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Cervicofacial Necrotizing Fasciitis in Africa: A Systematic Review of Hospital Prevalence, Management, And Clinical Outcomes

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Abstract

Background: Cervicofacial necrotizing fasciitis (CNF) is a rare but life-threatening soft tissue infection in the head and neck region of the body, characterized by rapid progression and high mortality rates. Limited comprehensive data exist on its epidemiology and management across the African continent.

Objective: To systematically review the hospital prevalence, etiological factors, management strategies, and clinical outcomes of cervicofacial necrotizing fasciitis in Africa.

Methods: A systematic review of published studies on cervicofacial necrotizing fasciitis from African countries was conducted. Database searches were performed using keywords including "cervicofacial necrotizing fasciitis," "prevalence," "etiology," "management," and "outcome." Studies conducted in Africa that specifically focused on cervicofacial necrotizing fasciitis were included. Data were extracted and analyzed using SPSS version 20.

Results: Seventeen studies encompassing 333 patients from six African countries were included. The mean age in the studies was 41.86 ± 17.99 years with a male predominance (53.15%). Odontogenic infections accounted for 89.1% of cases, with mandibular teeth involvement in 70.3% of cases. The submandibular region was the most affected anatomical site (36.6%). Diabetes mellitus was the most prevalent comorbidity (55.8% of patients with comorbidities). Streptococcus species were the most frequently isolated organisms (40.7%). Mean hospital stay was 23.2 ± 13.3 days, with a mean presentation delay of 15.39 ± 11.9 days. The overall mortality rate was 4.8%, with sepsis-related deaths occurring in 11.6% of patients with complications.

Conclusion: Cervicofacial necrotizing fasciitis in Africa predominantly affects middle-aged males and is primarily odontogenic in origin. Late presentation remains a significant challenge. Early recognition, prompt surgical debridement, and broad-spectrum antibiotic therapy are essential for favorable outcomes. Enhanced public health education regarding dental hygiene and timely management of odontogenic infections is crucial.

Keywords: Cervicofacial Necrotizing Fasciitis, Africa, Odontogenic Infection, Systematic Review, Mortality, Surgical Management

Introduction

Necrotizing fasciitis (NF) is an aggressive, rapidly progressive soft tissue infection involving the fascial layers and subcutaneous tissue, initially sparing the overlying skin and underlying musculature [1]. It is characterized by extensive necrosis, systemic toxicity, and potentially fatal outcomes if not promptly recognized and aggressively managed [2]. The infection typically results from a virulent, toxin-producing type of bacteria and can affect any body region, cervicofacial involvement accounts for about 5% of all necrotizing fasciitis cases [3,4].

The clinical presentation of necrotizing fasciitis varies with disease progression. Early manifestations include erythema, edema, and tenderness that may be mistaken for cellulitis or simple abscess [5]. As the infection advances, patients develop skin ischemia with bullae formation, crepitus, and systemic signs of septic shock and multiple organ dysfunction [5]. The mortality rate for necrotizing fasciitis ranges from 7% to 40%, with cervicofacial involvement historically associated with mortality rates approaching 60% in some series [6,7]. Early diagnosis and intervention are critical, as delays in treatment are associated with more extensive tissue destruction, prolonged hospitalization, and increased mortality [8].

In the head and neck region, necrotizing fasciitis is most commonly of odontogenic origin [9,10]. While odontogenic infections are frequently encountered in dental practice, because progression to necrotizing fasciitis is uncommon, it may not be recognized until significant disease advancement has occurred. The pathophysiology involves infection extending along fascial planes with subsequent microvascular thrombosis, leading to ischemic necrosis of tissues while initially sparing deeper muscle layers [11]. This characteristic pattern necessitates a high index of suspicion for diagnosis, particularly in resource-limited settings where advanced imaging and laboratory facilities may not be readily available.

