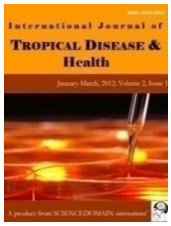

International Journal of TROPICAL DISEASE & Health
6(3): 86-93, 2015, Article no.IJTDH.2015.043
ISSN: 2278–1005

SCIENCEDOMAIN *international*
www.sciencedomain.org

Misconceptions to Primary Pyomyositis in Post-conflict Northern Uganda

Kitara Lagoro David[1*], Bwangamoi Paul Okot[2], Wabinga Henry[3] and Odida Michael[3]

[1]Department of Surgery, Faculty of Medicine, Gulu University, Uganda.
[2]Department of Pharmacy, Faculty of Medicine, Gulu University, Uganda.
[3]Department of Pathology, College of Health Sciences, Makerere University, Uganda.

Authors' contributions

This work was carried out in collaboration between all authors. Author KLD did the study design, statistical analysis, literature searches and wrote the protocol. Authors BPO, WH and OM did literature searches and data collection while analysis of study was by author KLD. All authors read and approved the final manuscript.

Article Information

DOI: 10.9734/IJTDH/2015/14725
Editor(s):
(1) Giovanni Rezza, Epidemiology Unit, Department of Infectious Diseases, Italian National Institute of Health, Italy.
Reviewers:
(1) Anonymous, Spain.
(2) Anonymous, Greece.
Complete Peer review History: http://www.sciencedomain.org/review-history.php?iid=912&id=19&aid=7730

Original Research Article

Received 16th October 2014
Accepted 12th November 2014
Published 10th January 2015

ABSTRACT

Aims: To assess the perceptions and views of the community to the possible causes and the factors responsible for the high prevalence of primary pyomyositis in the region.
Study Design: A cross-sectional study design
Place and Duration of Study: Gulu Regional Referral Hospital and 4 other Hospitals in Northern Uganda from September 2011 to September 2013.
Methodology: A cross-sectional study was conducted on primary pyomyositis patients, their relatives, health workers and managers of hospitals. Qualitative research methods such as Focus Group Discussions, Key Informant Interviews, and In-Depth Interviews were used to obtain the information on the possible causes, experiences and socio-economic effects of the disease to their family, community, health facility and the patients. The information obtained was triangulated before transcribing to an electronic text. Ethical approval for the study was obtained from the IRB of Gulu University Medical School and Uganda National Council of Science and Technology (UNCS&T).

**Corresponding author: Email: klagoro@gmail.com;*

Thematic content analysis was used for data analysis.
Results: There was a wide and varying view about pyomyositis, its causes, and its socio-economic effects to the patient, family, health facilities and communities. The knowledge of the community on the disease is completely at variant with that of health workers and this may present with lack of compliant of patients to the western medical treatment in health facilities. The community beliefs that it is caused by witchcraft and that traditional methods by use of red hot arrow was the best method of management of the disease which should take place in the villages and not health facilities.
Conclusion: Pyomyositis is a common surgical disease and highly prevalent in Northern Uganda but there are misconceptions about its aetiology and approach to management.

Keywords: Pyomyositis; misconceptions; aetiology; risk factors; Gulu; Northern Uganda.

1. INTRODUCTION

Pyomyositis also known in Acholi, a dominant tribe in northern Uganda as “Two Rec” which is literally translated as; “illness in which the muscle looks whitish in colour like fish”, is a suppurative inflammation of skeletal muscle [1]. The abscesses are mainly found deep inside or within the large skeletal muscles of trunks and limbs although any other skeletal muscles may be involved [2,3]. Pyomyositis is a rare infection of skeletal muscles and has striking clinical features and this infection is commonly found in tropical regions of East and Central Africa, Malaysia and the Pacific Islands [2,4]. Although it commonly occurs in people living in the tropics, it is frequently seen and reported in immunosuppressed patients especially people living with HIV/AIDS in the temperate regions [5,6,7]. Patients with HIV/AIDS in the temperate climate show an incidence of musculoskeletal infections of between 0.3 - 3.5% [2]. The incidence of pyomyositis in HIV infected patients with or without AIDS is estimated to be about 31% [8,9,10].

