Open Access Library Journal
2025, Volume 12, e12852
ISSN Online: 2333-9721
ISSN Print: 2333-9705

Multi-Resistant Lymph Node Tuberculosis: A Case Reported in the Lomami Province in the Democratic Republic of the Congo

Theddy Kazadi Kabeya[1,2], Dieudonné Mutombo Nsomue[3], Célestin Katako Lwayo[3], Sylvain Mbayi Wa Mpata[2], Jean Muembo Muembo[2], Ruben Mutamba Mutondo[4]

[1]School of Public Health, University of Mwene-Ditu, Mwene-Ditu, Democratic Republic of the Congo
[2]Provincial Health Division, Kabinda, Democratic Republic of the Congo
[3]Kabinda General Reference Hospital, Kabinda, Democratic Republic of the Congo
[4]School of Public Health, University of Kabinda, Kabinda, Democratic Republic of the Congo
Email: tricktheddy@gmail.com

How to cite this paper: Kazadi, T.K., Mutombo, D.N., Katako, C.L., Mbayi, S.W.M., Muembo, J.M. and Mutamba, R.M. (2025) Multi-Resistant Lymph Node Tuberculosis: A Case Reported in the Lomami Province in the Democratic Republic of the Congo. *Open Access Library Journal*, **12**: e12852.
https://doi.org/10.4236/oalib.1112852

Received: December 22, 2024
Accepted: February 16, 2025
Published: February 19, 2025

Abstract

Drug-resistant tuberculosis is a major challenge for the World Health Organisation (WHO). The emergence of multi-drug resistant tuberculosis is becoming increasingly apparent in Lomami hospitals. However, until now the forms reported have been pulmonary. We report here a case of multidrug-resistant extra-pulmonary tuberculosis (EPTB), the lymph node form. The case was diagnosed at the Kabinda General Referral Hospital (GRH). This case is reported to draw the attention of clinicians to the diagnosis of resistance in extrapulmonary forms and to demonstrate the importance of monitoring patient histories for the early diagnosis of drug-resistant tuberculosis.

Subject Areas

Public Health

Keywords

Lymph Node Tuberculosis, Resistance, Tuberculosis Drugs

1. Introduction

Tuberculosis is one of the diseases considered to be a major public health problem, given its high morbidity (10.8 million cases) and the number of deaths (1.25 million). It is the main cause of death due to a single infectious agent and one of the ten leading causes of death in the world. WHO estimates that around 400,000 people have developed multidrug-resistant and rifampin-resistant tuberculosis

(TB MR/RR), or 3.7% of all cases. In Africa, there are an estimated 60,000 cases of TB MR/RR. However, only 37.5% were confirmed in 2023 [1]. The missing cases are thought to be linked to low laboratory coverage with rapid diagnostic tests and antibiotic susceptibility tests [2].

The Democratic Republic of the Congo (DRC) is one of the 30 countries in the world with the highest burden of tuberculosis, and ranks 2nd in Africa [1]. The pulmonary form is the most common, estimated at 80% [3], and the remaining 20% are extra-pulmonary forms such as bone, meningeal, pleural, pericardial, intestinal and lymph node tuberculosis etc. [4]. The lymph nodes are the most frequent extra-pulmonary localisations of tuberculosis in various sites [4]-[7]. Efforts to combat this disease have been complicated by the appearance of strains of *Mycobacterium Tuberculosis* (*M. tuberculosis*) resistant to commonly used anti-tuberculosis drugs [8] [9] and this resistance is becoming a challenge in the programmatic management of tuberculosis. In accordance with WHO recommendations, the National Tuberculosis Control Programme (NTCP) in the DRC has included in its guidelines the use of rapid tests, in particular the Xpert MTB-Rif Ultra and Xpert MTB-XDR, for the early diagnosis of tuberculosis and also of resistance to tuberculosis drugs [10]-[12]. Due to the scarcity or absence of samples to test for extrapulmonary forms and the variability of the sensitivity of the results according to these samples to Xpert [12] [13], clinicians at Diagnostic and Treatment Centers (DTC) often do not consider requesting Xpert, much less microscopy. In addition, managers involved in the programmatic management of the fight against tuberculosis are more likely to emphasise resistance to tuberculosis drugs for the pulmonary form. This report presents, with the approval of the parents, a case of multidrug-resistant lymph node tuberculosis diagnosed at the Kabinda GRH in Lomami Province in the DRC, to draw the attention of clinicians to the diagnosis and demonstrate the importance of monitoring patient histories for the diagnosis of drug-resistant tuberculosis.

