



Leprosy, Ancient Disease and Modern Anaesthetic Considerations

Kamran Mottaghi , Farhad Safari , Masoud Nashibi , Parisa Sezari 

Department of Anaesthesiology, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Cite this article as: Mottaghi K, Safari F, Nashibi M, Sezari P. Leprosy, Ancient Disease and Modern Anaesthetic Considerations. Turk J Anaesthesiol Reanim 2020; 48(4): 337-9.

Abstract

Leprosy is as old as mankind. Although rare, it could be seen in some parts of the world. Therefore, anaesthesiologists have to be familiar with its consequences and considerations that could pose as a challenge. Here, we report a case of leprosy that was referred to our hospital for debridement of his infected foot.

Keywords: Anaesthesia, leprosy, regional anaesthesia

Introduction

Leprosy (Hansen's disease) is a chronic disease caused by *Mycobacterium leprae* that mainly involves the skin and mucosa of the respiratory tract. It is treatable especially if the treatment is applied at the primary stages of the disease. Although scarcely seen in developed countries, it is also being reported in developing countries. In Iran, even though it is under control, some new cases are being reported. It may cause such outcomes that the patient has to undergo surgery to surpass the complication of the disease. Thus, as an anaesthesiologist, we have to be familiar with this disease and its repercussions on the patient's internal systems and organs. Here, we report a case that was brought to the operating theatre for debridement of infectious leprosy skin lesions.

Case Presentation

A 54-year-old male patient with lepromatous leprosy and diabetes mellitus was scheduled for infected mass excision of lateral malleolus as an emergent surgery.

The patient was a known case of lepromatous leprosy since 1 year ago and diabetes mellitus for 3 years. He received metformin, rifampicin 600 mg once a month, clofazimine 50 mg daily with an additional dose of 300 mg once a month and dapsone 100 mg daily.

On his arrival, heart rate was 84 beats min^{-1} , blood pressure was 115/80 mmHg, respiratory rate was 16 breaths min^{-1} and room air SpO_2 was 96%. His heart and lungs auscultation was normal. Laboratory data were also normal.

Written informed consent was obtained from the patient after explaining the procedure and the risks involved. In the operating room, electrocardiography, non-invasive blood pressure and pulse oximetry were attached, and baseline parameters were noted. An 18-gauge intravenous cannula was secured. A 25-gauge Quincke's spinal needle was inserted via the L4-L5 space with the patient in the left lateral position, and 2.5 cc of 0.5% hyperbaric spinal bupivacaine was administered in the subarachnoid space. After 10 min and assurance of unilateral spinal anaesthesia, the patient was turned back into the supine position, and surgery was started.

Surgery lasted for 30 min, and the patient's haemodynamic indices were normal with no substantial change compared to pre-anaesthetic values. After surgery, the patient was transferred to the post-anaesthesia care unit and monitored for 1 h when the level of sensory block decreased from unilateral T10 (10th thoracic vertebra) level to unilateral L1 (1st lumbar vertebra) level, and then the patient was admitted to the ward and discharged 3 days later without any complication.

Discussion

In Iran, leprosy is called “Khoreh,” which means consumption. In Persian (Jozam) and Turkish (Cüzam) modern languages, the Arabic word “Jozam” has been used as well. This nomenclature refers to the deformities that appear in the final stages of the disease.

Leprosy is as old as mankind. The most ancient evidence of leprosy dates back to 2000 B.C. in India (1). The oldest report in Europe refers to the return of Alexander the Macedonian from India (2). Some authorities believe that the first Persian contamination and encounter with leprosy dated back to 525 B.C. during Cambyses II where the Persian troops came back from the conquest of Egypt, whereas some others believe that the first cases of leprosy in Persia were from merchants trading between Persia and India. Herodotus reported related widespread deaths in Persia (5 centuries B.C.). Avicenna had reported leprosy in his books (3).

The first modern description was done by Hanson in 1873. Currently, India has the largest population of leprosy-affected patients and the most number of new leprosy cases each year as well (4).

Although its number of new cases each year has decreased from 5.4 million in the 1980s to 0.21 million in 2014, new cases are being reported annually (5). Between 2005 and 2015, 433 new cases were diagnosed in Iran (6).

Main Points:

- Leprosy is an uncommon chronic disease mainly affecting skin and mucosa.
- Peri operative care recommendations include considering the risk of aspiration and/or difficulty in airway management, and assessing the involvement of other organs especially respiratory and cardiovascular systems.
- Precautions to protect personnel from contamination is highly advised.
- Neuraxial anesthesia could be a safe technique for selected patients and procedures.

Leprosy is a systemic disease that affects different systems and organs in infected patients. The more advanced the disease (lepromatous leprosy), the more damaged the internal organs and systems would be (7). Since there are few clinical articles regarding the anaesthetic aspects of the disease, most of the considerations about leprosy come from case reports (7).