Furthermore, it has been reported in previous publications that between 1960 and 1973, the incidence of Pyomyositis in Uganda rose up to 10 cases per 10,000 populations [2]. In other East African countries, the disease was observed to be concentrated in regions of high altitude with warm and humid climate [2]. Observations from Rwanda and Burundi showed that pyomyositis was extremely rare in their communities; however Rwandan immigrants to Uganda were observed to be affected just as often as the local population where they settled as refugees [2]. However in contrast, no cases of pyomyositis have been registered among members of the European community in these endemic regions [2]. In northern Uganda, the number of pyomyositis cases has risen since the advent of the HIV/AIDS epidemic and the rise in the rate of malnutrition in northern Uganda due to the prolonged incarceration into the internally displaced peoples’ camps (IDPs). The population of northern Uganda has varying views about the possible causes and how the disease progresses and a number of people have several misconceptions on the causes and outcome of treatment of the disease. The objective of this study was to conduct a qualitative research method to assess the perception of the community in northern Uganda to pyomyositis.

2. MATERIALS AND METHODS

2.1 Study Design

This was a cross-sectional study conducted from June to September 2013 using qualitative research methods. Six focus group discussions (2 with male pyomyositis patients, 2 with female patients and 2 with the next of kin); 4 In-depth interviews were conducted with a pyomyositis patient who were: a teacher, a Local council one chairman, an elderly male patient and young female patient; Key informant interviews were conducted with health workers from the hospitals where the patients were managed and this comprised of Medical superintendents/Hospital Directors, surgeons, matrons, in-charge of surgical ward, theatre nurse, next of kin, supplies officer, and medical officers of the health facility.

2.2 Study Sites

The study was conducted in the main hospitals in northern Uganda namely: Gulu Regional Referral Hospital, Lacor Hospital, Kitgum Government Hospital, Kitgum St. Joseph’s hospital and Kalongo Hospital. All these hospitals are situated in Gulu, Kitgum and Agago districts respectively. This region where the study was conducted is

just recovering from over 20 years of civil war between the Government of Uganda and Lord's Resistance Army (LRA). The populations of these districts are largely rural; many of whom were displaced into camps infamously known as the internally displaced peoples camps (IDPS) for over 10 to 12 years for safety from insurgency. It is estimated that over two million persons in these districts were displaced into IDP camps from 1996 to 2008 where they were being fed exclusively on food provided by the United Nations World Food Programs (WFP). Report from the world food program indicated that they provided only 60% of the required calories of food per person per day for the community during their incarceration in the IDP camps. According to the Gulu, Kitgum, Pader and Agago district development plans 2012, the 4 districts have a total population of about 1,200,000 people [11].

2.3 Selection of Study Participants

We consecutively recruited pyomyositis patients undergoing treatment and rehabilitation at these hospitals in northern Uganda for the focus group discussions while the patients for the in-depth interviews were selected purposively. Key informant interviews were conducted with health workers who were directly involved in the medical and surgical management of these patients. The diagnosis of primary pyomyositis was made by the Principal Investigator who is a senior surgeon together with his research team using an approved protocol designed for the recruitment and management of these patients. Those patients that did not consent or those found to have secondary pyomyositis were excluded from the study.

2.4 Data Collection Methods

2.4.1 Key informant interviews (KIIs)

Eight key informant interviews were conducted with the medical staffs of the hospitals where the research was conducted: The staffs interviewed included the Medical superintendents/Hospital Directors, surgeons, matrons, in-charge of surgical ward, theatre nurse, next of kin, supplies officer, and medical officers of the health facility who were mainly involved in the medical and surgical management of the pyomyositis patients. Key informant interviews were guided by the KII guide and these were administered by the Principal Investigator and were assisted by his research assistants. Each key informant interview session lasted between 60 to 90 minutes and was only completed when the issues for discussion were exhausted.

