



**Research Article**

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## Complications from fractures of limbs treated by traditional medicine in the eastern part of the Democratic Republic of the Congo

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### Abstract

**Introduction:** This study aimed to report fractures complications observed after traditional treatment in Bukavu. **Patients and Method:** This is a cross-sectional, multicentered and prospective study of a series of 73 cases of fracture complications after traditional treatment collected from 5 hospitals: University clinics of Bukavu; Skyborne Hospital Center, CIRIRI Hospital, Medigure Hospital and Panzi Hospital, from January 1st to December 31st, 2019. Data were collected on a survey form filled by patients and analyzed using Epi Info software 7.2 version. **Results:** The patients average age was 33.21 ± 18.08 years (range: 4 -74 years) with a sex ratio of 1.7. The group of 21-30 years old was the most affected with 21 patients (28.77%). The traffic accident was the main etiology 42 (57.53%) followed by the fall from a high place with 14 patients (19.18%). Closed fractures represented 44 cases (60.27%). The femur was more affected 18 (24, 66%). The use of traditional medicine was justified by: more effective than modern treatment 26 (35.62%), less expensive 23 (31.51%), socio-cultural beliefs 9 (12.33%) and other reasons 4 (5.48%). 39 patients (53.42%) were coming from urban areas. The complications observed were: 21 skin necrosis (28.77%), 19 vicious calluses (26.03%), 9 non-union (12.33 %), 8 infections (10.96%), 6 limb shortening (8, 22%), 5 gangrene / ischemia (6.85%), 3 joint stiffness (4.11%) and 2 delayed consolidation (2.74%). The modern treatment of these complications was based on osteosynthesis associated with an osteotomy or corticoperiosteal decortication-bone graft 28 (38.36%), skin graft 16 (21.92%) and 23 patients (31.50%) refused modern treatment despite the complication. **Conclusion:** The fractures traditional treatment based mainly on trial and error, practiced with inadequate means and measures without respecting the fractures treatment principles is a real source of complications that can lead to disabling disabilities.

**Keywords:** Complications, Fractures, Traditional medicine.

### INTRODUCTION

A fracture is a solution to the continuity of the bone; While in medicine a complication, is an unfavorable evolution of a disease, a state of health or a medical treatment, the complications of a fracture are multiple and depend either on the topography of the lesion or on the 'skin involvement and are classified into immediate, secondary and late complications [1].

So-called traditional medicine is "the set of practical knowledge that may or may not be explained to diagnose, prevent or eliminate a physical, mental or social imbalance based exclusively on lived experience and observation transmitted from generation to generation, orally or by written [2]. Traditional medicine is requested daily by several hundred patients who request care [3]. In Africa, the traditional treatment of fractures has been done since ancient times before the advent of modern trauma [4]. The traditional treatment of fractures which dates back tens of thousands of years is widespread and remains a reality in developing countries where many practitioners make a living from this profession. However, it remains very frequent for socioeconomic reasons; cultural; the lack of competent medical personnel; ignorance and belief in the mystical virtues of traditional medicine [2, 5]. The traditional restraint system made of wood; poorly or not adapted links; bandages that are too tight; ignorance of anatomical structures is the cause of early or late complications after traditional treatment of fractures [4, 6]. The compression created by traditional immobilizations often results in skin damage; muscle; vascular

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or nervous by tourniquet effects, some of which are extremely serious. They can lead to lifesaving treatments such as amputation [6-8]. Sewers have limited knowledge of anatomy, and rely on experiences passed down from father to son [8].

The poverty of the populations, ignorance of the potential dangers of traditional treatment of fractures, and the lack of specialized centers in orthopedics-trauma argue in favor of the choice of traditional treatment. However, this treatment is often the source of serious complications that can compromise the functional or vital prognosis of the limb. [4, 6, 9, 10].

Faced with a high frequency of patients with a history of traditional medicine in the treatment of fractures, we initiated this first study in the city of Bukavu in order to report our experience on the complications of fractures after traditional treatment.

## PATIENTS AND METHOD

This is a prospective cross-sectional multicenter study of a series of 73 cases of fracture complications after traditional treatment collected in 5 centers: University clinics of Bukavu; Skyborne Hospital Center, CIRIRI Hospital, Medicure Hospital Center and Panzi hospital from January 01 to December 31, 2019. We included in this study: All patients with limb fractures initially treated with a splinter; who have had to present

complications following traditional treatment and whose management or diagnosis was made in the orthopedic surgery department.