Cardiovascular involvement may represent itself during leprosy as congestive heart failure, bundle branch blocks, dysrhythmia and increased QTc interval (7, 8). Together with cardiovascular involvement, the affected respiratory system is a challenge for anaesthesiologists as well; the largest numbers of bacilli are colonised in the nasal mucosa, which may endanger the anaesthesiology team. The affected patient may show decreased cough response (7), which potentially increases the risk of aspiration in the perioperative period. Skeletal deformities could be seen as well (7); if these deformities happen in the head and neck, anaesthesiologists should be prepared for a potential difficult airway. Autonomic neuropathy could be another burden to anaesthesiologists. It has been reported and concerns anaesthesiologists about the positioning and potential haemodynamic changes or nerve damage, but there is not much report about these potential problems (7, 8).

Since the disease is systemic, authors emphasise that neuraxial anaesthesia should be applied with greater precautions (7), but there are many reports using neuraxial anaesthesia without any complications (9, 10) or general anaesthesia due to patient refusal to undergo neuraxial anaesthesia (11).

Since our patient suffered an infective wound on the external malleolus, unilateral spinal anaesthesia at the level below the 10th thoracic vertebra (T10) provided the desired level of anaesthesia for short-term surgery without affecting the autonomic system or causing drastic changes in haemodynamics.

Conclusion

In dealing with a systemic disease, the anaesthesiologist is responsible for careful preoperative assessment and patient preparation to obtain the best possible outcome. Since leprosy is an infectious disease, personal considerations should be applied as well to avoid self or other patients and personnel contamination. Although some precautions about spinal anaesthesia exist, we believe that unilateral spinal anaesthesia is the proper choice for patients with leprosy who undergo minor surgery on the lower extremities.

Informed Consent: Written informed consent was obtained from patient who participated in this case.

Peer-review: Externally peer-reviewed.

Author Contributions: Supervision – F.S.; Materials – K.M.; Data Collection and/or Processing – M.N.; Literature Search – K.M., P.S.; Writing Manuscript – K.M., P.S.; Critical Review – F.S., M.N.

Conflict of Interest: The authors have no conflicts of interest to declare.

Financial Disclosure: The authors declared that this study has received no financial support.

References

1. Robbins G, Tripathy VM, Misra VN, Mohanty RK, Shinde VS, Gray KM, et al. Ancient Skeletal Evidence for Leprosy in India (2000 B.C.). *PLoS One* 2009; 4: e5669. [\[CrossRef\]](#)
2. Mark S. Alexander the Great, Seafaring, and the Spread of Leprosy. *J Hist Med Allied Sci* 2002; 57: 285-311. [\[CrossRef\]](#)
3. Mobien. Problem of Leprosy in Iran. *Iran J Public Health* 1976; 5: 1-4.
4. Sengupta U. Elimination of leprosy in India: An analysis. *Indian J Dermatol Venereol Leprol* 2018; 84: 131-6. [\[CrossRef\]](#)
5. Rao PN. Global leprosy strategy 2016-2020: Issues and concerns. *Indian J Dermatol Venereol Leprol* 2017; 83: 4-6. [\[CrossRef\]](#)
6. Mansori K, Ayubi E, Naschi M, Mansouri Hanis S, Amiri B, Khazaei S. Epidemiology of Leprosy in Iran from 2005 to 2015. *Tanaffos* 2017; 16: 144-8.
7. Mitra S, Gombar KK. Leprosy and the anesthesiologist. *Can J Anaesth* 2000; 47: 1001-7. [\[CrossRef\]](#)
8. Mitra S, Gombar KK, Gombar S. Anaesthetic considerations in a patient with lepromatous leprosy. *Can J Anaesth* 1998; 45: 1103-5. [\[CrossRef\]](#)
9. Ismail HE, El Fahar MH. Sural artery perforator flap with posterior tibial neurovascular decompression for recurrent foot ulcer in leprosy patients. *GMS Interdiscip Plast Reconstr Surg DGPW* 2017; 6: DOI: 10.3205/iprs000103.
10. Ucar M, Sanli M, Ozkan AS, Demiroz D, Erdogan MA, Durmus M. Regional Anaesthesia Management in a Patient with Leprosy: Rare Case with Rare Application. *Turk J Anaesthesiol Reanim* 2016; 44: 37-9. [\[CrossRef\]](#)
11. Hernández. S, Ortiz-Gómez. JR, Salvador. M, Barrena. J, Lobón. AC. Anaesthetic implications of lepromatous leprosy in Europe: case report Rare European experience. *Anestezjologia i Ratownictwo* 2009; 3: 288-91.