2. Observation

The patient was a 13-year-old girl who came to the clinic with a cough. She had a history of first-degree contagion. Her biological mother and younger sister had suffered from multi-resistant pulmonary tuberculosis. They were treated at the Kabinda GRH and declared cured two years ago. The history of her illness goes back about two weeks, beginning with a dry cough associated with anorexia, fever without a timetable and progressive weight loss. The clinical examination was marked by adenopathies in the cervical region under the mandible on both sides. These were multiple lymph nodes of different sizes, mobile, hard and slightly painful. The rest of the clinical examination, of the thorax and lungs in particular, revealed nothing abnormal. Her weight was 27 kg. Results of laboratory tests (Hemoglobin, white blood count, white blood cell, erytrhocyte sedimentation rate, alanine transamine, asparate aminotransferase, urea, creatinine) were within normal limits HIV serology was negative. The chest X-ray did not reveal any

abnormal images suggesting tuberculosis. Testing for Acid fast bacilli was not possible due to a lack of sputum. The Xpert MTB-RIF Ultra test was performed on a lymph node biopsy fragment from this patient. The Xpert MTB-RIF Ultra test detected *M. tuberculosis* in small quantities with rifampicin resistance. Immediately afterwards, the same sample was analysed by Xpert-XDR. The result was *M. tuberculosis* detected and resistance to isoniazid detected; resistance to other anti-tuberculosis drugs (Fluorquinolone, Amikacin, Kanamycin, Capreomycin and Ethionamide) was not detected. On the basis of these results, the diagnosis of multidrug-resistant lymph node tuberculosis was retained. This patient was treated with the following second-line anti-tuberculosis regimen 6Bdq–4(Lfx–Cfz–Z–E–Hh–Pto)/5 Lfx–Cfz–Z–E with good clinical evolution.

3. Discussion

Around two decades ago, the momentum gained in the fight against tuberculosis was shattered by the emergence of strains of *M. tuberculosis* resistant to the usual anti-tuberculosis drugs. This resistance may be due to a single anti-tuberculosis drug (monoresistance) or to two or more tuberculosis drugs (polyresistance). In the latter case, when there is simultaneous resistance of *M. tuberculosis* to Rifampicin and Isoniazid, we speak of multi-resistant tuberculosis [7] [9]. A healthy person can therefore be directly contaminated by resistant germs. In certain circumstances, a patient suffering from tuberculosis can see his or her Mycobacterium develop resistance (secondary resistance).

The majority of existing literature deals with drug resistance in pulmonary tuberculosis. However, in addition to pulmonary tuberculosis, there is also the extra-pulmonary form. Admittedly, bacteriological confirmation of EPTB is limited by the lack of *M. tuberculosis* in samples from extrapulmonary sites, and by the fact that there are sites from which it is impossible to collect samples [14]. In view of the above, the majority of tuberculosis control programmes do not place particular emphasis on the possibility of drug-resistant extra pulmonary tuberculosis. Furthermore, there is no difference between the clinical presentation of drug-susceptible and drug-resistant tuberculosis [15]. The logical consequence is that health care providers and clinicians pay little attention to this form of tuberculosis, with the risk of making the diagnosis very late. The use of rapid molecular tests is a great opportunity for the early diagnosis of tuberculosis, but also of drug resistance in extra pulmonary forms [2] [14] [16].

It is also important to note the importance of complying with the Xpert MTB test algorithms. According to DRC guidelines based on WHO recommendations, when the Xpert MTB-RIF test detects *M. tuberculosis* and rifampicin resistance, this sample must be subjected to the Xpert MTB-XDR or LPA test to look for resistance to Isoniazid, fluoroquinolones, injectable aminoglycosides and ethionamide too [10]. In our case, this algorithm was followed and the resistance detected concerned only Rifampicin and Isoniaside. In our opinion, resistance to other anti-tuberculosis drugs is not impossible. In this case, given that we are

dealing with a contact case of two former cases of multi-resistant tuberculosis, it goes without saying that the resistance can only concern these two tuberculosis drugs.