In Africa, orofacial infections like cervicofacial necrotizing fasciitis (CNF), represent a significant public health concern related to dental disease burden, limited access to healthcare, and socioeconomic factors [12]. Poor oral hygiene practices, delayed presentation due to financial constraints, reliance on traditional medicine, and inadequate healthcare infrastructure are key contributors to increased disease severity and poor treatment outcomes [13]. Additionally, the high prevalence of immunocompromising conditions such as diabetes mellitus, HIV/AIDS, and malnutrition in sub-Saharan Africa may influence both disease susceptibility and prognosis [14].

Despite the clinical importance of cervicofacial necrotizing fasciitis, comprehensive data on its epidemiology, management, and outcomes across the African continent remain limited. Most existing literature consists of single-center case series from individual countries, with no comprehensive systematic analysis of the condition across the diverse African healthcare landscape or are only focused on generalized necrotizing fasciitis without specific data on the

cervicofacial region. Understanding the regional patterns of this condition is essential for developing appropriate prevention strategies, treatment protocols, and healthcare resource allocation.

Our systematic review aimed to comprehensively analyze the available literature on cervicofacial necrotizing fasciitis in Africa, examining hospital prevalence, etiological factors, demographic characteristics, microbiological profiles, management approaches, and clinical outcomes. By synthesizing data from multiple African countries, this study provides insights into the unique challenges and characteristics of this life-threatening condition in the African context.

Materials and Methods

Study Design

A systematic review of published studies on cervicofacial necrotizing fasciitis in Africa was conducted following established systematic review principles. The study protocol focused on identifying, evaluating, and synthesizing relevant literature to provide comprehensive evidence on the epidemiology, management, and outcomes of this condition across the African continent.

Search Strategy

A comprehensive literature search was conducted using multiple electronic databases and search engines. The following search terms were used in various combinations: "cervicofacial necrotizing fasciitis," "cervical necrotizing fasciitis," "head and neck necrotizing fasciitis," "odontogenic necrotizing fasciitis," "prevalence," "epidemiology," "etiology," "management," "treatment," "outcome," "Africa," and names of individual African countries.

