Ingrown Toenail Management Across Mental Health and Other Health Facilities in Nigeria: A Review of Anesthetic and Surgical Management

Abstract

Background:

The management of ingrown toenails in Nigeria is notably underdeveloped, posing potential challenges for patients in mental health facilities and beyond. Addressing this issue requires an interdisciplinary approach and collaboration with other healthcare professionals. Furthermore, there is an important need for a comprehensive review of the treatment guidelines for the anesthetic and surgical techniques utilized in its treatment to improve the quality of patient care.

Methods:

We employed a structured narrative approach to identify and review available articles on ingrown toenail management in mental health and other health facilities in Nigeria. We aimed to evaluate the anesthetic and surgical techniques utilized in managing these patients.

Results: No documented treatment for ingrown toenails was identified among patients in mental health facilities across Nigeria. While various surgical techniques are employed for management in other health facilities, the specific anesthesia techniques utilized are unclear.

Conclusions: A unified management protocol and guideline for ingrown toenails and developing podiatry training in Nigeria are imperative. Developing and implementing an effective treatment protocol improves the quality of care and widens coverage for all patients. In addition, establishing podiatry training across educational facilities could bridge this gap in ensuring optimal care for these patient populations.

Keywords: anesthesia, ingrown, mental, Nigeria, surgical, toenails

Introduction

An ingrown toenail, or onychocryptosis, usually occurs when the nail plate punctures the periungual skin, causing substantial pain, inflammation, discomfort, and an increased risk of infection if left untreated.[1] It is reported that ingrown toenails occur commonly in the hallux, presenting most often in teenagers and early adults.[2] However, it can present at any age, with several factors implicated as possible contributory factors.[3] These factors include poor nail-cutting technique, hyperhidrosis, ill-fitting footwear, nail deformity, trauma, obesity, and peripheral edema. Patients with ingrown toenails might present late when the infection has set in.[4] It is exacerbated in individuals with mental health disorders, who may sometimes neglect seeking healthcare for other coexisting conditions.[5]

Ingrown toenails cause symptoms such as pain, inflamed skin, swelling, and sometimes infection of the index toe. Hence, it is a common reason for clinic consultations in Nigeria. An ingrown toenail is classified into three stages.[6]In stage 1, the nail has grown into the skin on the side. The skin hurts and has become inflamed. The stage is when new, inflamed tissue (granuloma) has grown at the edges of the ingrown toenail and in stage 3, the skin around the toenail is chronically inflamed and could ooze pus.[6]

While the early stages can be managed conservatively, the late stage requires surgical treatment and partial or complete avulsion of the nail with or without nail matrix ablation. Ablation of the nail bed can be carried out chemically,[7] using laser, [8] surgically, [9] or

electrocautery.[10]Chemical matricectomy has the lowest recurrence rate but has an increased risk of wound infection and prolonged healing time.[7]

Patients with mental health conditions sometimes appear physically inactive, which could be attributed to the side effects of some psychiatric medications.[11] However, some of the patients have co-existing undiagnosed ingrown toenails, which might be limiting their physical activities due to pain. The treatment choice for ingrown toenails varies based on the stage of the disease. However, the most significant factor in treatment choice stems from the available specialty. Podologists and pedicurists favor conservative management procedures using braces and similar devices, while some dermatologists use other noninvasive approaches, and the majority tend to perform surgery.[12]

In Nigeria, patients with ingrown toenails often present to surgeons rather than podiatrists, podologists, pedicurists, and dermatologists. While there are limited podiatrists and podologists in Nigeria, the few pedicurists and dermatologists do not usually treat ingrown toenails. As such, the most typical treatment method is surgery. The surgeries are amenable to various anesthetic techniques. Kim and colleagues[13] discussed using ultrasound-guided popliteal nerve block using short-acting lidocaine in the surgical treatment of ingrown toenails. However, digital blocks with local anesthetic agents without epinephrine are also employed.[14] Classical V-shaped and H-shaped blocks with anesthetic agents have also been described.[15]

This review aims to identify, review, and summarize existing literature on ingrown toenail management across mental and other health facilities in Nigeria. Our goal is to understand common anesthetics and surgical techniques and present a broad perspective on ingrown toenail management in Nigeria across various patients.

Methods

A narrative approach was used to synthesize, interpret, and critique the findings of studies that reported the management of ingrown toenails across a range of patients in Nigeria. This approach was chosen given the paucity of literature on the subject in Nigeria. However, the review provides a framework for further studies and recommendations for a unified management protocol for ingrown toenails in Nigeria.

We conducted an electronic search of PubMed, Google, and Google Scholar for peer-reviewed, English-language articles published up until March 2024. Preliminary keyword searches included combinations of "anesthesia," "ingrowing toenail," "management," "mental," "Nigeria," and "surgery."

We limited our review to Nigeria, given the under-reporting of the existing modality for the management of ingrown toenails among a broad range of patients in Nigeria, including patients in mental health facilities. Furthermore, the training institutions have not developed specialty training in podiatry and podology as obtained in other parts of the world.