2.4.2 Focus group discussions (FGDs)

Six focus group discussions were conducted with the patients and their attendants; two focus groups were conducted with the male patients; additional 2 focus groups were conducted with the female patients and the last 2 groups with their next of kin. Each discussion group comprised of 8-10 participants who were selected to be relatively homogenous in terms of age, sex and level of education to facilitate free participations among the members. The FGDs was guided by a focus group discussion guide which was moderated by the Principal Investigator. During the discussions, the proceedings were recorded in a note book and summarized in themes which were designed for the recruitment and management of patients with pyomyositis. Because the majority of the patients and next of kin were mainly from Acholi tribe which spoke Luo; both Luo and English languages were used during the discussions to aid the free discussions among the participants. Each focus group discussions lasted between 60 to 90 minutes on average and observed in a cordial environment until all the important issues were exhaustively discussed.

2.4.3 In-depth interviews (IDIs)

Four in-depth interviews were conducted with 4 patients who were purposively selected because of the special and in-depth information they had about the disease and the massive influence they had on their peers and community. The patients that were selected included: one primary school teacher, one Local Council Chairman 1 (LC 1), one elderly woman and one young girl. The In-depth interviews were guided using the IDI guide which were developed during the recruitment and management of pyomyositis patients and were administered by the principal investigator assisted by his research assistants. Each session of the interview lasted for the duration between 60 to 90 minutes and was completed when all the issues raised were discussions to exhaustion.

2.5 Data Analysis

The Principal Investigator and his research assistants collected the data which were triangulated and transcribed into electronic text and summarized into key themes selected before

and during the data collection and analysis process (thematic analysis).

2.6 Ethical Approval

The study was approved by the Institutional review committee (IRC) of Gulu University and Uganda National Council of Science and Technology (UNCS&T) HS 922. Informed consent and Assent was obtained from each individual patient in the presence of the parents/guardians. Confidentiality of information from individual person was protected for all the participants of this research.

3. RESULTS AND DISCUSSION

3.1 The Possible Causes of Pyomyositis

Most health workers thought the possible causes or risk factors of pyomyositis were related to low immunity. The in-charge of the surgery ward in Gulu Regional Referral Hospital said, *"I think the most likely cause or risk factors of pyomyositis are factors that cause low immunity especially malnutrition followed by HIV/AIDS, trauma to muscle, Diabetes Mellitus and bacterial infection from an adjacent structures and I think the best way of preventing and controlling pyomyositis would be by improving the nutritional status of the population through a community educational and food rehabilitation program".* Similar answers were provided by the other health workers and particularly the surgeons who talked about the possibility of other blood malignancies such as leukemia and lymphomas which may lead to other complications such as bleeding disorders leading to haematoma formation in muscles followed by invasion by bacterial infections.

On the other hand, most patients had a different view about the causes or risk factors to pyomyositis. Some belief it was caused by associated with contact with fish and that was why the local name of the disease was "two rec" which literally means "the disease of fish" while the majority think, it developed from witchcraft after the victim stepped on witchcraft materials while walking on a disputed land and so traditional methods should be employed to heal it.

An elderly woman in the in-depth interview said, *"This illness is believed to have started as a result of witchcraft, many in the villages think it is a result of a mischievous activity in which a member of the community used evil spirits to harm the other while some group of persons think the disease was a result of a curse on an individual after doing errant things and therefore the supernatural person "the jok" was punishing him/her for the bad deeds. I think traditional methods including animal sacrifices and using red hot arrow should be used to remove the disease from the body".*

On the management options for the treatment of pyomyositis, a doctor at the surgical ward in Kitgum Hospital said, *"the management approach of pyomyositis depends on the stage of the disease, in the invasive stage, you need a supportive treatment plus antibiotics and analgesics and these could improve the general status and prevent the progression of the disease to the later stages. However if the condition fails to improve, it may progress to pus formation in the muscle where there will be need to conduct incision and drainage, antibiotic therapy, analgesics and other supportive treatments including dressing of the wounds daily until when the wound is clean and ready for secondary closure".*