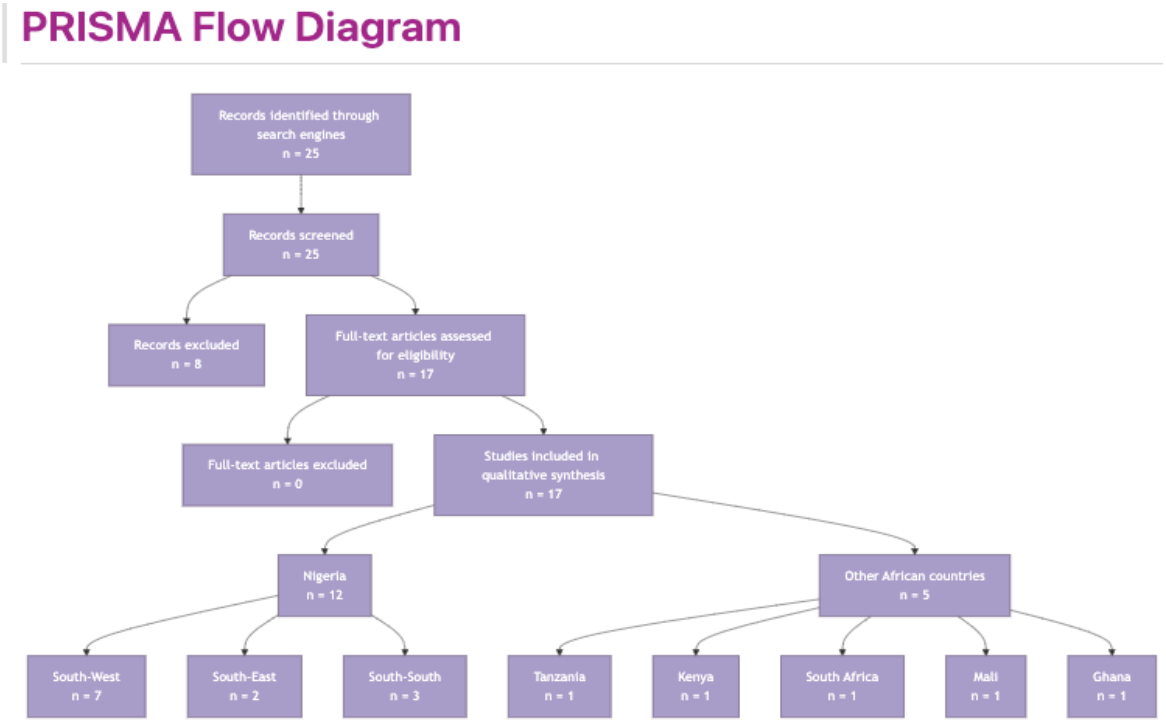

Fig. 1: PRISMA 2020 flow diagram summarizing the study selection process; identification, screening, eligibility, and inclusion, with counts for records identified, duplicates removed, full-text articles assessed, exclusions with reasons, and studies included.

Inclusion and Exclusion Criteria

Inclusion criteria:

- Studies conducted in African countries
- Studies specifically addressing cervicofacial or cervical necrotizing fasciitis
- Studies reporting original patient data
- Studies published in English
- Case reports, case series, retrospective reviews, and prospective studies

Exclusion criteria:

- Studies not conducted in Africa
- Studies focusing on necrotizing fasciitis in other anatomical regions (perineum, extremities) without cervicofacial involvement
- Review articles, editorials, and commentaries without original data
- Studies with incomplete or insufficient data for extraction
- Duplicate publications

Data Extraction

Two independent reviewers extracted data from selected articles using a standardized data extraction form. The following information was collected:

- Study characteristics (author, year, country, study design)
- Patient demographics (age, gender)
- Sample size
- Etiological factors (odontogenic vs. non-odontogenic, source tooth location)
- Anatomical sites affected
- Comorbidities and predisposing factors
- Clinical presentation and duration of symptoms before presentation
- Microbiological findings
- Treatment modalities (surgical interventions, antibiotics)
- Duration of hospitalization
- Complications
- Mortality rates

*Discrepancies in data extraction were resolved through discussion and consensus between reviewers.

Data Analysis

Extracted data were compiled and analyzed using SPSS version 20 (IBM Corp., Armonk, NY, USA). Descriptive statistics were calculated for continuous variables (means, standard deviations, ranges) and categorical variables (frequencies, percentages). Where appropriate, data were aggregated across studies to provide summary estimates. Given the heterogeneity of study designs and reporting methods, meta-analysis was not performed; instead, a narrative synthesis approach was employed.

Results

Study Selection and Characteristics

The initial literature search identified 25 potentially relevant articles. After applying inclusion and exclusion criteria, 17 studies were selected for final analysis. These studies were distributed across six African countries: 12 studies from Nigeria (7 from the South-West region, 2 from the South-East, and 3 from the South-South), and 5 studies from other African countries including Tanzania, Kenya, South Africa, Mali, and Ghana.

Demographic Characteristics

The 17 included studies encompassed a total of 333 patients with cervicofacial necrotizing fasciitis. The demographic characteristics revealed a male predominance, with 177 males (53.15%) and 156 females (46.85%), yielding a male-to-female ratio of 1.13:1. Patient ages ranged broadly, with a mean age of 41.86 ± 17.99 years, indicating that the condition predominantly affects middle-aged adults, though cases were reported across all age groups from children to the elderly.

Table 1: Demographic Characteristics of Patients with Cervicofacial Necrotizing Fasciitis

Parameter	Value
Total patients	333
Males, n (%)	177 (53.15)
Females, n (%)	156 (46.85)
Male:Female ratio	1.13:1
Mean age ± SD, years	41.86 ± 17.99
Mean presentation delay ± SD, days	15.39 ± 11.9
Mean hospital stay ± SD, days	23.2 ± 13.3

Table. 1: Summary of patient demographics for cervicofacial necrotizing fasciitis, including sample size, sex distribution, age, and mean delays in presentation and length of hospitalization.

Etiological Factors

Among the 14 studies that provided detailed etiological information (n=165 patients), odontogenic sources were identified as the predominant etiology, accounting for 147 cases (89.1%). Non-odontogenic causes, including skin infections (boils), noma (cancrum oris), and ingestion of caustic substances, represented only 18 cases (10.9%).

