

Tuberculous Spondylodiscitis or Pott's Disease: Diagnostic Problem of Patients Referred to the Reference Health Center (CSRef) Commune III of Bamako for Anti-Tuberculosis Treatment

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Abstract

Original Research Article

Introduction: Tuberculosis is an infectious disease that can affect different organs. The spinal disorder is called tuberculous spondylodiscitis (Pott's disease). **The objective:** Was to elucidate the aspects taken into account by caregivers in the diagnosis of tuberculous spondylodiscitis in patients referred to the reference health center of commune III of Bamako for anti-tuberculosis treatment. **Methodology:** This was a descriptive, retrospective study covering all patients referred to CSRef CIII from different health structures with the diagnosis of Pott's disease for treatment during the study period. **Results:** During the study period, we collected 156 patients. The male sex represented 54% with a sex ratio of 1.18. The average age was 39.3 years with extremes of 12 and 92 years. All patients presented with spinal pain, fever was present in 11.11% of patients and 2.7% had respiratory symptoms. Tuberculin IDR was positive in 95.8% and 2 patients were AFB sputum positive. X-ray (of the lumbar spine) was negative in 18%; there were images of degenerative lesions in 41.6% and only 40.2% of patients had presumptive radiological signs. CT was carried out in all patients revealing 33.33% of sequelae of fractures and degenerative lesions and 55.55% of presumptive signs of tuberculous spondylodiscitis. Only 41.66 of the cases were referred by specialist doctors. **Conclusion:** In our context, the diagnosis of Pott's disease seems to be based mainly on chronic spinal pain and positive IDR and is not often made by appropriate personnel.

Keywords: Problematic, diagnostic, tuberculous spondylodiscitis.

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INTRODUCTION

Tuberculosis is an acute, subacute or chronic infectious disease that can affect different organs, preferably the lungs, with well-defined social and economic determinants. It has been, due to its worldwide distribution and its different medical characteristics, a model disease. In 2011, 8.8 million people fell ill with tuberculosis and 1.4 million died. More than 95% of deaths from tuberculosis occurred in low- and middle-income countries [1]. Infection of the spine with Koch's bacillus is called tuberculous spondylodiscitis or Pott's disease [2]. Evidence for the existence of this disease in humans goes beyond written history. Neolithic inhabitants (c. 7000-300 BC) and Egyptian mummies (c.300 BC) already presented spinal anomalies which are today thought to be due to tuberculosis [3]. The diagnosis can be suspected by the symptoms, but a CT scan or MRI is essential. The best method to confirm the diagnosis is

biopsy. Pharmacological treatment is generally sufficient if vertebral destruction is limited and there is no compression of the spinal cord; only the most advanced cases require fixation of the spine by anterior or posterior bone graft [4]. In Mali, with a prevalence of 53 cases per 100,000 inhabitants in 2020 [5] for all cases of tuberculosis, it is the extrapulmonary form which represents 14% of diagnoses with 1 to 8% the bone form which constitutes a real problem. of public health both for patients because of the socio-economic repercussions, and for caregivers due to the considerable increase in cases with the advent of HIV, but above all to diagnostic difficulties. The aim of this study was to elucidate the clinical and para-clinical aspects taken into account by caregivers in the diagnosis of Pott's disease in patients referred to the reference health center of commune III of Bamako for anti-tuberculosis treatment with a view to for a better assessment of its prevalence.

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MATERIALS AND METHODS

Setting: the study took place at the reference health center of commune III of Bamako (CSRéf CIII) currently called health district hospital III located in the center of Bamako. It is a second level reference center which has several services to its credit, medical and surgical including orthopedic traumatology and a tuberculosis unit. The center provides health coverage to more than 119,287 people distributed in 8 operational health areas (community health center) and several private structures.

Type and period: This was a descriptive, retrospective study carried out during the period from February 2019 to January 2023.

Population: The study collected all patients referred to the reference health center of commune III of Bamako from different health structures with a diagnosis of tuberculous spondylodiscitis for anti-tuberculosis treatment.

