (96%) did not require any additional surgical procedures.

Pain assessment using a visual analog scale (VAS) showed an average reduction from 9/10 to 6/10 after surgery. This decrease indicates a clear improvement in functional comfort. The preoperative functional disability index (ODI) ranged from 60% to 100%, with an average value of 82.8%. The majority of patients therefore presented with severe to very severe disability before the procedure. Approximately 4% of patients had a score between 70% and 79%, while most (nearly 60%) were between 90% and 100% (Figure 4).

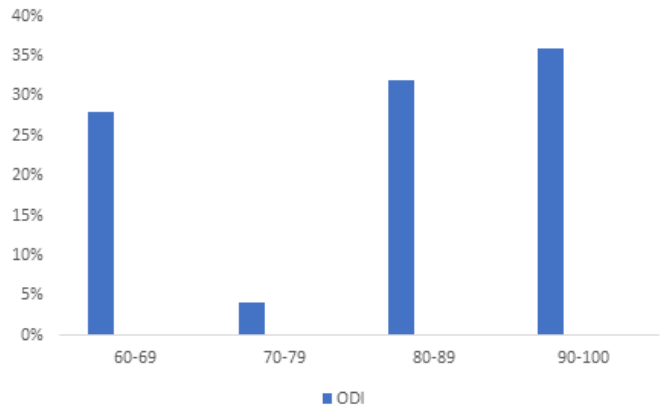

Figure 4: pre-operative ODI

After surgery, the postoperative ODI score ranged from 18% to 97%, with an average of 25%. The majority of patients (approximately 60%) had a score between 18% and 37%, corresponding to minimal to moderate disability (Figure 5). Comparative analysis of box-plots (Figure 6) shows that the postoperative ODI functional score is significantly lower than the preoperative score, reflecting a significant improvement in quality of life and a marked reduction in lumbar pain after surgery.

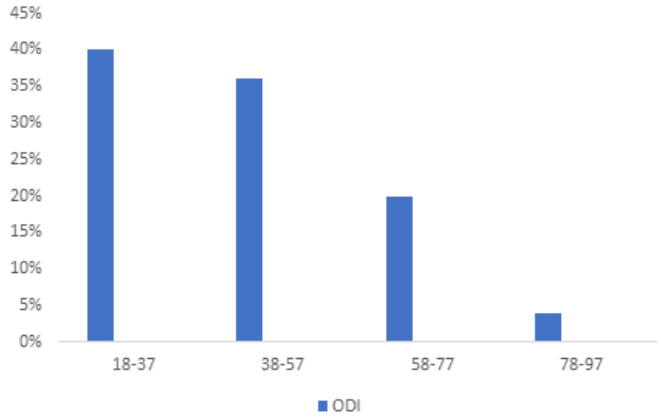

Figure 5: post-operative ODI

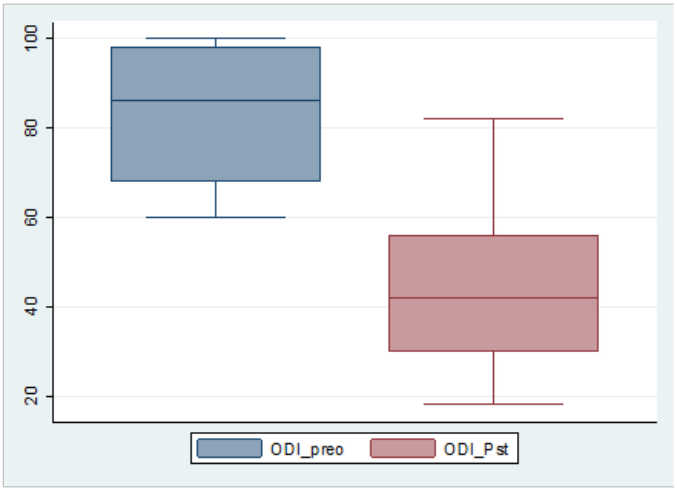

Figure 6 : comparison of ODIs

After three months of follow-up, 23 patients (92%) had returned to work, compared to 2 patients (8%) who had not yet returned (Table 5). No significant difference was observed between the sexes (χ^2 = 0.32; p = 0.569). Patients who did not return to work were slightly older (mean age: 50 years) than those who did (43 years), but the difference was not significant (t = 0.80; p = 0.43). Among patients who returned to work, 81.5% worked part-time and 18.5% full-time. The mean time to return to work was 28 weeks (range: 0–104). The chi-square test between postoperative complications and return to work (χ^2 = 0.19; p = 0.910) showed no significant association.

Discussion

The male predominance and average age of around 40 to 45 years are likely explained by the greater exposure of active men to physical exertion, postural constraints, or high-risk occupations such as those

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of military personnel, teachers, or shopkeepers. The over-representation of military personnel (32.7%) may influence the patient profile, particularly due to their high level of physical activity and their expectations of a rapid return to work, which could also affect functional outcomes. Understanding this socio-professional profile allows for the adaptation of follow-up advice and post-operative rehabilitation programs according to the patient's profession. Clinicians should also anticipate that young and active patients often have higher expectations regarding rapid functional recovery and resumption of activity. In future studies, it would be relevant to examine the impact of occupational type (sedentary versus physical) on surgical outcomes and return-to-work time in this local context, and to consider multi-center studies in Central Africa to determine if this profile is generalizable.