Of the studies reporting the specific jaw involved (n=10 studies, 91 patients), mandibular teeth were implicated in 64 cases (70.3%), while maxillary teeth were the source in 27 cases (29.7%).

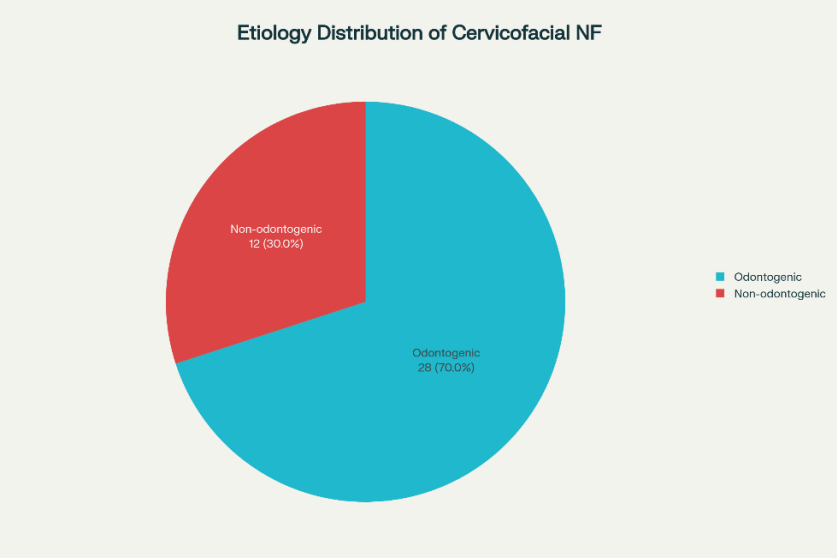

Fig. 2: Etiologic composition of cervicofacial necrotizing fasciitis, showing the proportion of odontogenic versus non-odontogenic cases with counts and percentages.

Anatomical Distribution

The anatomical sites affected by cervicofacial necrotizing fasciitis demonstrated the following distribution (n=194 patients with site-specific data):

- Submandibular region: 71 cases (36.6%)
- Face: 42 cases (21.6%)
- Intra-oral: 27 cases (13.9%)
- Submandibulocervical: 19 cases (9.8%)
- Anterior chest wall: 19 cases (9.8%)
- Other sites (scalp, temporal region, parotid, infraorbital region): 8 cases (4.1%)

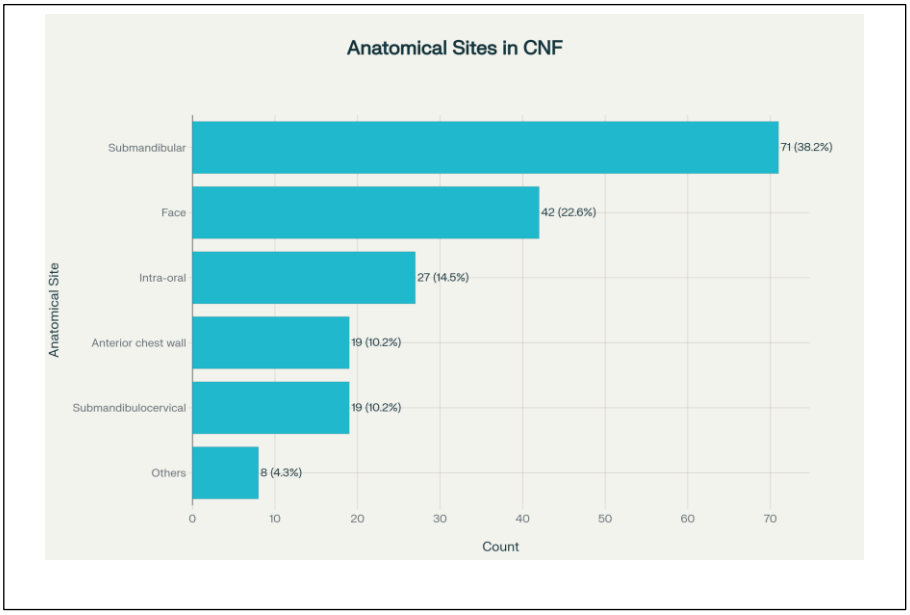

Fig. 3: Anatomical distribution of cervicofacial necrotizing fasciitis cases, showing counts and percentages by site, with the submandibular region most frequently involved.