Inclusion criteria: Included in this study were patients referred to the orthopedic consultation with the following clinical information: Pott's disease; Bone Tuberculosis; Tuberculous spondylodiscitis for anti-tuberculosis treatment confirmed by the preliminary laboratory and radiologist assessment.

Non-inclusion criteria: Patients who did not carry out the additional assessments indicated, in particular CT and AFB sputum, were not included in this study.

Sampling:

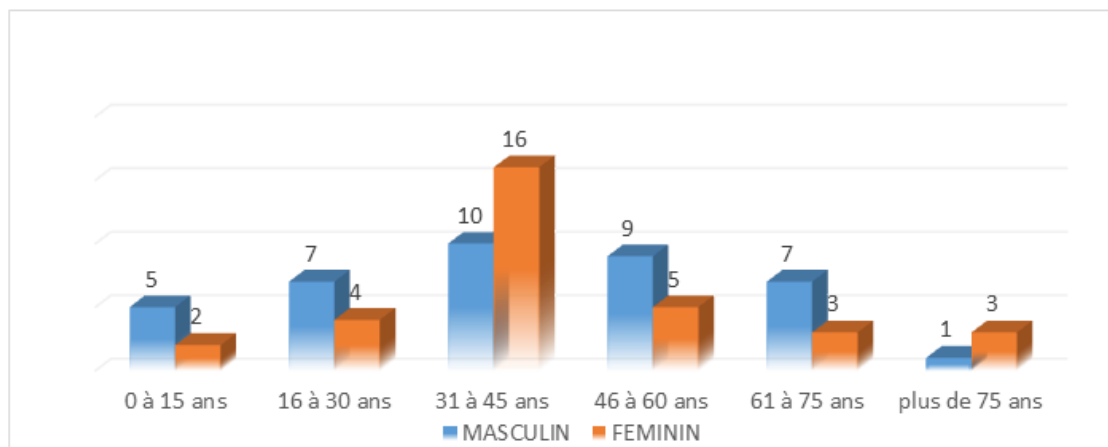
Collection: Information was obtained through patient reference sheets, biological and radiological assessments brought by patients and those requested in the department as well as a survey sheet previously established for this purpose.

Analysis: The data collected was processed by Epi info 7 and Excel software, word processing by Microsoft Word 2013.

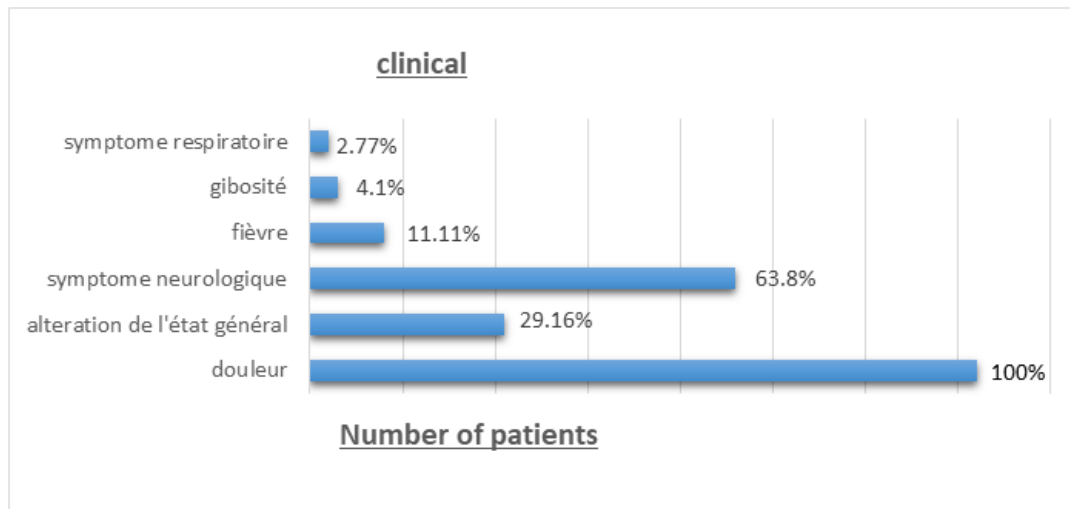
Ethical considerations: The anonymity of the identity of the patients was guaranteed. The small size of the population, as well as the reduced number of variables studied, constitute limitations of our study.