Results

Our search resulted in 5 articles in total. During our search, we observed a notable absence of reported treatment for ingrown toenails provided to patients in mental health facilities in Nigeria. In the context of the paucity of literature on the subject in Nigeria, the narrative review aims to identify a few studies that describe the problem of interest. As seen in Table I, the identified studies fall under descriptive retrospective studies, including case reports, case series, and cross-sectional studies. Two hundred and eleven patients treated for ingrown toenails were reviewed, and the treated patients were reported using different methodologies. In a retrospective

study[16]involving 52 patients, the anesthetic technique employed was digital block with 1% plain Xylocaine and a tourniquet. No anesthetic technique was mentioned in the case report [17], case series[18], and cross-sectional study.[19] A prospective study[20] among those reviewed mentioned that the procedure was done under local anesthesia, no specific anesthetic technique was mentioned. The surgical management employed for the early stage of the disease was a conservative approach in all the studies reviewed. However, there was a twenty-five percent recurrence in those managed conservatively within 1 year in the prospective study. Matricectomy was employed as the treatment of choice in stages II and III, while wedge resection plus partial matricectomy was used in the case series study.[18]

Table I: The articles of the management of ingrown toenails in Nigeria

Authors	Surgical Method	Anesthesia	Patients Enrolled	Methodology	Findings
Nwagbara *et al* 2022[19]	Partial or complete great toenail excision plus debridement	Not stated	99	Cross sectional prospective study	Surgical treatment provides a better outcome with minimal recurrence for late stage or after failed conservative management.
Ogbetere and Collegue 2020[17]	Matricectomy	Not stated	1	Case report	Surgically treated medial and lateral folds of both halluces.
Benjamin *et al* 2017[20]	Late: Suppuration, Ulceration, hypertrophic nail fold- Wedge resection, surgical matricectomy under local anaesthesia Severe: Simple Nail Avulsion	Local Anesthesia- nonspecific	28	Prospective study	Patients (25%) who had conservative treatment and avulsion of the nail had recurrence.
Olakulehin*et al*., 2015[18].	Based on Heifetz staging and recurrence status, Stage II and III had Wedge resection of either or both medial and lateral toenail folds plus partial matricectomy.	Not stated	55	Case series	Within 1 year period, there were 2 recurrences out of 63 halluces treated in Stage II and III with Wedge resection plus partial matricectomy. In all, a 99% cure rate was recorded.
Akhator, 2011[16]	Wedge resection of affected nail and matrix; total excision of total nail and matrix	Digital block with 1% plain Xylocaine and	52	Retrospective study	After a 1-year period, there was no recorded recurrence. No recurrence in cases

	were done for late stages (stage 3). Earlier stages were managed conservatively.	tourniquet			managed conservatively also.

Discussion

In mental health facilities across Nigeria, there is a notable absence of reported treatment for ingrown toenails provided to patients. Research consistently demonstrates the heightened rates of morbidity and mortality among individuals struggling with mental illness.[21,22] The high incidence of undiagnosed medical conditions and the subsequent neglect of physical health concerns raise further alarm.[23]Compounding these challenges, some patients with mental health disorders in Nigeria are subjected to leg restraints,[24]elevating the risk of trauma and injuries to the lower extremities, which is a risk factor for ingrown toenails. Delays in diagnosing and treating ingrown toenails can result in severe complications, potentially necessitating amputation. [25,26]Urgent measures are warranted to enhance the screening for foot disorders in mentally ill patients, thereby mitigating the prevalence of comorbidities within this vulnerable population.[27]

Many patients in the index study had surgeries as their treatment modality. However, there was no clear description of the anesthetic techniques employed in most cases. Elsewhere, the anesthetic techniques were welldefined. Kim and colleagues[13] talked about the use of short-acting lidocaine in ultrasound-guided popliteal nerve block for ingrown toenail surgical therapy. Nevertheless, digital blocks containing non-epinephrine local anesthetic drugs are also utilized.[14] This is in concordance with one[16] of the studies in Nigeria describing the management experience of ingrown toenails. A digital block with 1% plain Xylocaine and a

tourniquet were employed to achieve adequate anesthesia. There have been descriptions of traditional V- and H-shaped blocks containing anesthetic drugs.[15]

The peculiar observation in the surgical management of the patients in the index study is that orthopedic surgeons are the health professionals in Nigeria handling cases of ingrown nails. Practitioners who perform surgery on ingrowing toenails include orthopedic surgeons, general practitioners, podiatrists and podiatric surgeons.[28] The podiatric surgeons have recently made advances, employing minimally invasive surgery to treat ingrown toenails. [29,30]In Nigeria, there is currently no training program for pedology/podiatry.[31] In termsof the surgical technique, surgeons in Nigeria adopt conservative approach for the initial stage of ingrown toenails and matricectomy for the advanced stages in keeping with other health professionals outside Nigeria treating ingrown toenails.[32]

Limitations

The paucity of literature on the topic constrains the scope of this review, while the relatively small patient populations included in various studies restrict the generalizability of the findings. There is a concern that the management of ingrown toenails in Nigeria appears under-diagnosed and under-reported in healthcare facilities, potentially overlooked, particularly among individuals with mental health disorders.

Conclusion

This paper provides an overview of the current management practices for ingrown toenails across various patients in Nigeria. Despite the scarcity of literature on the subject, it highlights the non-specific anesthetic techniques used during surgical treatment. Notably, Nigeria appears not to have a well-developed management protocol for ingrown toenails. However,

implementing a well-developed treatment protocol promises enhanced care and broader coverage for all patients, including those in mental health facilities.

There is a pressing need for policy initiatives to enhance mental health services in Nigeria, focusing on delivering comprehensive care to patients. This should encompass preventive and curative measures for lower extremity conditions, including ingrown toenails. It is imperative to establish clear guidelines regarding the use of anesthetic techniques during surgical interventions for ingrown toenails.

Furthermore, this review underscores the necessity for the Council of Medical Education in Nigeria to recognize the importance of establishing podiatry training and services in the country. Currently, orthopedic surgeons bear the brunt of managing ingrown toenails. Establishing podiatric surgery would alleviate this burden and ensure more specialized and high-quality of care for patients with foot-related issues.

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