In the in-depth interview, the elderly woman said, *"I belief the use of red hot arrow to remove pus was what we used to do in the past and in the villages because we lacked resources to travel long distances to the hospital for care, we normally resorted to use of red-hot arrow to allow us remove the pus. The only problem with this procedure is the pain experienced by the victim during and after the operation. Sometimes during the procedure, the victim had to be held down by 4 strong men to ensure that the procedure was conducted uninterrupted. In some instances, the victim would be given a small piece of wood to bite as the procedure was being conducted. In my view, the procedures were too painful and we should seek modern medicine to have this done".*

On the knowledge of the health workers to the social effects of pyomyositis, a nurse in the surgical ward at Gulu Hospital said, *"Pyomyositis is a very devastating disease to patients because it deprives the family of their bread winners, isolates them, depresses them, they lose their social status in the community and confines them to the hospital beds. Some family members have complained that pyomyositis prevents a spouse from fulfilling their conjugal rights and in some instances it has led to family misunderstanding, extramarital affairs and sometimes divorce".*

3.2 Cost of the Disease to Patient and Health Facility

On the overall cost of the treatment of pyomyositis to the hospital, a theatre nurse of Gulu Regional Referral Hospital who has been in service for over ten years said, *"The cost of treatment of pyomyositis is very high compared to other surgical diseases because of the surgical equipments which have to be sterilized, sundries and dressing materials which have to be used, expensive antibiotics which have to be used, anaesthetic agents, resuscitation equipments and the long standing duration of illness and hospital stay. It would be good to prevent the development of pyomyositis in this community" and she added further that, "we are actually not sure of the exact cost of the hospital management of one pyomyositis patient since most of the costs incurred are not recorded but met by the hospitals such as the electricity and water bills".* Similarly in the focus group discussions, there were no agreement on the total cost of the disease to the patient and the family and they equally cited the lack of recorded costs to use for the verification of the total amount of money used.

On the presence of pyomyositis management on the Health Management Information System (HMIS), a nurse from the surgical ward in Gulu regional hospital said, *"although pyomyositis is one of the commonest surgical conditions in Gulu hospital surgical ward, it did not have a specific place in the HMIS record in the department of surgery. It would be advisable that it should be included so that their occurrence could be under surveillance and reported regularly".* This view was shared by many staff in Lacor Hospital, Kitgum Governement Hospital; Kalongo hospital and St. Joseph's Kitgum Hospital who expressed surprise that such a disease that occurs in large numbers were not registered in the HMIS register as provided by the Uganda Ministry of Health.

On counseling and psychosocial support to the patients with pyomyositis a senior Nursing Officer at Gulu Regional Referral Hospital said, *"We provide counseling and testing to all our clients through hospital counselors to enable them cope with the stress created by the disease and also being isolated in the extreme parts of the surgical wards. The patients are normally stressed, they run a very high temperature at admission, and they have loss of appetite, loss of weight and the stress from the surgical procedures. Those patients with pyomyositis concurrently with HIV/AIDS have even greater stress than those without due to the stresses caused by the 2 diseases".*

On the issue about the nutritional support to patients with pyomyositis, a nurse in-charge of surgical ward said, *"In spite everyone being aware that patients with pyomyositis have malnutrition, most public Hospitals do not provide the food support to patients with pyomyositis. We are aware that patients with pyomyositis require nutritional rehabilitation but unfortunately the patients are generally poor and cannot afford nutritious food to enable them quickly recover from the illness. If the government which is the single and largest financier of the hospital could allocate more funds for the hospitals, such food rehabilitation with protein rich diet would have been an integral part of patients' management"*. This same view was shared by all members of the focus group discussions which supported the idea that hospitals should provide in addition to the medicines, nutritional rehabilitation as integral part of the management of their condition because many of them were emaciated and wasted because of the disease and lack and availability of appropriate food.