The data collected on a survey sheet, sent directly to patients, were analyzed using the Epi Info software version 7.2. The analysis focused on classic statistical tests: descriptive statistics (minimum, maximum, Average, Standard deviation) for frequency analysis.

## RESULTS

### Socio-epidemiological data

The male sex was the most affected with 46 patients or 63.01% against 27 patients or 36.99% for the female sex with a sex ratio of 1.7.

In our series, 39 (53.42%) cases of complications came from the urban setting against 34 (46.58%) patients who came from outside the city. The mean age was  $33.21 \pm 18.08$  years (range: 4 - 74 years). The 21 to 30 year age group was the most observed with 21 (28.77%) cases. The higher education level was more represented with 31 (42.47%) patients followed by non-literate with 16 cases 21.92%, secondary level 15 (20.55%) cases and primary 11 (15.07%) patients. The unemployed were the most affected by the complications with 25 cases or 34.25% followed by students (21.92%), civil servants (21.92%) and others (motorcyclists, masons, mechanics, drivers) with 14 (19.18%) patients. (Table 1.)

**Table 1:** Distribution of patients according to socio-demographic data and the motivation of traditional treatment

Age (year)	Effective (n=73)	Percentage (%)
0-10	08	10.96
11-20	09	12.33
21-30	21	28.77
31-40	14	19.18
41-50	06	8.22
51and over	15	20.55
Sex	Effective (n=73)	Percentage (%)
Male	46	63.01
Female	27	36.99
Motivation of traditional treatment	Effective (n=73)	Percentage (%)
Effectiveness of Traditional Medicine.	26	35.62
Lower cost of traditional medicine.	23	31.51
Low level of patient income.	11	15.07
Socio-cultural beliefs.	09	12.33
Lots of requirements in modern medicine.	03	4.11
Ignorance of procedures for accessing medical care.	01	1.37
<b>Total</b>	<b>73</b>	<b>100</b>

### Choice of traditional treatment

The use of traditional medicine was justified by: more effective than modern treatment 26 (35.62%), less expensive 23 (31.51%), socio-cultural beliefs 9 (12.33%) and others 4 (5.48 %).

### Defaults of modern medicine

The long hospital stay and the long immobilization time are the main fears in modern fracture treatment with successively 27 cases, ie 36.98% and 15, or 20.55%.

### Clinical and radiological study

Road accident was the main cause of fractures with 42 (57.53%)

patients, followed by fall from a high place with 14 (19.18%) patients, fight with 8 (10.96%) patients, sport with 5 (06.85%) patients and other 4 (5.488%).

Closed fractures were more frequent with 44 (60.27%) cases versus 29 (39.73%) cases of open fractures. In our series, 54 (73.97%) patients did not have a diagnostic radiological assessment of the fractures compared to 19 (26.03%) patients who did so before traditional treatment.

### Complications of fractures and traditional treatment

The wooden splint associated with medicinal complaints is the most common traditional treatment with 31 (42.47%) cases followed by

herbal remedies with massage 22 (30.14%) cases and the incantation 19 (26.03%) cases.

In our study, 45 (61.64%) patients had a poor appreciation of the traditional treatment of fractures, 20 (27.40%) patients who appreciated it moderately and; 8 (10.96%) patients rated it very good and good.

The most affected bones were: the femur with 18 (24.66%) cases, the tibia with 15 (20.55%) cases, ulna + radius with 7 (9.59%) cases; tibia + fibula with 6 (8.22%) cases as well as the humerus with 6 (8.22%) cases.

The complications observed were: 21 (28.77%) skin necrosis, 19 (26.03%), vicious callus, 9 (12.33%), non-union, 8 (10.96%) infections, 6 (8, 22%) limb shortening, 5 (6.85%) gangrene / ischaemia, 3 (4.11%) joint stiffness and 2 (2.74%) delayed union. (Table 2).

#### Type of treatment for fracture complications received in hospital.

The modern treatment of these complications was based on the internal fixation associated with an osteotomy or corticoperiosteal decortication-bone graft 28 (38.36%), skin graft 16 (21.92%) and; 23 (31.50%) patients had refused modern treatment despite the complication. (Table 2).

