

Original Article

Lower extremity diabetic surgical complications in Yaounde – Cameroon.

Pisoh – Tangnyin C¹, Bengondo M¹, Mbuagbaw J², Lekina¹, Takongmo S¹, Farikou I³, Ngowe Ngowe M⁴

- 1- Service of Surgery and Specialties, University Hospital Centre (CHU), Faculty of Medicine and Biomedical Sciences (FMBS), University of Yaoundé I (UYI).
- 2- Service of Medicine, CHU, FMBS, UYI
- 3- National Handicap Centre, Etoug-Ebe, FMBS, UYI
- 4- General Hospital, FMBS, UYI.

CORRESPONDENCE: Dr. Pisoh–Tangnyin Christopher
CHU, Yaoundé, Cameroon
P.O. Box 5228 Bamenda
Tel.: 00237 77 63 51 07
E-mail: pisoh@yahoo.fr

ABSTRACT

Objective :

This study was carried out to determine the epidemiological, clinical and evolutionary aspects of lower extremity diabetic surgery in a surgical service in Yaoundé.

Patients and methods:

We carried out an analysis of the files of 62 patients admitted for surgery of diabetic surgical complications of the lower extremity between January 2000 and December 2008.

Results:

Most of the patients admitted 25 (40,32%) were of the 41 – 50 years age group, 38 patients (61.29%) were males. Clinically, 23 patients (37.09%) were admitted for myositis, 17 (27.42%) for diabetic foot, 13 (20.96%) for mal perforant, and 9 (14.52%) for necrotizing fasciitis. Five patients (7%) died. There were 7 leg amputations, and in one case, it was bilateral leg amputation.

Conclusion:

Health care providers to diabetics should take every opportunity to review the risk factors of diabetic surgical complications of the lower extremity of their patients and provide adequate education and measures when indicated to middle aged and older adults.

Keywords: Diabetic foot, malperforant, gangrene, necrotizing fasciitis.

RESUME

Objectif:

Cette étude sur les complications diabétiques du membre inférieur à Yaoundé, Cameroun, était menée pour déterminer l'épidémiologie, la clinique et l'évolution de la chirurgie diabétique du membre inférieur dans un service de chirurgie à Yaoundé.

Patients et méthodes :

Nous avons analysé le dossier de 62 patients hospitalisés pour la chirurgie des complications diabétiques du membre inférieur du janvier 2000 à décembre 2008.

Résultats :

Des 62 patients hospitalisées, la plupart (25 : 40,32%) étaient dans le groupe d'âge de 41 – 50ans, et 38 (61,29%) étaient les hommes. Cliniquement, 23 patients (37,09%) étaient hospitalisés pour myosite, 17 (27,42%) pour pied diabétique, 13 (20,96%) pour mal perforant, et 9 (14,52%) pour fasciite nécrosante. Nous avons noté cinq cas (8,06%) de décès. Il y avait 7 amputations de jambe, et dans un cas l'amputation était bilatérale.

Conclusion :

Les agents de santé s'occupant des diabétiques doivent toujours rechercher les facteurs de risque de complication chirurgicale du membre inférieur de leurs patients et leur donner une éducation adéquate et des mesures précises pour les prévenir.

Mots Clés : Pied diabétique, malperforant, gangrène, fasciite nécrosante.

INTRODUCTION

Diabetes mellitus is a real public health problem. Its extremity complications set in very slowly and constitute for the diabetic and his family a serious medical, human and economic problem [1]. Its frequency in hospitals varies from 5 – 7% [2]. This implies that complications related to this chronic non-infectious disease would be seen more and more. Unfortunately, the disease develops insidiously and is discovered only on systematic blood sugar evaluation for other reasons or when a complication sets in [3].