Our observation corroborates the results of a study conducted in Tunisia, which showed that the implementation of the Xpert MTB/RIF test can considerably improve the rapid diagnosis of lymph node tuberculosis [17]. Providers find it difficult or late to diagnose drug-resistant extra pulmonary forms, which leads to wastage of drugs and poor treatment outcomes [18]. In our region, cervical adenopathy can be caused by a number of diseases such as infections of the otorhinolaryngological sphere, human African trypanosomiasis, HIV infection, etc. These diagnoses have been excluded on the basis of the patient's clinical picture and the results of blood tests carried out.

Compared with other reported cases of drug-resistant EPTB, in our case the diagnosis was made early thanks to the vigilance of the providers at the Diagnostic and Treatment Centre (DTC). Given that the clinical presentation is similar in cases of drug-sensitive and drug-resistant tuberculosis [15], a thorough search of the patient's history for the notion of contagion in general, and drug-resistant tuberculosis in particular, is essential to guide clinicians. The case under review is a good example of this approach. On history-taking, the clinician was quick to identify that the patient in his presence was a contact case of two former cases of drug-resistant pulmonary tuberculosis, which led him to think not only of tuberculosis but also of the drug-resistant form. This diagnosis was confirmed by Xpert tests. According to the guidelines of the DRC's NTP, contacts of new or old cases of drug-resistant tuberculosis are immediately considered as presumed drug-resistant cases. The knowledge that the patient reported here is a first-degree contact immediately drew attention to the need to consider testing with Xpert MTB/Rif Ultra. The type of resistance to tuberculosis drugs can vary from one patient to another, from one country to another, depending on the risk factors and the regimens used. In our case, it was multi-drug resistance. Cases of drug-resistant lymph node tuberculosis have already been reported.

According to a case report from Rabat in Morocco, one case of pre-XDR axillary lymph node tuberculosis was recorded [15]. In India, 118 cases of drug-resistant lymph node tuberculosis were reported. The resistance was to rifampicin, isoniazid or both, fluoroquinolones and other injectable tuberculosis drugs. This is the highest figure in the world. It is linked to the high prevalence of TB in this country, which remains the first among the 8 most affected countries in the world [19]. These latter cases were diagnosed on the basis of culture and sensitivity testing. This was linked to the means of diagnosis available and the treatment regime at the time. At present, WHO recommendations emphasise the use of rapid molecular diagnostic tests. In a study conducted on the analysis of cervical lymph node samples from a tertiary hospital, all 7 cases reported were resistant to Rifampicin [16]. This may be due to the fact that at the time of this study, XDR cartridges or LPA were not available to search for a possible combination of resistance to

Rifampicin and Isoniazid and other anti-tuberculosis drugs, as was the case for our patient. However, in a study conducted in Mumbai, cases of multidrug-resistant lymph node tuberculosis and even pre-XDR and XDR tuberculosis were found [20]. The study carried out in Hunan Province in China is one of the few to have reported several cases of mono-resistant, multi-resistant, pre-XDR and XDR lymph node tuberculosis located at several sites in the body [7]. This high number must be linked to the long study period, the study environment, the availability of molecular diagnostic tools in this hospital specialising in pneumology and the prevalence of drug-resistant tuberculosis in this province, which is one of the highest in the world. In our observation, only one case of multidrug-resistant lymph node tuberculosis was reported, for the reasons mentioned above, including the lack of attention on the part of providers, the absence of very clear guidelines on the subject, and the low proportion of EPTB. The number of cases of drug-resistant lymph node tuberculosis, although variable from one study to another, remains low given the prevalence of drug-resistant tuberculosis in the country and the poor availability of diagnostic tools in health care institutions. In our opinion, if all clinicians involved in the management of tuberculosis in DTC could request Xpert MTB/Rif as part of the initial analysis of lymph node tuberculosis, the proportion of bacteriologically confirmed cases could improve, and possibly that of drug-resistant tuberculosis. The normal results of the tests carried out are thought to be related to the fact that the disease was still in its early stages, and to the early diagnosis, given that extrapulmonary forms are more common in children. The treatment instituted was appropriate and adapted to the patient's age according to the treatment regimen recommended by the WHO [21].

4. Conclusion

Mycobacterium resistance to anti-tuberculosis drugs does not only affect the lungs, but also extra-pulmonary sites such as lymph nodes. Early detection of tuberculosis and access to rapid diagnostic tests could reveal certain resistant extrapulmonary forms. In view of the increase in cases of drug-resistant tuberculosis, it would be desirable to conduct a study to determine the prevalence and clinical characteristics of lymph node tuberculosis resistant to the usual anti-tuberculosis drugs in our province.