**Table 2:** Distribution of patients according to the fractured bone, types of complications, and their treatment.

the fractured bone	Effective (n=73)	Percentage (%)
Femur	18	24.66
Tibia	15	20.55
Cubitus - Radius	07	9.59
Tibia-fibula	06	8.22
Humerus	06	8.22
Ulna	04	5.58
Ball joint	04	5.58
Calcaneum	03	4.11
Phalanges	06	8.22
Radius	02	2.74
Types of complications	Effective (n=73)	Percentage (%)
Skin necrosis	21	28.77
Vicious cal	19	26.03
Pseudarthrosis	09	12.33
Infection	08	10.96
Limb shortening	06	6.22
Gangrene / ischemia	05	6.85
Joint stiffness	03	4.11
Delay in consolidation	02	2.74
Treatment of complications	Effective (n=73)	Percentage (%)
Osteosynthesis + Osteotomy or Corticoperiosteal decortication-bone graft	28	38.36
Refusal of modern treatment	23	31.50
Skin graft	16	21.92
Amputation	04	5.48
Plaster	02	2.74
<b>Total</b>	<b>73</b>	<b>100</b>

## DISCUSSION

### Socio-epidemiological data

In our series, the male sex predominated with 46 cases or 63.01% with a sex ratio of 1.7. This male predominance has been observed by Sauna BS *et al.* [11]; Togo S. [12]; Soumah M.T *et al.* [13]; David Ngaroua *et al.* [14]. The predominance of the male sex in our series is justified by the fact that men in social life are more active and exercise the profession at greater risk than women in the developing world, which exposes them to trauma.

In our study the mean age was 33.21 ± 18.08 years (range: 4 - 74 years), the age group of 21 to 30 years is the most affected with 21 (28.77%) patients.

The average age of our series is close to that of David Ngaroua *et al.* [14] and E. Mensah [15]; but diverge from those of Ayite A. *et al.* [16] and Mierey J. C. [17]. This observation could be explained by the high number of young active adults in our study.

In our study, 39 (53.42%) patients came from an urban setting versus 34 (46.58%) patients who came from outside the city. The place of origin of the patients varies according to the authors; E. Mensah [15]; Togora [2]; Bamba. I *et al.* [18]. This variation could be explained by the different geographical location of the study setting which would influence the different social strata of the patients.

In our series, the higher education level is more represented with 31 (42.47%) patients followed by non-literate with 16 (21.91%) patients; moreover in our study, the unemployed were the most affected (34.25%) by complications, ie cases followed by pupils (21.92%) and civil servants (21.92%).

Our results are close to those noted by Diakite S. K *et al.* [19], but diverge from those observed by Togora M. [2]; E. Mensah *et al.* [15]; Sidiki Togo [20].

This difference could be explained in our study framework of a high rate of unemployment among the young population, the latter resorting to traditional treatment for reduced support costs.

### Choice of traditional treatment

The use of traditional medicine was justified by: more effective than modern treatment 26 (35.62%), less expensive 23 (31.51%), socio-cultural beliefs 9 (12.33%) and others 4 (5.48 %).

Our results are variable to those observed by L. Lamah [21] and Loubna Bassi [22]. This difference is explained by the fact that in our societies influence has a lot to do with the choice of treatment mode, and the other by the lack of financial means.

### Failure of modern medicine

Long hospital stay 27 (36.98%) and long downtime 15 (20.55%) are the main shortcomings of modern treatment of fractures raised by patients. These results are variable to those found by Onuminya JE. [23]; kuj. W. [24].

### Clinical and radiological data

Road traffic accident was the main cause of fractures with 42 (57.53%) patients, followed by fall from a height with 14 (19.18%) patients.

This has been observed by several authors: David N. [14]; Sidiki Togo [20] and Diarra E. [25] but move away from those of Diakite A.G [26] and Mierey J.C [1].

The high frequency of public road accident in our study framework could be explained by poor road conditions on the one hand, but also by non-compliance with the Highway Code by car drivers. Closed fractures were more frequent with 44 patients or 60.27% of cases. Our results are consistent with those observed by Sidiki TOGO [20]; Bamba I. *et al.* [18]; Ayite A. *et al.* [16]; Diakite. S.K *et al.* [19]. But depart from those reported by Thiam S.M [27]; Togora [2].

The predominance of closed fractures could be explained by the fact that open fractures generally bleed a situation which would motivate the patient to visit the hospital to stop the bleeding and / or to do surgical trimming.

In our series, 54 (73.97%) patients did not have a diagnostic radiological assessment of the fractures compared to 19 (26.03%) patients who did so before traditional treatment.

These results are close to those of Loubna Bassi [22]. This could be explained by the ignorance of the principles of fracture management by some splicers.