The complication that very often requires hospitalisation is that affecting the lower extremity (4,5,6,8]. The risk factors associated with complications that affect the extremity are Polyneuropathy (PNP), Peripheral Arterial Disease (PAD) and Foot Deformity [7,8]. The presence of PNP is of particular importance in Africa where many people do not wear shoes. They sometimes have minor trauma to their insensitive feet and often neglect them due to ignorance [9]. This negligence may lead to secondary infection that spreads to the deeper tissues producing necrosis, osteomyelitis and gangrene especially as the immunity in the diabetic is reduced. The progression of such an infection could lead to amputation and death through septicaemia [7]. The most disturbing outcome is therefore that of infection. This study was carried out to determine the epidemiological, clinical, and evolutionary aspects of diabetic surgical complications of the lower extremity in a surgical service in Yaoundé.

PATIENTS AND METHODS

This retrospective study was undertaken during January 2000 to December 2008 in the Surgical Unit of the University Hospital Centre. Files of patients who were admitted to the wards with lower extremity problems who were known to be diabetic or whose blood glucose study revealed diabetic levels, were eligible for inclusion. They were patients either referred from colleagues of the General Hospital, the National Handicap Centre Etoug-Ebe or were transferred from Medicine to the Surgical Unit.

Patients admitted with diabetic surgical complications not affecting the lower extremity were excluded from the study. Data relating to the demography, the onset of the lower extremity pathology, and its course were recorded, together with the clinical aspects and the evolution. All ethical requirements were respected.

RESULTS

The files of 62 patients comprising 38 males (61.29%) and 24 females (38.71%) were studied. They were aged between 38 years and 77 years (mean 43.9

years). Most of the patients (40.32%) were in the age range 41 – 50 years.

Onset:

Of the 62 patients, 16 (25.81%) never knew of their diabetic status until blood glucose level was shown during hospitalisation to be of diabetic level. 11 patients (17.74%) had punctured wounds of the feet by sticks, nails or scarifications which became septic.

Two patients developed sepsis following a warm bath of the feet which were painful (Fig.1). In 23 patients (37.09%) the onset was not described.

Course:

Thirty nine patients (62.9%) were referred from peripheral district hospitals. Seventeen of the 39 patients were referred for myositis of the lower extremity, 11 for diabetic foot, five for necrotising fasciitis and seven for malperforant. Seven patients (11.29%) came from the home of tradi-practitionners, while sixteen (25.81%) came from their homes.

Of those who came from their homes, seven of them had myositis, four had malperforant, three necrotising fasciitis, and two diabetic foot.

Clinical presentations:

Twenty three patients (37.09%) were admitted for myositis, four of which were a result of an intramuscular injection. The origin of the others was not known. Myositis of the quadriceps was commonest with seventeen cases. Seventeen patients (27.42%) had diabetic foot. This was defined as foot sepsis whether following trauma or other causes. (Fig. 2,3). Thirteen patients (20.96%) had mal perforant, chronic plantar ulcer below the head of the first metatarsus in most cases. Nine patients (11.52%) had necrotising fasciitis. The calf was mostly affected. (Fig. 4)

Treatment:

Seven patients (11.29%) necessitated amputation, 43 patients (69.35%) necessitated incision, drainage and multiple debridements. Eight patients (12.9%) necessitated skin graft, when the wound became clean after drebridements and dressings.

Evolution:

There were three deaths due to gangrene and two due to multiple myositis.

DISCUSSION

The understanding of the risk factors that contribute to the diabetes related lower extremity pathology is a major step towards improving the evolution of affected patients. We recorded a mortality rate of 8.07%. This figure is lower than rates reported

by other studies [4,6]. However, in institutions where there is an organised and standard format for the management of the pathology, mortality and other complications have been reported to be minimal (11,12). The management principles for the patients studied here, were standardized and followed in the management of each case. Lower extremity surgical diabetes complication has been more commonly reported among patients of the lower socio-economic groups as they are more likely to be living in rural areas with little or no health facilities and not likely to have insulin and oral diabetes medications. The severity of the lower extremity pathology depended strongly on the number of risk factors present. PNP and PAD coupled with infection of the diabetic foot strongly affected the evolution of the lower extremity pathology. This has been confirmed in the literature [4,5,13].