3.3 Effects of the Illness on the Job

On the responses of the employers from the work places, one patient who had had a prolonged absence from work at Kitgum Government Hospital said, *"I have already received a warning letter from my employer because of my prolonged absence from duties. My supervisor thinks I am just lazy to return to work and probably I have chosen stubbornly to remain in this hospital. This unfortunate but unfair report has tainted my records in Public service just because they do not understand this disease. I am unfairly treated; they do not understand the disability I have acquired because of the disease. I suffer lots of pain and the joints and the muscles are weaker and this has created the biggest disability in my life. The employers need to understand this problem and provide both social and financial support to the employees suffering from pyomyositis because it affects me negatively socially, physically and economically".*

On the cost incurred by the hospital in managing a patient with pyomyositis, a nurse from Gulu regional referral hospital said, *"I estimate conservatively that we use about five hundred to one million Uganda shillings to manage one*

pyomyositis patient and this excludes the personal cost to the individual patient". She further added that, "the cost varied widely depending on the stages of the disease, co-morbidities, nature and complications that may have already occurred on the patient. Those with larger abscesses and in advanced stages of the disease were more likely to spend longer time in the hospital and therefore larger amounts of money would be used".

3.4 The Burden of the Disease to the Population

On the burden of pyomyositis in the region, the matron of Gulu Regional Hospital said, *"We do not know exactly the burden of pyomyositis in the region, in the hospital and the communities but we have noted that most patients prefer to access services for treatment of pyomyositis from this public health facility. Most patients undertake a self referral especially to Gulu Regional Referral Hospital in order to obtain all the services they require. They told me that they requested the private facilities in the region to subsidize the cost involved in the management of their illness but that most institutions had rejected the requests and that the costs were too expensive to be managed by an individual patient and that was why they choose Gulu Hospital which is a non paying public institution".*

A number of patients interviewed informed the researchers that they use herbs and traditional medicines for the initial management of pyomyositis. One patient at Kitgum Government Hospital said*, "We have the belief in our community that pyomyositis is a result of witchcraft and therefore the need to consult the witch doctors for spiritual help. This has resulted in several misconceptions about the disease and this makes many of us delay to report to health facilities and many times this condition becomes worse and complicated as we seek alternative methods of treatment. I have been informed that some patients with the same condition have even died because of this illness after spending weeks and weeks in the shrines of witchdoctors in search for the illusive cure. I would suggest that Government should do something about the disease which as I see now is curable and preventable so that we can avoid an unnecessary delays, complications and death".*

On the delay in reporting to hospital for admission due to the disease, another patient from Kitgum Government Hospital said, *"The main delay factor in reporting to hospital with this disease has been mainly about the culture and behaviours of male patients in responding to health issues. Men are very resistant to behaviour change messages and tend to have a poor health care seeking behavior. Most male patients report late to these health facilities and often present with severe complications of the disease, I suggest that massive sensitization of men should be conducted in the region so that they can improve their attitudes towards better health seeking behaviour".*

Another nurse in surgical ward in Gulu hospital said, *"The main reason why patients fear to report early with the disease is mainly related to mushrooming clinics in the region and these clinics are managed by nursing aids who keep on prescribing empirically various forms of antibiotics to the patients and sometimes the prescriptions are inadequate and insufficient antibiotics provided. This may perhaps explain the long term delay in the establishment of the final diagnosis of the disease". She added further that, "a number of community members are stigmatized about the disease, they associate it with HIV/AIDS and because they fear to be exposed, they would prefer to hide with it at home while others have feared to report early to health facility due to the fear of the surgical procedure in the hospital because some people belief that the disease could not be cured by using the western medicine but rather with traditional methods".* Most notably, these same views were shared by the focus group discussions among the patients.

3.5 Clinical Experience with Pyomyositis

Pyomyositis mimics many other common conditions of the sites it occurs such as septic arthritis and transient synovitis when it occurs near a joint [12]. When the infection occurs in the sub fascial area; the soft tissue inflammatory signs are not usually apparent in the early stages and thus the correct diagnosis might not be considered in the list of working diagnosis [12]. Because of its rarity and often vague clinical presentations, pyomyositis is unlikely to be considered during the initial differential diagnosis [13]. More so, the diagnosis may be delayed as the affected muscle is deeply situated and local signs are not apparent. This delay in diagnosis may result in increased morbidity and sometimes a significant mortality rate [13].