### Complications of fractures and traditional treatment

In our series, the most affected bones are: the femur with 18 cases, the tibia with 15 cases, ulna and radius with 7 cases; tibia and fibula cases with 6 cases as well as the humerus with 6 cases, respectively 24.66% 20.55% 9.59%, 8.22% of cases.

Our results are consistent with those found by Diakite C. *et al.* [10]; Diakite A.G [26] and walks away to those found by Diarra E. [25]; Mierey J.C [17] and Garba E.S [28].

This predominance can be explained by the fact that the lower limbs are more exposed to trauma. In our study the wooden splint associated with medicinal plants is the most common traditional treatment with 31 (42.47%) patients followed respectively by medicinal plants with massage and incantation with 22 patients, i.e. 30.14% of cases and 19 patients 26.03% of cases.

The traditional therapeutic methods of fractures vary according to the authors: Diakite. C [10]; Mierey J.C [17]; E. Mensah [15]; Sidiki [20]; Diarra B. M [29]; Thiam S.M [27]; Togora [2]; Togo S. [12]. This variability in traditional fracture treatment methods is explained by the fact that we have conducted research in different societies while each society has its culture and traditional fracture treatment.

In our study 45 (61.64%) patients had a poor appreciation of the traditional treatment of fractures and 20 (27.40%) patients moderately appreciated it. These results diverge from those of Mensah *et al* [9].

This could be explained by dissatisfaction with the treatment given by the stitchers who experienced various complications. On the other hand; others are content with the service offered by the routers despite the occurrence of complications that they underestimate.

Skin necrosis is the most frequent complication with 21 patients or 28.77% of cases followed respectively by malignant callus or 19 patients or 26.03% of cases, non-union with 9 patients or 12.33%, infection with 8 patients or 10.96%, limb shortening with 6 patients or 8.22% of cases, gangrene / ischemia with 5 patients or 6.85%, joint stiffness with 3 patients or 4.11% as well as delayed union with 2 patients or 2.74%. Complications are variable across series, however, gangrene, nonunion, callus, and skin necrosis have been observed by several authors: David. N [14], E. Mensah [15]; L. Lamah [21]; Togora [2]; Sidiki T. [20]; Onumiya J.E *et al.* [30]; Souna B.S *et al.* [11]; Alwata I. *et al.* [31]; Soumah M.T *et al.* [13]. This difference would be justified by the fact that the complications depend on the one hand on the type of fracture, on the type of traditional treatment, but also on the time of traditional treatment.

### Types of treatment for fracture complications received in hospital

The modern treatment of these complications was based on the internal fixation associated with an osteotomy or corticoperiosteal decortication-bone graft 28 (38.36%), skin graft 16 (21.92%) and; 23 (31.50%) patients had refused modern treatment despite the complication. Modern methods of therapy for complications of fractures varies according to the series: Sidiki T. [20]; Alwata I *et al.* [31]; Bamba I. *et al.* [18]; Soumah M.T *et al.* [13]; Souna B.S and Coll. [11]; Togora [2].

This difference is explained by the fact that modern treatment depends from one complication to another and, on the stage of tissue damage.

### CONCLUSION

The use of traditional medicine for the treatment of fractures is a reality in most countries with limited resources, and the outcome of this treatment is marked by many complications.

Our study allowed us to conclude that the traditional treatment of fractures based mainly on trial and error, practiced with inadequate means and measures without respecting the principles of fracture treatment, is a real source of complications that can lead to disabling disabilities. Measures must be taken by those in charge of the health sector to sensitize the population and to discourage if not to supervise these traditional healers.

### Authors' Contributions

This work was carried out in collaboration between all authors.

### Competing Interests

Authors have declared that no competing interests exist.