RESULTS

We collected and treated 156 patients during the study period. The sample thus obtained consisted of 72 patients. The male gender slightly dominated (54%) with a sex ratio of 1.18. The most represented age group was 31 to 45 years (26 patients), followed by 46 to 60 years (14 patients). The other age groups were represented by graph 1. The average age was 39.3 with extremes of 12 and 92 years. The majority of referred patients came from university hospitals (32 patients), followed by CSRéf (24 patients) and private health structures (12 patients). Specialized doctors were the largest referents with 41.66% of cases, followed by physiotherapists (23.61%), general practitioners (22.22%); nurses (12.5%). All patients presented spinal pain as the predominant symptomatology, 11.11% had a fever at some point in the course of the disease and only 2.7% of patients presented respiratory symptoms. The other clinical manifestations were represented by Graph 2. IDR (intradermore tuberculin test) was positive in 95.8% of referred patients and only 2 out of 72 patients were positive for AFB sputum. The lumbar spine x-ray was normal in 18% of patients, 41.6% presented images suggestive of degenerative osteoarthritis lesions. Presumptive radiological signs of tuberculous spondylodiscitis were present in 40.2% of patients. The lesions shown on radiography have been reported in Table (I). Computed tomography (CT) performed in all patients was normal in 8 cases, degenerative osteoarthritic lesions and sequelae of fractures were present in 33.33% of cases and strongly presumptive of tuberculous spondylodiscitis in 55.55% of cases.



Graph 1: Distribution of patients by age and sex



Graph 2: Distributions of patients according to clinical manifestations

Table I: Patient distributions according to standard radiography

	Without alterations	Osteophytic beaks Marginal, pinch The spinal line	Vertebral osteolysis, geodes, sequestra, osteocondensation, vertebral compression, kyphosis	Others
Cervical spine			2	
Dorsal spine	6	10	11	
Lumbar spine	7	20	16	
Total	13	30	29	

DISCUSSION

If osteoarticular tuberculosis was more common in children before preventive measures with BCG vaccination, today this condition has a much greater incidence in adults [6]. On the other hand, in poor countries with poor health coverage, Pott's disease continues to affect the pediatric population. The majority age group in our series was 31 to 46 years old with 36.11%. This result is comparable with those in the literature with a predominance of young adults such as that of Toloba Y *et al.*, [7] who obtained 52% of cases between the age group of 29 to 35 years and of Mohamed D *et al.*, [8] in Ivory Coast (Cocody University Hospital) with an average age of 43 years. Pott's disease appears more and more as an adult disease since the systematic practice of BCG vaccination and the significant reduction in infantile forms which previously characterized it [9]. Pain is the main complaint of patients referred for Pott's disease to our department. All patients presented with spinal pain that was resistant to treatment. Spine pain was reported by Mohamed D and TRAORE M [8, 10] with 98.8 and 82.4% of cases respectively. The pain is explained by the destruction of spinal structures (body and/or spinal disc) by Koch's bacillus, with inflammation and compression of the nerves and other neighboring tissues. This phenomenon is necessarily preceded by the dissemination of the germ and its local multiplication which can cause asthenia, anorexia and fever. But the insidious nature of the disease means that many patients ignore these initial symptoms. Gibbosity, which was once considered as a