Acknowledgements

We thank the authorities of the Kabinda Hospital, all the nurses involved in the DTC of this hospital as well as the team of the Provincial Leprosy Tuberculosis Coordination for their collaboration which allowed the diagnosis and the good management of this case.

Authors' Contributions

Kazadi coordinated the management of this fight and the design of this manuscript, Mutombo and Katako consulted, ensured the collection of samples and

ensured the follow-up of the patient, Muembo and Mbayi contributed to the confirmation of the diagnosis and Mutamba carried out the revision of the manuscript. All authors have read and approved it.

Conflicts of Interest

The authors declare no conflicts of interest.

References

[1] WHO (2024) Global TB Report 2024. https://iris.who.int/bitstream/handle/10665/379339/9789240101531-eng.pdf?sequence=1

[2] Slim-Saidi, L., Mehiri-Zeghal, E., Ghariani, A. and Tritar, F. (2015) Nouvelles méthodes de diagnostic de la tuberculose. *Revue de Pneumologie Clinique*, **71**, 110-121. https://www.em-consulte.com/article/966366/nouvelles-methodes-de-diagnostic-de-la-tuberculose https://doi.org/10.1016/j.pneumo.2015.02.002

[3] Amadou, M.L.H., Abdoulaye, O., Amadou, O., Biraïma, A., Kadri, S., Kabiru, A.A., *et al.* (2019) Profil épidémiologique, clinique et évolutif des patients tuberculeux au Centre Hospitalier Régional (CHR) de Maradi, République du Niger. *Pan African Medical Journal*, **33**, Article 120. https://doi.org/10.11604/pamj.2019.33.120.17715

[4] Hamrouni, S., Daoud, F., Aydi, Z., Rachdi, I., Zoubeidi, H., Dhaou, B.B., *et al.* (2017) Tuberculose extra-pulmonaire: Aspect épidémiologique, cliniques et évolutifs. *La Revue de Médecine Interne*, **38**, A241. https://www.em-consulte.com/article/1180021/tuberculose-extra-pulmonaire%EF%BF%BD-aspect-epidemiologiq https://doi.org/10.1016/j.revmed.2017.10.269

[5] Hochedez, P., Zeller, V., Truffot, C., Ansart, S., Caumes, É., Tubiana, R., *et al.* (2003) Caractéristiques épidémiologiques, cliniques, biologiques et thérapeutiques de la tuberculose ganglionnaire observée chez des patients infectés ou non par le VIH. *Pathologie Biologie*, **51**, 496-502. https://doi.org/10.1016/s0369-8114(03)00145-7

[6] Chahboune, M., Barkaoui, M., Iderdar, Y., Alwachami, N., Mourajid, Y., Ifleh, M., *et al.* (2022) Profil épidémiologique, aspects diagnostiques et évolutifs des patients tuberculeux au centre de diagnostic de la tuberculose et des maladies respiratoires de Settat, Maroc. *Pan African Medical Journal*, **42**, Article 185. https://pmc.ncbi.nlm.nih.gov/articles/PMC9508374/ https://doi.org/10.11604/pamj.2022.42.185.35250

[7] Fang, T., Xiang, Y., Li, W., Liu, B., Liu, H., Wu, Y., *et al.* (2024) Analysis on Epidemiological and Drug Resistance Characteristics of Lymph Node Tuberculosis from Hunan Province, China. *Frontiers in Public Health*, **12**, Article 1432065. https://doi.org/10.3389/fpubh.2024.1432065

[8] Misombo-Kalabela, A., Nguefack-Tsague, G., Mireille, G.C., Ze, E.A., Diangs, K., Panda, T., *et al.* (2016) Facteurs de risque de la tuberculose multi-résistante dans la ville de Kinshasa en République Démocratique du Congo. *Pan African Medical Journal*, **23**, Article 157. https://pmc.ncbi.nlm.nih.gov/articles/PMC4967428/ https://doi.org/10.11604/pamj.2016.23.157.6137

[9] Gallant, V., Vachon, J. and Siu, W. (2017) La résistance aux antituberculeux au Canada: 2006 à 2016. *Relevé des maladies transmissibles au Canada*, **43**, 269-275. https://doi.org/10.14745/ccdr.v43i11a05f