Comorbidities and Predisposing Factors

Ten studies (58.8%) provided information on underlying systemic conditions among 52 patients. The distribution of comorbidities was as follows:

- Diabetes mellitus: 29 patients (55.8% of those with comorbidities)
- HIV/AIDS (retroviral positive): 8 patients (15.4%)
- Malnutrition: 4 patients (7.7%)
- Other conditions (anemia, hypertension): 11 patients (21.2%)

Microbiological Profile

Ten studies (58.8%) reported microbiological data from culture specimens. Among 91 culture specimens analyzed:

Table 2: Microbiological Profile

Organism	Number of Isolates	Percentage (%)
Streptococcus spp.	37	40.7
No growth	14	15.4
Staphylococcus aureus	11	12.1
Pseudomonas aeruginosa	11	12.1
Escherichia coli	9	9.9
Klebsiella spp.	9	9.9
Total specimens	91	100

Table. 2: Bacterial culture results from cervicofacial necrotizing fasciitis specimens, showing organism frequencies and percentages among 91 isolates.

Clinical Course and Hospital Stay

Among the studies reporting temporal data:

- Duration before presentation: Data from 6 studies (35.3% of total studies) indicated a mean delay of 15.39 ± 11.9 days from symptom onset to hospital presentation. This substantial delay reflects multiple factors including limited healthcare access, financial constraints, initial self-medication, and consultation with traditional healers.
- Hospital stay duration: Ten studies (58.8%) provided data on hospitalization duration, reporting a mean hospital stay of 23.2 ± 13.3 days. This extended hospitalization reflects the severity of disease at presentation, the need for multiple surgical debridements, and management of complications.

Management Strategies

All 17 studies (100%) reported consistent management approaches comprising:

Surgical management:

- Aggressive surgical debridement: universal (100%)
- Incision and drainage of abscesses

- Serial debridements as needed
- Fasciotomy with exploration of fascial planes
- Removal of necrotic tissue
- Wound irrigation (commonly with hydrogen peroxide)
- Insertion of surgical drains

Medical management:

- Broad-spectrum intravenous antibiotics: universal (100%)
- Most common antibiotic regimens included:
- Intravenous ceftriaxone (third-generation cephalosporin)
- Intravenous metronidazole (anaerobic coverage)
- Gentamicin (aminoglycoside)
- Modifications based on culture and sensitivity results
- Supportive care including fluid resuscitation and nutritional support

Adjunctive therapies:

- Honey dressing (reported in some studies as traditional adjunctive treatment)
- Management of underlying comorbidities (glycemic control in diabetics)

Complications and Outcomes

Nine studies (52.9%) provided detailed information on complications (n=138 patients):

- No complications: 87 patients (63.0%)
- Sepsis and death: 16 patients (11.6%)
- Non-limiting scar: 15 patients (10.9%)
- Scar contraction: 8 patients (5.8%)
- Other complications: 8 patients (5.8%), including facial nerve paralysis, aspiration pneumonitis, empyema thoracis, and cavernous sinus thrombosis
- Mediastinum involvement: 4 patients (2.9%)

Mortality: The overall mortality rate across all studies was 4.8% (16 deaths among 333 patients). However, among patients who developed complications, the mortality rate was substantially higher at 11.6%. Most deaths were attributed to sepsis, multiple organ failure, and descending mediastinitis.

Table 3: Comorbidities and Complications

Category	Number	Percentage (%)
Comorbidities (n=52)		
Diabetes mellitus	29	55.8
HIV/AIDS	8	15.4
Malnutrition	4	7.7
Others (anemia, hypertension)	11	21.2
Complications (n=138)		
No complications	87	63.0

Sepsis and death	16	11.6
Non-limiting scar	15	10.9
Scar contraction	8	5.8
Other complications*	8	5.8
Mediastinum involvement	4	2.9

*Other complications include facial nerve paralysis, aspiration pneumonitis, empyema thoracis, and cavernous sinus thrombosis.