presentation card for Pott's disease, is none other than a bony complication of the disease (vertebral collapse). Its low incidence of 4% in our study could be explained by the early treatment of the majority of patients with anti-tuberculosis drugs. The variation in biological parameters is specific for each patient with Pott's disease. Inflammatory markers such as c-reactive protein (CRP) and erythrocyte sedimentation rate (ESR) may be normal or increased and leukocytes are most frequently within the norm [11]. We performed the blood count (CBC) which was normal in 73.6% of patients, ESR (66.66%) and CRP (55.55%). Our rate of normality of these biological examinations does not differ from those in the medical literature [1, 3, 4, 11]. These assessments have very little importance in the diagnosis of bone tuberculosis, but they may be indicated for the differential diagnosis. The IDR (intradermoreaction with tuberculin) was positive in 95.8% of patients who were referred to us with the diagnosis of Pott's disease for treatment. It is a test frequently used in our health structures. Its principle consists of inoculating under the patient's skin, a protein fragment obtained from *Mycobacterium tuberculosis*, which provokes a skin immune response if the patient has been in contact with Koch's bacillus, which is then interpreted by measurement. It has very little diagnostic value for active tuberculosis due to its low sensitivity and specificity. False negative results are common in immunocompromised patients and those with fulminant tuberculosis. Positive reactions are obtained in patients infected with *Mycobacterium Tuberculosis* but without active lesions and in people sensitized by non-

tuberculous mycobacteria or who have been vaccinated with Bacillus Calmette and Guérin (BCG) [12].

In our social context where tuberculosis continues in endemic form, and the majority of the population has been vaccinated with BCG, the IDR cannot be considered as a reliable test in the diagnosis of bone tuberculosis, but this study demonstrates that it constitutes one of the main reasons for referral of patients to our center for anti-tuberculosis treatment. Our observation differs from that of Traoré M [10] who considers the IDR as a good element of diagnostic presumption in the absence of anatomopathology. Imaging undoubtedly constitutes one of the pillars of the diagnosis of Pott's disease [13]. Standard radiography, even if it is not very specific, makes it possible to visualize certain lesions strongly suggestive of Pott's disease since the first weeks of the disease. In our series, 18% of patients had a normal radiograph and 41.6% presented degenerative lesions. Only 40.2% of cases revealed one or more presumptive images of Pott's disease, which differs from that of Mariam Gbané-Koné *et al.*, [14] who obtained 61.54% of suspicious cases with standard radiography. For greater precision and sensitivity, computed tomography (CT) was requested in all patients and revealed lesions characteristic of Pott's disease in 55.55% of cases. This result does not agree with those of Mohamed D *et al.*, [8] in Ivory Coast with 95.13% of cases confirmed by CT. This difference in sensitivity implies a serious diagnostic problem for Pott's disease in our different health structures. Other elements would therefore be taken into account in their diagnoses while ignoring imaging which currently constitutes the key element in our context for the diagnosis of this disease.

From the referral of patients from different health structures, we found that only 41.66% of patients were referred by specialist doctors, the rest by general practitioners, medical assistants and major nurses. Extrapulmonary tuberculosis, which is one of the complications of tuberculosis, can affect the bones and joints, the meninge, the lymph nodes, the kidneys, etc. When tuberculosis affects these organs, it can be difficult to diagnose [15]. The biological assessment is of little importance, the clinical signs are vague and non-specific, the culture of secretions and AFB sputum are often negative. In view of all these diagnostic hazards, specialist doctors (Orthopedist-traumatologist, Infectious disease specialist, Internist, Rheumatologist, Neurosurgeon and Radiologist) are health professionals sufficiently qualified in the diagnosis and monitoring of the treatment of tuberculous spondylodiscitis. Mali's sectoral health policy was built on a health pyramid structure, the first level of which is the community health center (CSCOM), the second level is the reference health center (CSRéf), the third and fourth are respectively regional and national hospitals [16]. The nature of the references therefore respects the order of the health pyramid, that is to say from the CSCOM (2 patients) and

private structure (12 patients) to the CSRefs. University hospitals do not have anti-tuberculosis drugs to treat cases of Pott's disease; this is what explains the 32 cases of referrals to our structure. The 24 patients referred by other CSRefs obey the national health policy of bringing care closer to the population.