3.6 The way forward with Regards to Pyomyositis

On the way forward, an attendant of one of the patients in Kitgum hospital suggested that because the disease was so rampant in the communities where they live, it was advisable that intense mobilization and sensitization of the community should be undertaken to dispel the misconceptions about the disease. She suggested that the mobilization and sensitization should include the elders, opinion leaders, church leaders and local government officials so as to reach all persons in the community which still suffer quietly with the disease.

4. CONCLUSION

There is a wide range of misconceptions about pyomyositis among the population of Northern Uganda and it presents with a number of socio-economic effects similar to those chronic diseases such as HIV/AIDS.

CONSENT

All authors declare that written informed consent was obtained from the patient and others approved parties) for publication of this research.

ETHICAL APPROVAL

All authors hereby declare that all research have been examined and approved by the Faculty of Medicine Institutional Review Committee, which is the appropriate ethics committee and the approval have therefore been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki. The Ethical clearance reference number is HS 922 and find attached the approval letter.

ACKNOWLEDGEMENTS

We acknowledge the roles played by members of the investigation team especially the staffs from Gulu Regional Referral Hospital, Lacor Hospital, Kitgum government Hospital, Kalongo Hospital and Kitgum St. Joseph's Hospital particularly the research assistants Dr. Akena Geoffrey, Dr. Abonga Julius. We are greatly indebted to the primary pyomyositis patients for accepting willingly to participate in this study.

This work was made possible by Gulu University and Medical Education for Equitable Services to All Ugandans, a Medical Education Partnership Initiative; grant number 5R24TW008886 from the Office of Global AIDS Coordinator and the U. S. Department of Health and Human Services, Health Resources and Services Administration and National Institutes of Health. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the government.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Kitara DL, Bwangamoi PO, Wabinga H. Pyomyositis, its risk factors in patients of Gulu Regional Referral Hospital, Uganda. A cross-sectional study. East Cent Afr J Surg. 2011;16(3):58-63.
2. Philipp L, John J. Pyomyositis: Surgery International; The Medicine Publishing Company Ltd. 2002;56:18-20.
3. Alidri-Ezati I. The association between Pyomyositis and HIV infection at New Mulago. The proceedings of association of surgeons of East Africa, Kampala, Uganda; 1991.
4. Penwick SE, Ritterbusch JF. Review of 5 cases of tropical Myositis. J Pediatric Orthopedics. 1993;13(6):769-772.
5. Hoyle C, Goldman JM. Pyomyositis in patients with myeloma responding to antibiotics alone. J intern Med. 1993;233(5):419-421.
6. Christin L, Sarosi GA. Pyomyositis in North America: Case reports and review. J Clin Infect Dis. 1992;15(4):668-677.
7. Bonafede P, Butler J, Kimbrough R, Loveless M. Temperate zone pyomyositis. West J Med. 1992;156(4):419-423. PMCID: PMC1003290.
8. Rodgers WB, Yodlowski ML, Mintzer CM. Pyomyositis in patients who have human immunodeficiency virus: Case report and review of literature. J Bone Joint Surg Am. 1993;75:588-592.
9. Ansaloni L. Tropical pyomyositis. World J Surg. 1996;20:613-617.
10. Ansaloni L, Acaye GL. Absence of neutropenia in African patients with AIDS and associated pyomyositis. East Afr Med J. 1994;71:736-738.
11. Uganda Bureau of Statistics (UBOS) and ORC Macro. *Uganda Demographic and*

Health Survey 2010-2011. Calverton, Maryland, USA: UBOS and ORC Macro; 2011.

12. Khalid K, Hamdy M. Abdelmotaal, Rayan A. Primary obturator internus and obturator externus pyomyositis. Am J Case Rep. 2013;14:94-98. DOI:10.12659/AJCR.883871.

13. Dimitrios DN, Alexandros A, Ioannis P, Spyros L and Ioannis M. Obturator internus pyomyositis in a young adult: A case report and review of the literature. Cases J. 2009;2:8588. DOI:10.4076/1757-1626-2-8588.

Peer-review history:
The peer review history for this paper can be accessed here:
http://www.sciencedomain.org/review-history.php?iid=912&id=19&aid=7730