Since the L4-L5 and L5-S1 segments are most subject to lumbar mechanical stress, it is logical that they are the most frequently affected. The average duration of symptoms, estimated at 14 months with extremes up to 96 months, could reflect a diagnostic delay because patients fear postoperative complications; a common misconception in the African context is that spinal surgery leads to postoperative motor deficits. This could also indicate a delay in care, as most of these patients did not have insurance or health coverage. Faster detection of symptoms and a reduction in the time between the onset of sciatica and surgery could thus improve postoperative outcomes. Surgeons must remain attentive to the presence of sensory or motor neurological deficits, as these can influence recovery. A prospective study would be useful to determine whether a shorter time to treatment promotes a better return-to-work rate and reduces postoperative deficits. Furthermore, a more detailed analysis of the type of herniation, whether protrusion or extrusion, could provide a better understanding of its influence on functional recovery.

The significant improvement observed, with the ODI score decreasing from approximately 82.8% to 25%, confirms that discectomy surgery is particularly effective in reducing disability related to herniated discs. These results are consistent with the literature, notably this study ([PubMed][7]) which showed an average improvement of 30% (ODI decreasing from 54.1% before to 23.8% after) and this other ([PubMed][8]) reporting a decrease from 67.2% to 15.7% at six weeks post-operatively ($p < 0.001$). This data helps patients better understand the expected benefits of surgery and set realistic recovery goals. The Oswestry Disability Index (ODI) is also a relevant tool for postoperative monitoring and planning appropriate rehabilitation. In the African context, it would be useful to collect ODI scores at different intervals (3, 6, and 12 months) to assess the stability of functional recovery and to examine postoperative ODI thresholds associated with optimal return to work.

The high return-to-work rate of 92% at three months is particularly noteworthy in this context. For comparison, this cohort study ([PMC][9]) reported a rate of 95% at twelve months with a median time of approximately 78 days, while this meta-analysis ([BioMed Central][10]) estimated an overall rate of approximately 58% after spinal surgery, influenced by factors such as age, sex, and the nature of the work. The high rate observed in our series can be explained by the patient profile, predominantly young and active, as well as by the professional context of the armed forces, where the motivation to return to work is strong. These results underscore the importance of considering return to work as a key objective in surgical and postoperative planning. Rehabilitation programs should be specifically tailored to the patient's occupation, possibly including a partial return as an intermediate step toward a full return. Future studies could further analyze the determinants of the type of return to work (part-time or full-time) and the long-term maintenance of job stability, as well as assess the impact of workload, institutional support, and vocational rehabilitation programs on this return.

The low complication rate, estimated at 8%, likely reflects rigorous patient selection, the application of a standardized conventional discectomy technique, and adequate postoperative follow-up. The literature reports complication rates ranging from 2% to 6% in larger series, particularly for incidents such as cerebro-spinal fluid leaks or infections [11]. These results are encouraging and reassuring regarding the safety of the procedure, even in a resource-limited hospital setting. They also highlight the importance of a rigorous postoperative monitoring protocol and the prompt management of any potential complications. In the longer term, it would be relevant to document late complications such as recurrence or disc degeneration in this specific context, and to consider comparative studies between different surgical techniques, particularly between open discectomy and the endoscopic approach.

Study Limitations

This study has several limitations, notably the small sample size (n = 25), which reduces analytical power and the ability to generalize the results. Its retrospective nature also exposes it to selection and follow-up biases. The limited medium-term follow-up, with an assessment of return to work at only three months, does not allow for an evaluation of long-term outcomes. Furthermore, the lack of psychological or socioeconomic assessment of the patients is a significant limitation, as these factors can influence functional recovery and return to work. Finally, the specific military context, characterized by a strong

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motivation to return to work, limits the generalizability of the findings to the civilian population.

Conclusion

This study highlights that lumbar disc herniation is a major cause of sciatica in young, active adults, particularly in the military context where physical demands are high. Surgery, primarily discectomy, has led to a significant improvement in quality of life and a notable reduction in functional disability, confirming its effectiveness in treating forms resistant to medical treatment. The low complication rate observed and the rapid return to work demonstrate the safety and reliability of this approach in our setting. However, persistent misconceptions and fear of surgery often delay treatment, underscoring the need to intensify patient awareness and education. It is therefore recommended to promote better public and healthcare staff information on the benefits of spinal surgery, to improve postoperative rehabilitation programs, to encourage multicenter research on long-term outcomes and to facilitate financial access to surgery in order to ensure more equitable and effective care for patients suffering from sciatica related to a lumbar disc herniation.

Declarations

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Authors' Contributions

Ben Ousmanou Djoubairou conceptualized the study, supervised data collection and analysis, and reviewed the manuscript. Achille Agbéko Komlan Doléagbénou contributed to the interpretation of the results and the writing of the discussion. Boris Gbassara Koulagna was responsible for the initial drafting of the manuscript and formatting according to the guidelines of the Journal of science and Diseases. Bello Figuim participated in the collection of clinical data and the postoperative follow-up of patients. Hervé Mfouapon contributed to the management of medical records and data entry. Mathieu Motah and Vincent De Paul Djientcheu supervised the entire project, critically reviewed the manuscript, and approved the final version. All authors have read and approved the final version of the manuscript.

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Availability of Data and Materials: The data used and analyzed in this study are available from the corresponding author upon reasonable request.

Ethics Approval and Consent to Participate: This study was approved by the Ethics Committee of the Yaounde Military Hospital. Informed consent was obtained from the included patients before their participation.

Consent for Publication: All authors have given their consent for the publication of this manuscript. The patients consented to the anonymous use of their data for research and scientific publication.

Competing Interests: The authors declare that they have no conflicts of interest related to this study.

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