CONCLUSION

The diagnosis of patients referred to our center for anti-tuberculosis treatment seems to be based mainly on chronic spinal pain resistant to treatment and the positive IDR and it is not most often carried out by competent health personnel authorized to do so. On the other hand, the health pyramid and the policy of bringing care closer to the population are well respected.

BIBLIOGRAPHY

1. Reinaaldo, R. G. (2017). *Thème de Médecine interne 5eme édition, tome I, éditorial Ciencias Medicas*, La Havane 2017.
2. Greenspan radiologie des os et articulation de Adam Greenspan, editorial: Marban 2017.
3. Canal de chirurgie orthopédique de Campbel. 10eme Edition volume 2 Chap. 40 [2041 à 2044].
4. Manuel Merck, 10e édition, édition du centenaire. sec. 5 maladies de l'appareil locomoteur et du tissu conjonctif, chap. 54 infections des os et des articulations.
5. Marietou, T., Coulibaly, S., Konaté, M. S., & Traoré, T. (2022). Profil épidémiologique des patients ayant abandonnés leurs traitements antituberculeux dans le district sanitaire de la commune VI de Bamako de 2018-2020. *Mali Santé Publique*, 70-78. doi: 10.533118/msp.v12i01.2426 <https://www.revues.ml>
6. Orthopédie et traumatologie de Silberman Varaona. deuxième édition. Editorial médical: Panamericana.
7. Toloba, Y., Diallo, S., Maiga, Y., Sissoko, B. F., Ouattara, K., Soumare, D., & Sidibe, S. (2011). Tuberculose Vertébrale (Mal De Pott): Aspects Epidemio Clinique, Radiologique Et Evolutif Au Chu Du Point-G. Spinal Tuberculosis (Pott's Disease): Epidemiological, Clinical, Radiological And Evolutionary Aspects At University Hospital Center Of Point G. *Mali médical*, 26(2).
8. Diomandé, M., Coulibaly, Y., Goua, J. J., Bamba, A., You, N. C. K., & Eti, E. (2023). Mal de Pott à Abidjan: expérience du service de rhumatologie du CHU de Cocody à propos de 420 cas. *Tunisie Medicale*, 101(1), 19-25.
9. Barriere, V., Gepner, P., Bricaire, P., Bletry, O., & Canmes, E. (1990). Aspects actuels de la tuberculose vertébrale à propos de 16 observations, *Annale Médecine Interne*, 150(5), p 363.
10. Traoré, M. (2021). Aspects épidémiologique, clinique, radiologique et thérapeutique de la spondylodiscite tuberculeuse au service de neurochirurgie du CHU Gabriel Touré, thèse doctoral, année 2021, FMOS.

11. Del Puppo, L., Janssens, J. P., Kherad, O., Younossian, A. B., & Fresard, M. I. (2016). Tuberculose osseuse: quand faut-il y penser. *Rev Med Suisse*, 12(504), 262-265. Site: <http://www.revmed.ch>.
12. Principes de la Médecine interne Harrison. 16eme édition version Espagnol, editorial Mc Graw Hill, partie VI, chap 150 pag 3972.
13. Fedoul, B., Chakour, K., & Chaoui, M. E. F. (2011). Le mal de Pott: à propos de 82 cas. *Pan African Medical Journal*, 8(1).
14. Gbané-Koné, M., Ouattara, B., Diomandé, M., Sessou, V., Kaboré, F., Djoko, K. F., ... & Eti, E. (2015). Apport de la tomодensitométrie dans le diagnostic de la tuberculose vertébrale à propos de 496 cas à Abidjan. *The Pan African Medical Journal*, 20, 201. doi:10.11604/pamj.2015.20.201.5996
15. Edward, A. (2022). Le Manuel MDS version pour le grand public, Tuberculose, Harvard Medical school, vérifié et révisé en 2022. Mdsmanuals.com
16. Mamadou, K. K., Bakary K., & Fatoumata, D. Politique de santé communautaire et viabilité économique et sociale des centres de santé communautaire au Mali. Etude de cas en milieu urbain et rural <http://www.unrisd.org>