Table. 3: Comorbid conditions and clinical complications in cervicofacial necrotizing fasciitis, with counts and percentages for 52 patients (comorbidities) and 138 patients (complications).

Discussion

Principal Findings

This systematic review represents the most comprehensive analysis to date of cervicofacial necrotizing fasciitis across the African continent. The findings reveal several important patterns regarding the epidemiology, clinical characteristics, management, and outcomes of this life-threatening condition in the African healthcare context.

Demographics and Gender Distribution

The observed male predominance (53.15%) in this study aligns with several previous reports from Nigeria and other regions. Studies by Ndukwe et al. reported 80% male predominance, Obiechina et al. reported 62.5%, and international studies such as Juncar et al. from Romania reported 56.3% [15-17]. However, this finding contrasts with some other Nigerian studies by Olusanya et al. (37.5% male) and Chukwuneke et al. (38.75% male) from Enugu, which showed female preponderance [18]. These variations may reflect regional differences in population demographics, healthcare-seeking behavior, occupational hazards, or variations in study populations and sampling methods. The mean age of 41.86 years indicates that cervicofacial necrotizing fasciitis primarily affects the economically productive age group, with significant implications for family and societal burden.

Etiological Predominance of Odontogenic Infections

The overwhelming predominance of odontogenic etiology (89.1%) is consistent with global literature on cervicofacial necrotizing fasciitis. This finding corroborates reports by Olusanya et al. (75%) and Ndukwe et al. (80%) from Nigeria, and the recent systematic review by Gore (2018) which identified odontogenic sources in many head and neck necrotizing fasciitis cases [19]. The higher involvement of mandibular teeth (70.3%) reflects the anatomical proximity of mandibular molars to the submandibular and sublingual spaces, where infection can readily extend along fascial planes.

The pathophysiological explanation involves direct extension of periapical or periodontal infections through the thin cortical bone of the mandible, particularly in the region of mandibular molars where roots often extend beyond the mylohyoid line. Once bacteria breach the bony barrier, they can rapidly spread through the loose connective tissue of fascial spaces. The relatively avascular nature of fascial planes, combined with bacterial production of toxins and

enzymes (hyaluronidase, streptokinase, streptolysins), facilitates rapid tissue destruction and necrosis.

The high prevalence of odontogenic etiology underscores the critical importance of oral health in preventing this devastating condition. Dental caries, chronic periodontal disease, and periapical abscesses secondary to untreated dental decay are the primary initiating factors. These conditions are exacerbated by poor oral hygiene practices, limited access to preventive dental care, and delayed treatment of dental infections in many African settings.

Late Presentation

One of the most concerning findings is the mean presentation delay of 15.39 ± 11.9 days from symptom onset. This substantial delay is a major determinant of morbidity and mortality in cervicofacial necrotizing fasciitis. Alahmad et al. demonstrated that treatment delays after symptom onset significantly increase both local and systemic complications [20]. The extended hospital stay observed in this review (23.2 ± 13.3 days) likely reflects the severity of disease at presentation resulting from delayed care-seeking.

Multiple factors contribute to late presentation in the African context:

Socioeconomic barriers:

- Poverty limiting healthcare access
- Lack of health insurance coverage
- High out-of-pocket healthcare costs
- Transportation challenges in rural areas

Healthcare system factors:

- Limited distribution of healthcare facilities, particularly in rural areas
- Shortage of trained dental and surgical specialists
- Inadequate emergency care infrastructure
- Limited availability of advanced diagnostic facilities

Cultural and educational factors:

- Low health literacy and lack of awareness of dental disease severity
- Initial reliance on traditional medicine and herbal remedies
- Cultural beliefs and stigma
- Underestimation of symptom severity

Clinical factors:

- Initial misdiagnosis as simple cellulitis or abscess
- Inappropriate initial management with inadequate antibiotic coverage
- Delayed referral from primary to tertiary care facilities

Addressing these barriers requires multifaceted interventions including public health education, improved healthcare infrastructure, subsidized emergency dental care, and training of primary healthcare workers in early recognition and prompt referral of severe odontogenic infections.

