

## Lassa fever in a physician and his children: a case report

<sup>1</sup>Godwin .I. Achinge, <sup>1</sup>Abraham O Malu, <sup>1</sup>Bonny A. Ejeh, <sup>1</sup>Peter T. Mbaave, <sup>2</sup>Priscilla M Utoo, <sup>2</sup>Ishaaku A. Bako, <sup>3</sup>Jonathan. T. Kur, <sup>4</sup>Shima K. Gyoh

### Abstract

**Introduction:** We report a confirmed case of Lassa fever in a physician and two of his children with the aim of reminding healthcare workers on the risk of acquiring and transmitting Lassa fever.

**Methods:** A 55 year old male physician presented with acute febrile illness with no response to antimalarial and antibiotic drugs necessitating referral to the teaching hospital. On review, he had fever, headache, generalized malaise, cough, abdominal pain and diarrhea and was febrile (T-38.5°C). Patient was treated for septicaemia with ceftriaxone. He developed subconjunctival haemorrhages and bleeding from injection sites that progressed to multiple organ dysfunction (coagulopathy, acute kidney injury, acute respiratory distress syndrome and circulatory collapse). An assessment of acute viral haemorrhagic fever (Lassa fever) was made. Resuscitation was unsuccessful and he died. The Physician had treated

a patient with symptoms consistent with Lassa fever who also died.

**Results:** Lassa fever was confirmed by RT-PCR test. Lassa fever was also confirmed in two of the physician's children who were treated successfully with ribavirin. One of the children had sensorineural deafness.

**Conclusion:** The risk of transmitting Lassa fever to other people especially family members is high and the need to practice universal precaution cannot be over emphasised. A high index of suspicion is crucial for the early detection of Lassa fever if mortality and spread to other people is to be curtailed.

**Key words:** Children, Close Contacts, Lassa fever, Physician

High Med Res J 2013;13:56-58

### Introduction

Several epidemic reports show that Lassa fever outbreaks occur very frequently in different parts of Nigeria.<sup>1-4</sup> These outbreaks are increasingly becoming more frequent with widening geographical spread. However, most of the infections pass unnoticed because the clinical presentation may be indistinguishable from other fevers like malaria or typhoid.<sup>5</sup> The index of suspicion for this deadly infectious medical condition has remained very low, therefore, clinicians often miss the diagnosis even when the patients present with classical features of Lassa fever.<sup>6</sup> On many occasions, patients infected with Lassa fever are admitted into the wards, managed for several days and sometime die without a suspicion of the

underlying danger. These patients are nursed together with other patients often without necessary precaution. The missed diagnosis increases the case fatality rate among those infected with Lassa fever as well as the chances of transmitting infection to close contacts and healthcare workers.<sup>6</sup> There are several reports of deaths among healthcare workers from Lassa fever.<sup>5-8</sup> This case report aims to remind healthcare workers of the risk of nosocomial transmission of the Lassa virus within and outside the hospital environment.

### Case Report

A 55year old male physician practising in a private general practice in Makurdi, the capital of Benue state in north central Nigeria presented to our services following a referral from a private hospital in Makurdi, where he had been on admission for three days on account of a febrile illness.

He had developed a persistent high grade fever, abdominal pain, and cough with chest pain for which he was admitted and treated for Typhoid fever and Malaria fever with Ceftriaxone and Artemisinin/Lumefantrene respectively. A physical examination revealed an acutely ill looking middle aged man with a temperature of 38.5°C and a mild bilateral ankle oedema. His pulse was 80beats/ min, full volume and regular. His Blood Pressure was 156/94mmHg, jugular venous pressure was normal,

<sup>1</sup>Department of Medicine, Benue State University Teaching Hospital, Makurdi, Nigeria <sup>2</sup>Department of Epidemiology & Community Health, Benue State University Teaching Hospital, Makurdi, Nigeria <sup>3</sup>Epidemiological Unit, Benue State Ministry of Health, Makurdi, Nigeria <sup>4</sup>Department of Surgery, Benue State University Teaching Hospital, Makurdi, Nigeria

Correspondence to:

Dr. Godwin I. Achinge

Department of Medicine Benue State University Teaching Hospital, Makurdi, Nigeria

E-mail: godwinachinge@yahoo.com

the apex beat was not displaced and heart sounds were normal. He had bilateral basal crepitations with tenderness at the right lumbar region and was conscious and well oriented. There were no other remarkable findings. A diagnosis of acute febrile illness probably septicaemia was made and patient commenced on intravenous Ceftriaxone 2 grams daily while investigations to establish the diagnosis were initiated. Blood chemistry showed significant azotaemia (urea 16.2mmol/L, creatinine 614 µmol/L) and hyponatraemia of 124mmol/L). Packed cell volume was 52%, total white cell count and differential were normal. Serology test for HIV, hepatitis B and hepatitis C were not reactive. Within the next 24hours, he became dyspnoeic, urine output drastically reduced to 30mls/24hours and he developed facial puffiness while the temperature continued to rise (T 39.8<sup>o</sup>c) and was noticed to have developed subconjunctival haemorrhage and was bleeding abnormally from injection sites. Blood pressure was 70/50mmHg and resuscitation for shock was commenced which was unsuccessful and he later died. A tentative diagnosis of viral haemorrhagic fever, possibly Lassa was made and was confirmed by Polymerase Chain Reaction (PCR).