Those with severe hyperglycaemia, who were more likely to suffer infectious complications of their lower extremity, were more likely to die compared to those with mild or near normal glycaemias. This emphasizes the importance of prevention of diabetes complications by rigorous glycaemia control in the first place and the role of aggressive management of lower extremity pathologies and eventual institution of protective measures for diabetic feet or early treatment of complications in affected persons [1].

The evaluation of the risk factors, and their classification measures to reduce them like trying to maintain glycaemia to near normal levels has been recognised as a favourable prognostic factor [7,8,11,12]. However, this stratification is not yet current in African countries because of the difficulties of diagnosing the risk factors [5].

We recommend that health care providers should take every opportunity to review the risk factors of lower extremity diabetic surgical complications of their patients and provide adequate education and measures when indicated; they should remember that many middle aged and older adults are not more likely to have complications.



Fig. 1: PNP: Burns due to hot water



Fig.2: PAD: Dry Gangrene



Fig. 3: PNP + PAD: Wet Gangrene



Fig. 4: Necrosis of dorsum of the calf evolving to necrotising fasciitis

REFERENCES

1. Yassibanda S, Nadji-Adim F, Danai A, Boua N, Camengo Police S M, Waboulou Ph. Le pied diabétique à Bangui: Aspects épidémiologiques et évaluation de la prise en charge. *Médecine d'Afrique noire*. 49 : 879, 2002.
2. Bieleu E. Facteurs de risque cardiovasculaire chez le diabétique de Kinshasa. *Médecine d'Afrique Noire*. 50(10) : 437 – 443, 2003.
3. Lenteregger M, Bauduceau B, Brun JM ; Guillon Metz F, Martin C, Nicolino-Peltier C, Richard JL, Vannereay D. Added benflourex in obese insulin requiring type 2 diabetes. *Diabetes and metabolism*. 21(1): 1 – 8, 1998.
4. Lester FT. Amputation in patients attending a diabetic clinic in Addis Ababa, Ethiopia. *Ethiop Med J*. 33:15 – 20, 1995.
5. Steffen C, O'Rourke S. Surgical management of diabetic foot complications: the Far North Queensland Profile. *Aust NZJ Surg*. 68(4): 258 – 60, 1998.
6. Sano D, Tieno H, Drabo Y, Sanou A. Management of the diabetic foot. A report of 42 cases at the Ouagadougou University Hospital Center. *Dakar Med*. 50:1793 – 1806, 1998.
7. Schoenenweid. Conservation treatment of the diabetic ulcer: from the ulcerated foot to the foot at risk (Fr). *Méd et Hyg* 50:1793 – 1806, 1992.
8. Armstrong DG, Lavery LA. Diabetic foot ulcers: Prevention, diagnosis and classification. *Am Fam Physician* 57(6): 1325-32, 1337-8, 1998.
9. Akanji AO, Adentuyidi A. the pattern of presentation of foot lesions in Nigeria diabetic patients. *West Afr. Med J*. 9:1 – 5, 1990.
10. Birke JA, Horswell R, Patout CA, Chen SL. The impact of a staged management approach to diabetes foot care in the Louisiana Public Hospital system. *J La State Med. Soc*. 155 (1): 37 – 42, 2003.
11. Scovegler B, Boni T, Furrer J, Spanas GA, Lehmann R. Practical Management of Diabetic Foot. *Ther Umsch* 59 (8): 435 – 42, 2002.
12. Rooh-Ul-Muqim, ahmed M, Griggin S. Evaluation and management of diabetic foot according to Wagner's Classification. A study of 100 cases. *J. Ayub Med. Coll Abbottabad*. 15 (3): 39 – 42, 2003.
13. Dagogo-Jack S. Pattern of diabetic ulcer in Port Harcourt, Nigeria. *Practical Diabetes Digest*. 2: 75 – 78, 1991.