Comorbidities and Immunocompromise

The high prevalence of diabetes mellitus (55.8% of patients with documented comorbidities) is a key finding which has important clinical implications. Diabetes mellitus predisposes to necrotizing infections through multiple mechanisms:

- Impaired neutrophil function and chemotaxis
- Reduced cellular immunity
- Microangiopathy affecting tissue perfusion
- Hyperglycemia providing a favorable environment for bacterial growth
- Delayed wound healing

Gore's systematic review demonstrated a ninefold increased risk of death among diabetic patients with odontogenic necrotizing fasciitis (mortality rate 30.3% vs. 3.3% in non-diabetics, p=0.0001) [19]. This shows the importance of screening for diabetes in all patients with severe odontogenic infections, aggressive glycemic control during treatment, and heightened vigilance for diabetic patients presenting with dental infections.

The presence of HIV/AIDS (15.4% of patients with documented comorbidities) reflects the high prevalence of HIV in sub-Saharan Africa. While our review did not demonstrate increased mortality in HIV-positive patients, this may reflect small sample size and improved antiretroviral therapy availability. Malnutrition (7.7%), often linked to food insecurity and poverty, further complicates immune function and wound healing capacity.

Microbiological Profile and Antimicrobial Therapy

The polymicrobial nature of cervicofacial necrotizing fasciitis is well-demonstrated by the diversity of organisms isolated, with Streptococcus species predominating (40.7%). This finding is consistent with the odontogenic etiology, as Streptococcus species (particularly Streptococcus anginosus group) are prominent members of oral flora and commonly implicated in deep neck space infections.

The presence of Staphylococcus aureus, gram-negative organisms (E. coli, Klebsiella, Pseudomonas), and the likely presence of anaerobes (though culture techniques for anaerobes are often inadequate in resource-limited settings) supports the need for broad-spectrum antibiotic coverage. The combination of cephalosporins (covering gram-positive and many gram-negative organisms), metronidazole (providing anaerobic coverage), and aminoglycosides (enhancing gram-negative coverage) represents a rational empiric approach.

The 15.4% rate of no bacterial growth may reflect:

- Prior antibiotic use before specimen collection
- Inadequate anaerobic culture techniques
- Fastidious organisms requiring specialized media
- Specimen collection technique limitations

Culture-directed antibiotic modification based on sensitivity results is important, though often delayed or unavailable in resource-limited settings.

Surgical Management

The universal application of aggressive surgical debridement across all reviewed studies emphasizes the fundamental principle that necrotizing fasciitis is primarily a surgical emergency.

Medical therapy alone is inadequate; prompt and extensive debridement of all necrotic tissue is essential for survival. The surgical approach typically involves:

- Early exploration: Often based on clinical suspicion before definitive imaging
- Adequate incisions: Following fascial planes and achieving wide exposure
- Complete debridement: Removal of all necrotic tissue until viable, bleeding tissue is encountered
- Irrigation: Thorough cleansing of affected spaces
- Drainage: Placement of drains to prevent fluid accumulation
- Serial debridements: Second-look procedures within 24-48 hours as needed
- Source control: Extraction of offending teeth

The characteristic intraoperative findings of "dishwater" gray exudate, friable fascial planes, and absence of purulent material help confirm the diagnosis. The lack of significant tissue resistance to blunt dissection along fascial planes is pathognomonic.

Despite aggressive management, some patients developed severe complications including descending mediastinitis (2.9%), which carries a particularly poor prognosis. Mediastinal involvement necessitates cardiothoracic surgical consultation and may require sternotomy for adequate debridement.