At about the same time, two of the patient's children developed fever for which Lassa was also confirmed using PCR and were successfully treated with Ribavirin, although one of the children developed a sensorineural hearing deficit.

### Discussion

Lassa fever is endemic in Nigeria with the prevalence of antibodies to the virus being approximately 21% in the Nigerian population and outbreaks often affect healthcare providers sometimes with fatal consequences.<sup>9</sup> Lassa fever is also endemic in Liberia, Sierra-Leone and Guinea.<sup>5</sup> Lassa fever seropositivity has also been found in the Central African Republic, Democratic Republic of the Congo, Mali, and Senegal.<sup>8</sup> It is estimated that, the Lassa virus infects about 300,000 – 500,000 people per year with approximately 5,000 deaths each year.<sup>10</sup> Majority of the deaths recorded in Nigeria so far have been among the youths in their primes of life, most especially health personnel and pregnant women.<sup>6</sup> Interestingly, despite its nearly epidemic status in Nigeria, the country is not prepared for Lassa fever outbreak, lacking even the most basic of healthcare tools like running water.<sup>6</sup>

The diagnosis of this deadly zoonotic haemorrhagic fever in a physician at our hospital and the further confirmation of Lassa fever in two members (daughters) of the same physician's family created panic among healthcare workers and other inhabitants of Makurdi town in north central Nigeria. This panic reaction which was first witnessed in 1969 when two nurses died in the first ever Lassa fever epidemic in Lassa village, Borno state and Evangel hospital, Jos

respectively has continued to recur over the years any time a health worker dies from nosocomial Lassa fever disease.<sup>5,7,8</sup> In a review of cases of nosocomial Lassa fever in Nigeria in 1995, Fisher-Hoch et al<sup>6</sup> noted that the hospitals were deserted and there was high level of fear, suspicion and rumour impeding contact tracing.<sup>6</sup> The Makurdi Lassa fever epidemic was raging and killing people unnoticed for several weeks before the diagnosis was first made and the total number of people that died during this Lassa fever outbreak still remains unknown. However, contact tracing had established clustering of cases among families as reported here and among people who attended a particular private hospital about that period similar to the findings by Fisher-Hoch et al.<sup>6</sup>

The Benue State University Teaching Hospital (BSUTH) was not prepared to deal with this highly infectious viral haemorrhagic fever at that time, a situation similar to poor preparedness documented for most African countries where this epidemic occur. The hospital did not have a functional policy on patient isolation nor an isolation ward; personal protective equipments (PPE) were in short supply and inadequate for providing standard protection for the staff and relatives yet, every suspected case of Lassa fever was referred to this hospital for further evaluation, treatment and follow up. Early health education of staff, patients and relatives and enforcement of basic universal precaution of barrier nursing and hand washing, liberal use of disinfectants as well as standard waste disposal methods were critical in preventing the nosocomial spread of this epidemic. With these precautions, the BSUTH did not document any case of hospital transmission of Lassa fever among the Staff, patients or relatives throughout the period of the epidemic. This report suggests that early diagnosis and prompt enforcement of basic precaution are crucial in the management of Lassa fever epidemics and a high index of suspicion remains central to the early detection of Lassa fever if mortality and spread to other people is to be curtailed.

In conclusion, the risk of transmitting Lassa fever from healthcare workers to other people especially family members is apparent. Therefore, the practice of universal precaution and the use of personal protective equipment (PPE) healthcare workers cannot be over emphasised. Government and individual hospitals most provide the enabling environment for standard practice to occur.

### References

1. Fichet-Calvet E, Rogers DJ. Risk maps of Lassa fever in West Africa. *PLoS Negl Trop Dis.* 2009; 3:388.
2. Bowen MD, Rollin PE, Ksiazek TG, Hustad HL, Bausch DG, Demby AH, Genetic diversity among Lassa virus strains. *J Virol.* 2000; 74:6992–7004.
3. Omilabu SA, Badaru SO, Okokhere P, Asogun D, Drosten C, Emmerich P, Lassa fever, Nigeria, 2003 and

2004. *Emerg Infect Dis.* 2005;11:1642-4
4. Ehichioya DU, Asogun DA, Ehimuan J, et al. Hospital-based surveillance for Lassa fever in Edo state, Nigeria, 2005-2008. *Trop Med Int Health* 2012; 1001-1004.
5. Richmond JK, Banglole DJ. Lassa fever: epidemiology, clinical features, and social consequences. *BMJ* 2003;327: 1271-1275.
6. Fisher-Hoch SP, Tomori O, Nasidi A, et al. Review of cases of nosocomial Lassa fever in Nigeria: the high price of poor medical practice. *BMJ* 1995;311: 857-859
7. Frame JD, Baldwin JM, Gocke DJ, Troup JM. Lassa fever, a new virus disease of man from West Africa: Clinical description and pathological findings. *Am. J. Trop. Med. Hyg.* 1970; 19: 670-6.
8. World Health Organization. WHO Lassa fever fact sheet No 179. Geneva:WHO, 2000. <http://www.who.int/inf-fs/en/fact179.html> Accessed April 25, 2015.
9. Tomori O, Fabiyi A, Sorungbe A, Smith A, McCormick JB. Viral hemorrhagic fever antibodies in Nigerian populations. *Am J Trop Med Hyg* 1988;38: 407-10.
10. Ogbu O, Ajuluchukwu E, Uneke CJ. Lassa fever in West African sub-region: an overview. *J Vector Borne Dis* 2007;44:1-11.