[10] WHO (2020) Consolidated Guidelines on Tuberculosis: Module 3: Diagnosis-Rapid Diagnostics for Tuberculosis Detection. World Health Organization. (WHO Guidelines Approved by the Guidelines Review Committee). http://www.ncbi.nlm.nih.gov/books/NBK570420/

[11] Opota, O., Mazza-Stalder, J., Greub, G. and Jaton, K. (2019) The Rapid Molecular Test Xpert MTB/RIF Ultra: Towards Improved Tuberculosis Diagnosis and Rifampicin Resistance Detection. *Clinical Microbiology and Infection*, **25**, 1370-1376. https://doi.org/10.1016/j.cmi.2019.03.021

[12] Kohli, M., Schiller, I., Dendukuri, N., Yao, M., Dheda, K., Denkinger, C.M., *et al.* (2021) Xpert MTB/RIF Ultra and Xpert MTB/RIF Assays for Extrapulmonary Tuberculosis and Rifampicin Resistance in Adults. *Cochrane Database of Systematic Reviews*, No. 1, CD012768. https://pubmed.ncbi.nlm.nih.gov/33448348/ https://doi.org/10.1002/14651858.cd012768.pub3

[13] Kay, A.W., Ness, T., Verkuijl, S.E., Viney, K., Brands, A., Masini, T., *et al.* (2022) Xpert MTB/RIF Ultra Assay for Tuberculosis Disease and Rifampicin Resistance in Children. *Cochrane Database of Systematic Reviews*, No. 9, CD013359. https://doi.org/10.1002/14651858.cd013359.pub3

[14] Ketata, W., Rekik, W.K., Ayadi, H. and Kammoun, S. (2015) Les tuberculoses extrapulmonaires. *Revue de Pneumologie Clinique*, **71**, 83-92. https://doi.org/10.1016/j.pneumo.2014.04.001

[15] Haddaoui, H., Mrabet, F.Z., Aharmim, M. and Bourkadi, J. (2019) Tuberculose extrapulmonaire multi résistante: À propos de 7 cas. *Pan African Medical Journal*, **32**, Article 196. https://doi.org/10.11604/pamj.2019.32.196.17995

[16] Mukhida, S., Vyawahare, C.R., Mirza, S.B., Gandham, N.R., Khan, S., Kannuri, S., *et al.* (2022) Role of Genexpert MTB/RIF Assay for the Diagnosis of Cervical Lymph Node Tuberculosis and Rifampicin Resistance. *Tzu Chi Medical Journal*, **34**, 418-422. https://doi.org/10.4103/tcmj.tcmj_86_22

[17] Ghariani, A., Jaouadi, T., Smaoui, S., Mehiri, E., Marouane, C., Kammoun, S., *et al.* (2015) Diagnosis of Lymph Node Tuberculosis Using the GeneXpert MTB/RIF in Tunisia. *International Journal of Mycobacteriology*, **4**, 270-275. https://doi.org/10.1016/j.ijmyco.2015.05.011

[18] Liu, J., Xie, S., Yu, L. and Su, X. (2019) Multidrug Resistant Lymph Node Fistula Tracheobronchial Tuberculosis. *Medicine*, **98**, e18288. https://doi.org/10.1097/md.0000000000018288

[19] Lohiya, S., Tripathy, J.P., Sagili, K., Khanna, V., Kumar, R., Ojha, A. *et al.* (2020) Does Drug-Resistant Extrapulmonary Tuberculosis Hinder TB Elimination Plans? A Case from Delhi, India. *Tropical Medicine and Infectious Disease*, **5**, Article 109. https://doi.org/10.3390/tropicalmed5030109

[20] Utpat, K.V., Rajpurohit, R. and Desai, U. (2023) Prevalence of Pre-Extensively Drug-Resistant Tuberculosis (Pre XDR-TB) and Extensively Drug-Resistant Tuberculosis (XDR-TB) among Extra Pulmonary (EP) Multidrug Resistant Tuberculosis (MDR-TB) at a Tertiary Care Center in Mumbai in Pre Bedaquiline (BDQ) Era. *Lung India*, **40**, 19-23. https://doi.org/10.4103/lungindia.lungindia_182_22

[21] WHO (2022) Operational Handbook on Tuberculosis. Module 4: Treatment—Drug-Resistant Tuberculosis Treatment. World Health Organization. https://www.who.int/publications/i/item/9789240065116