Outcomes and Mortality

The overall mortality rate of 4.8% is lower than historical reports of cervicofacial necrotizing fasciitis mortality (ranging from 7-60% in various series). This relatively favorable outcome likely reflects:

- Aggressive surgical approach universally applied
- Appropriate broad-spectrum antibiotic therapy
- Improved critical care support
- Selection bias (published series may overrepresent tertiary centers with better resources)

However, mortality among patients developing complications was substantially higher (11.6%), emphasizing the critical importance of early intervention before complications develop. The sepsis-related deaths highlight the systemic nature of this infection and the potential for rapid progression to multiorgan failure.

Long-term morbidity includes facial scarring, soft tissue defects, facial nerve injury, and psychological impact. Many patients require subsequent reconstructive procedures, adding to the overall burden of disease.

Limitations

Several limitations should be acknowledged:

- Publication bias: Negative outcomes or unsuccessful cases may be underreported
- Heterogeneity: Variations in study design, reporting standards, and data completeness
- Retrospective nature: Most included studies were retrospective reviews with inherent limitations
- Geographic distribution: Predominance of Nigerian studies may limit generalizability
- Missing data: Not all studies reported complete information on all variables
- Diagnostic criteria: Variations in diagnostic criteria and clinical vs. histological confirmation

- Follow-up data: Limited information on long-term outcomes and quality of life

Clinical and Public Health Implications

This review has several important implications for clinical practice and public health policy in Africa:

Clinical practice:

- High index of suspicion for necrotizing fasciitis in severe odontogenic infections, particularly with systemic toxicity, skin changes, or rapid progression
- Low threshold for aggressive surgical exploration when necrotizing fasciitis is suspected
- Screening for diabetes mellitus in all patients with severe odontogenic infections
- Empiric broad-spectrum antibiotics pending culture results
- Serial debridements as standard practice
- Multidisciplinary approach involving oral and maxillofacial surgery, general surgery, critical care, and infectious disease specialists

Public health strategies:

- Enhanced public education on oral hygiene and importance of early dental care
- Improved access to preventive and emergency dental services
- Subsidized or free emergency dental care for low-income populations
- Training of primary healthcare workers in recognition and prompt referral of severe odontogenic infections
- Strengthening referral systems between primary, secondary, and tertiary care facilities
- Diabetes screening and management programs
- Improved healthcare infrastructure in underserved areas

Research priorities:

- Prospective multicenter studies with standardized data collection
- Investigation of traditional medicine use and its impact on outcomes
- Cost-effectiveness analyses of prevention vs. treatment strategies
- Development of risk stratification tools for African populations
- Studies on optimal antibiotic regimens in this setting
- Long-term outcome studies including quality of life and reconstructive needs

Conclusion

Cervicofacial necrotizing fasciitis in Africa predominantly affects middle-aged adults with a slight male preponderance. The overwhelming majority of cases are odontogenic in origin, with mandibular teeth most commonly implicated. The submandibular region is the most frequently affected anatomical site, reflecting typical spread patterns from mandibular infections. Diabetes mellitus is the most common comorbidity, significantly increasing risk and potentially worsening outcomes.

Late presentation, averaging over two weeks from symptom onset, represents a critical challenge that contributes to disease severity, prolonged hospitalization, and complications. This delay reflects complex interactions between socioeconomic factors, healthcare system limitations, and cultural practices. The mean hospital stay of over three weeks underscores the substantial healthcare resource utilization associated with this condition.

Streptococcus species are the most isolated organisms, consistent with the odontogenic etiology, though infections are typically polymicrobial. The universal application of aggressive surgical debridement combined with broad-spectrum antibiotics has achieved a mortality rate of 4.8%, though mortality is substantially higher among patients developing complications.

Early recognition and prompt intervention are essential for favorable outcomes. Healthcare providers must maintain a high index of suspicion for necrotizing fasciitis when evaluating patients with severe odontogenic infections, particularly those with systemic symptoms, rapid progression, or immunocompromising conditions. Immediate surgical exploration and debridement, rather than delayed management awaiting imaging confirmation, may be lifesaving.

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Ethical Approval: As a systematic review of published literature, this study did not require ethical approval or informed consent.

Author Contributions: Boluwatife Olu Afolabi contributed to figures and tables design, manuscript preparation and critical revision. All other authors contributed to study conception, data extraction, and analysis. All authors approved the final manuscript.

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