### REFERENCES

1. Youmachev G. Traumatologie et orthopédie. 3ème. Mirl, editor. 1977.
2. Togora M. étude épidémiologique et clinique des traumatismes traités traditionnellement au préalable dans le service de chirurgie orthopédique et traumatologique du C.H.U. Bamako; 2011.
3. Bassi L. traitement traditionnel en traumatologie. UNiversité de Marrakesh; 2007.
4. Mathieu I, Bertani a, Chaudier p *et al.*. Prise en charge des complications du traitement traditionnel des fractures du membre supérieur : expérience d'une antenne chirurgicale de l'avant française en Tchad. Chir Main. 2014.
5. Yao LB, Journal Africain de Chirurgie Orthopédique et Traumatologique. Bouake; 2018.
6. Dossim A, Profil épidémiologique et clinique des lésions traumatologiques compliquées par un traitement traditionnel à propos de 29 cas dans le service de traumatologie du CHU Tokin de Lomé. In: SOMACOT, editor. 1er congrès. Bamako, 2004.
7. Akram K. l'acupuncture traditionnelle et le pratique de sport.
8. Dada AA, Yinusa W GS. Review of the practice of traditional bone setting in Nigeria. Afr Heal Sci. 2011; 11.
9. Mensah. Traitement des complications du traitement traditionnel des fractures dans un service de chirurgie générale. Universitaire de Côte d'Ivoire, 2016.
10. Diakite C MP. étude de la traumatologie traditionnelle en pays dogon (mali). Tome XIX ; 2004. 15 p.
11. Souna BS, Sacko A. YID. Les limites du traitement traditionnel des fractures des membres à propos de 302 cas de complications traitées à l'hôpital national de Niamey. In: SOMACOT, editor. 1er congrès. Bamako; p. 53–4.
12. Togo S. Complications ischémiques aiguës suite au traitement traditionnel des traumatismes des membres dans les services de chirurgie orthopédique et traumatologique de l'hôpital de KATI et de l'hôpital Gabriel TOURE A propos de 35 cas. Université de Bamako; 2006.
13. Soumah MT, camara T, Soumah I, Kebe m KT. Problématique de la prise en charge des fractures traitées en médecine traditionnelle. In: 1er congrès. Bamako: SOMACOT; 2004; p. 55.

14. David N DY. utilisation of traditionnel healers services for the management of fractures in the town of ngaoundere. *J Med Heal Sci.* 2018; 19(22 DOUALA).
15. Mensah E. aspect épidémiologique et lésionnel des complications du traitement traditionnel des fractures des membres à Parakou. *Revu Chir orthopédie Traumatol.* 103(03 Niamey).
16. Ayite A, Minyoarehe N. Traitement traditionnel des fractures au Niger. *Med Afr Noire.* 1995; 42(12):636–41.
17. Miery JC. Les amputations des membres suite au traitement traditionnel des fractures dans le service de chirurgie orthopédique traumatologique de l'hôpital Gabriel Toure. Université de Bamako; 2005.
18. Bamba I, Agoh S. Les gangrènes gazeuses : à propos d'étiologie insolite. *Publication médicale africaine N° 118.*:34–7.
19. Diakite SK, Diallo AA, Conte FB, Diallo IG KM. Amputation des membres suite au traitement traditionnel des fractures. In: 1er congrès. Bamako: SOMACOT; 2004; p. 55–6.
20. Sidiki T. Complications ischémiques aiguës suite au traitement traditionnel des traumatismes des membres dans les services de chirurgie orthopédique et traumatologique de l'hôpital de Kati et de l'hôpital Gabriel TOURE. Bamako, 2008.
21. Lamah L. complication du traitement traditionnel des fractures : à propos de 36 cas au service d'orthopédie le Dantec de DAKAR. *J la Rech Sci l'université Lomé.* 2010; 12(1).
22. Loubna B. traitement traditionnel en traumatologie orthopédie : aspect médical. Marrakech, 2007.
23. Onuminya JE. The role of the traditional bonesetter in primary fracture care in Nigeria. *S Afr Med J.* 2004.
24. Kuj W. Integration of traditional Chinese and westerner medicine in the treatment of Old limb fracture: report of 94 cases. *Clin Méd.* 1.
25. Diarra E. Aspects épidémiologiques et cliniques des amputations effectuées dans le service de traumatologie de l'hôpital Gabriel TOURE. Université de Bamako, 2001.
26. Diakite AG. Complication et séquelles du traitement traditionnel des fractures des membres inférieurs. Université de Bamako, 2002.
27. Thiam SM. Les aspects, le traitement et l'évolution des complications du traitement traditionnel des fractures à propos de 98 cas à l'hôpital de Kati. Université de Bamako, 1997.
28. Garba ES DPJ. Traditional bone setting a risk factor in limb amputation. *East African Med J.* 1998; 9(75):553–5.
29. Diarra MB. Ortho traumatologie traditionnelle au Mali des techniques thérapeutiques aux Complications. Université de Bamako, 1997.
30. Onuminya JE, Onabowale BO, Obekpa PO ICH. Traditionnal bone setter's gangrene. *Int Orth.* 1999; 23(9):111–2.
31. Alwata I, Sidibe S, Sangare A, Coulibaly TTAA. Les complications du traitement traditionnel des fractures de membres. In: 1er congrès. Bamako: SOMACOT.